Significance to the Horticulture Industry

Amur Maple Propagation

Rooting Efficiency of Amur maple Seedless Selections Produced by Mutagenesis. Andrzej K. Noyszewski and Alan G. Smith. *Journal of Environmental Horticulture* 38(2): 37–43.

This is an ongoing project researching mutagenesis breeding of Amur maple to reduce seed production and invasiveness. Amur maple is classified as a noxious or invasive plant and regulations restrict propagation and sale of this plant limiting customer choice. The seedless selections were used to conduct this rooting experiment. Commercialization of seedless Amur maple selections requires the development of a suitable asexual propagation method; therefore, a rooting experiment was performed. Seedless selections of Amur maple produced through mutagenesis respond differently to growth hormone treatments and levels and the majority of the selections can be efficiently propagated.

Boxwood Blight

Curative Fungicide Activity Against *Calonectria pseudonaviculata*, the Boxwood Blight Pathogen. J. A. LaMondia. *Journal of Environmental Horticulture* 38(2): 44–49.

Boxwood blight caused by the fungal pathogen *Calonectria pseudonaviculata* has been a destructive disease affecting boxwood nursery production and valuable landscape plantings. Management of the disease has been heavily dependent on sanitation and protection with a number of fungicides. While pretreatment with fungicides is most efficacious against the boxwood blight pathogen, infectious periods may occur almost continuously over a long wet period and environmental conditions may limit the ability to apply protectant fungicides prior to infection. In those instances, the reduced incidence, lesion size and inhibition of sporulation demonstrated by post-infection treatment with propiconazole, fluxapyroxad and benzovindiflupyr fungicides demonstrated in these experiments should combine to slow the development of disease and significantly reduce epidemic development, aiding boxwood blight management.

Ranking Resistance of *Buxus* Cultivars to Boxwood Blight – an Integrated Analysis. Matthew Kramer, Henry Guo, and Margaret Pooler. *Journal of Environmental Horticulture* 38(2): 50–55.

Boxwood is a valuable nursery commodity, with more than 11 million plants sold in the United States each year at a market value of $126 million. However, boxwood plants are threatened by boxwood blight, a destructive disease cause by a fungal pathogen that leads to defoliation and plant death in nurseries and established landscapes. The best long-term solution to combat this pathogen is to develop resistant cultivars. Multiple studies have been conducted to screen for resistance among cultivars; however, the results of these studies are sometimes inconsistent as to which cultivars are the most disease resistant. We compiled and evaluated data from several studies to produce a list of cultivars sorted by their susceptibility to boxwood blight. Results will enable further development of consistent and accurate resistance screening protocols and indicate the most promising taxa for developing more resistant cultivars.

Drought-tolerant Turfgrass

Water Savings and Payback Period of a New Drought-Tolerant Turfgrass. Josh Minor, Benjamin Campbell, Clint Waltz, and Joshua Berning. *Journal of Environmental Horticulture* 38(2): 56–62.

As questions around water usage in agriculture continue to gain traction throughout the U.S., it is critical to examine how new plants/grasses can impact water use. 'TifTuf' is a relatively new cultivar of bermudagrass that has increased drought tolerance compared to similar cultivars. Given increasing pressure to conserve water throughout the U.S., there is a desire by many consumers to incorporate more drought tolerate turfgrasses into their landscape. Since 'TifTuf' has been proven to provide increased drought tolerance, it is currently sold at a premium price compared to other bermudagrass cultivars. We found that thousands of liters (L) of water can be saved by utilizing 'TifTuf' even when 'TifTuf' does not achieve the drought tolerance (38% less water need) found by Schwatz (2017). Further, we found the payback period to be under four years for most all cities in the study when only having to recoup the five cent per 0.09 m^2 (one square foot) premium for 'TifTuf'.

Reduced Irrigation

Growth and Flowering of *Salvia nemorosa* 'Ostfrieland' in Response to Reduced Irrigation. Amanda Bayer. *Journal of Environmental Horticulture* 38(2): 63–67.

Controlling plant growth is common in greenhouse and nursery production. Managing the size and flowering of plants is necessary to meet consumer preferences of what quality plant material should look like. More compact plants are also beneficial to both the grower and consumer as more plants can fit in a truck, reducing the shipping cost. Hand pruning and plant growth regulators are commonly used to control plant growth; however, hand pruning is labor intensive and plant growth regulators can vary in effectiveness. Reduced irrigation can be used as a means of growth control, but the degree and timing of the reduced irrigation need to be managed to avoid poor or uneven growth. This study examined the use of reduced irrigation and altering reduced irrigation with higher irrigation volume (well-watered) on growth and flowering of *Salvia nemorosa* 'Ostfrieland'. Reduced irrigation resulted in smaller plants with reduced flower stem length and reduced branching, but plants receiving this treatment were visually appealing. The implementation of reduced irrigation, followed by well-watered conditions resulted in a floppy growth habit that could impact salability. The results of this study show that timing of reduced irrigation applications need to be managed in order to produce plants with desirable growth. Reduced irrigation can be used to produce smaller, visually-appealing *Salvia nemorosa* 'Ostfrieland' without significantly reducing the number of flowers.

Resources of Plant Benefits

An Update of the Literature Supporting the Well-Being Benefits of Plants: Part 4 – Available Resources and Usage of Plant Benefits Information. Charles R. Hall and Melinda J. Knuth. *Journal of Environmental Horticulture* 38(2): 68–72.

This article is the last of a four-part series that provides a review of the substantial body of peer-reviewed research that has been conducted regarding the health and well-being benefits of green industry products and services. While the first article focused on the emotional and mental health benefits that plants provide, the second article focused specifically on the physiological health benefits provided by plants, and the third article spoke directly to the benefits that plants provide to society at large and the role they play in

addressing critical societal issues. This last article in the series provides an overview of resources available for green industry firms to find more detailed information on these plant benefits and strategies to use in strategically incorporating these benefits into both industry-wide and firm-level marketing messages that highlight how quality of life dimensions are affected in order to enhance the perceived value and relevance of green industry products for gardening and landscaping consumers in the future.

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