

# Significance to the Horticulture Industry

## Hazelnut Plant Propagation

### Optimizing IBA Concentration and Stem and Segment Size for Rooting of Hybrid Hazelnuts from Hardwood Stem Cuttings.

Lois Braun and Donald Wyse. *Journal of Environmental Horticulture* 37(1):1–8

Hybrid hazelnuts (*C. americana* x *avellana*) are one of several new perennial and winter annual crops being developed as part of the Forever Green Initiative at the University of Minnesota. As a woody perennial crop, hazelnuts can provide a new revenue source for rural landowners, continuous living cover to prevent soil erosion, protect water quality, and provide wildlife habitat, and a delicious and healthful new local food. The primary obstacle to adoption of hybrid hazelnuts thus far has been lack of improved germplasm. Hazelnut breeders at the University of Minnesota are working to develop improved varieties, but these need to be propagated for deployment to growers. Micropropagation is likely the only method capable of producing large numbers, but thus far, success with micropropagation has been variable. Mound layering is an option, but only produces small numbers of clones. Propagation from stem cuttings is an alternative that can augment mound layering to produce modest numbers of new plants needed for research trials or for small-scale commercial plantings. This paper is the first in a series describing trials to optimize propagation of hybrid hazelnuts from hardwood stem cuttings. We found that  $2 \text{ g L}^{-1}$  (2,000 ppm) indole-3-butyric acid (IBA) in a 50% ethanol solution is the best concentration for rooting cuttings of a range of sizes, and that rooting declines with increasing basal diameter of stems, but increases with increasing length of stem.

## Invasive Ornamental Species

### Insights from Southeastern US Nursery Growers Guide Research for Sterile Ornamental Cultivars.

Allison Bechtloff, Dr. Carrie Reinhardt Adams, Dr. Sandra Wilson, Dr. Zhanan Deng, and Christine Wiese. *Journal of Environmental Horticulture* 37(1):9–18

Despite profound and widespread negative ecological impacts caused by invasive plants, there are few procedures in place to prevent potentially problematic introductions and spread of these species. The risk of ornamental species becoming invasive is particularly high in the southeastern region of the United States (US), where specifically the state of Florida is the second largest producer of ornamental plants nationwide. Phasing out the sale of invasive ornamentals, facilitated by adoption of the non-invasive cultivars, could greatly reduce this source of invasion. As part of planned breeding programs at multiple institutions, sterile cultivars of invasive species that have much reduced or eliminated invasive potential are under development for commercial use. Sterile cultivar development research will have the greatest utility if guided specifically by grower needs and attitudes. In this project, survey responses from participating southeastern nursery and landscape professionals revealed significant sales of four popular invasive ornamentals (sales of one study species was not reported). Accordingly, sterile cultivar research on all species investigated is viewed as productive, with Heavenly bamboo and Chinese privet as the most immediate research needs. The availability of sterile cultivars was viewed as important, and as having a positive impact

on businesses. We conclude that focused work on development of cultivars is a promising approach to reducing ornamental contributions to plant invasions, largely due to likely adoption of this technology, facilitated by positive attitudes towards sterile cultivars held by growers in this region.

## Turf Seed Germination

### Optimizing Pre-germination Techniques for Kentucky Bluegrass and Perennial Ryegrass.

Julie H. Campbell, Jason J. Henderson, John C. Inguagiato, Victoria H. Wallace, and Anthony Minniti. *Journal of Environmental Horticulture* 37(1):19–23

Sports turf areas are often intensively trafficked and require constant overseeding to maintain uniform cover. In these high wear situations, the speed of seed germination and development are important to the success and usability of these areas. When establishing worn turf areas, conditions are often not optimal and are likely to be time sensitive. Managers are usually facing hard deadlines for playable events. Therefore, knowing the optimal technique for germinating turf seed quickly would be an extremely useful tool for any turf manager. Many anecdotal recipes exist in trade magazines, but there is little scientific literature on the subject. This article helps to fill some of the gaps in the literature and gives turf managers the ability to choose techniques that fit their particular situation to optimize the speed of germination for highly trafficked turf areas.

## Vitex and Pollinators

### Attractiveness of Species of Vitex (Chastetree) to Pollinators.

Susan M. Hawkins<sup>2</sup> and Carol D. Robacker. *Journal of Environmental Horticulture* 37(1):24–29

Ornamental plant breeders who produce cultivars of exotic plant species are increasingly required to prove that their cultivars are not detrimental to the environment. Pollinators have been of special concern in recent years. We explore the attractiveness of Vitex cultivars to pollinators in this study. Our findings indicate that cultivars of Vitex species are attractive to both honeybees and bumblebees, as well as other pollinators, and should be included as part of an urban landscape designed to support pollinators.

## Well-Being Benefits of Plants

An Update of the Literature Supporting the Well-Being Benefits of Plants: A Review. Charles Hall and Melinda Knuth. *Journal of Environmental Horticulture* 37(1):30–38

This paper is the first of a four-part series that provides a review of the substantial body of peer-reviewed research that has been conducted regarding the economic, environmental, and health and well-being benefits of green industry products and services. This article focuses specifically on the health and well-being benefits. This research should be strategically incorporated into both industry-wide and firm-specific marketing messages that highlight these quality of life dimensions in order to enhance the perceived value and relevance of green industry products for gardening and landscaping consumers in the future.