

# Significance to the Horticulture Industry

## Azalea Lace Bug Control

**Green Lacewings and Water Sprays for Azalea Lace Bug Control.** Jana C. Lee, Barry Finley, S. Michael Flores, Katerina Velasco Graham, J. Megan Woltz, Jessica S. Wong, and Robin Rosetta. *Journal of Environmental Horticulture* 36 (4): 119–125

The azalea lace bug feeds on the leaves of azaleas and rhododendrons, causing unattractive leaf stippling that can prevent consumers from purchasing the plant. Augmentative releases of predators have reduced its abundance on azalea leaves (Shrewsbury and Smith-Fiola 2000), but no information is available on rhododendrons, which have larger leaves and sparser branch architecture. Therefore, we examined the efficacy of a commercially available green lacewing predator, *Chrysoperla rufilabris* on rhododendrons in four outdoor studies. Tapping predator larvae from hexcel units over dry leaves of potted rhododendrons, and shaking loose eggs over wet leaves were reliable application methods. In another study with potted rhododendrons approximately 0.6 m tall (2 ft), a single release of 10 predator larvae per plant reduced lace bugs for 1 to 2 weeks. Next, on large landscape rhododendrons in a garden, bi-weekly treatment with six predator egg cards (approximately 1000 eggs total) or 5 minutes of pressurized water spray on the underside of leaves suppressed lace bugs adults by 70% relative to untreated control plants or plants with releases of approximately 88 2<sup>nd</sup> instar predator larvae. Because predator releases and water sprays may only target certain life stages and not kill all of the pest, treatments would need to be repeated for longer-term suppression. A final trial combined water sprays to first dislodge lace bug nymphs and adults, and then apply egg cards so that hatching predators could later consume hatching lace bugs. This resulted in consistently lower lace bug abundance each week in treated plants compared to control plants, and 68% fewer adult lace bugs 5 weeks after the final treatment application. The combined water and egg treatment provided moderate control of lace bugs and damage among landscape rhododendrons where light infestation is acceptable.

## Biochar and Nutrient Leaching

**Effects of Biochar on Nutrient Leaching and Begonia Plant Growth.** Elizabeth F. Crutchfield, Milton E. McGiffen, Jr., and Donald J. Merhaut. *Journal of Environmental Horticulture* 36 (4): 126–132

Biochar, made from wheat straw, mixed into peat-moss based potting medium at as much as 30% by volume did not affect the growth of Begonia cv. 'Viva' plants. However, the biochar did reduce the leaching of nitrate, ammonium and ortho-phosphate from the potting mixes. We believe biochar could be used in a nursery setting to reduce fertilizer leaching without negatively affecting plant growth.

## Fertilization and Weed Growth

**Effects of Three Fertilization Methods on Weed Growth and Herbicide Performance in Soilless Nursery Substrates.** Cody J. Stewart, S. Christopher Marble, Brian E. Jackson, Brian J. Pearson and P. Christopher Wilson. *Journal of Environmental Horticulture* 36 (4): 133–139

Container growers rely on preemergence herbicides and handweeding to control weeds but the impact of different production practices, such as fertilizer placement methods, needs

further investigation. Results indicate that weed growth may increase where topdressing is used as the sole fertilization method compared with incorporation or subdressing fertilizer at similar rates. Based upon this data, subdressing fertilizer deserves further investigation as a possible means of non-chemical weed control in container-grown ornamental crops. Regardless of fertilization method, growers should expect acceptable control if proper herbicides are chosen for problematic weed species and applied correctly. However, results differed with individual species and thus additional research is needed to fully address how fertilizer placement affects weed growth and performance over a broader range of active ingredients and weed species.

## Micro-irrigation

**Production of *Thuja (standish x plicata)* Using an Automated Micro-Irrigation System and Routine Leaching Fraction Testing in a Container Nursery.** Jeff B. Million and Thomas H. Yeager. *Journal of Environmental Horticulture* 36 (4): 140–145

As water resources become more limiting to container nurseries, it is imperative that growers practice efficient irrigation to maximize profitability. The technology tested in this study involved routine leaching fraction testing coupled with real-time weather monitoring to automatically adjust daily irrigation run times in the field using a web-based irrigation scheduling program for container nurseries called CIRRIG. When the CIRRIG technology was implemented at a commercial container nursery and compared to the nursery's traditional irrigation practice, a water savings of 51% was achieved in the production of a micro-irrigated, trade #15 container-grown landscape plant. While the water savings provided minimal pumping cost savings on a per-container basis, a significant reduction in total water use may increase profitability by allowing nurseries to produce more plants with a given allotment of water granted by consumptive water use permits. Results indicated that additional research is necessary to determine what LF target levels will result in optimal growth with the least amount of water.

## Mites on Roses

**Eriophyoid Mites Found on Healthy and Rose Rosette Diseased Roses in the United States.** Gabriel Otero-Colina, Ronald Ochoa, James W. Amrine Jr, John Hammond, Ramon Jordan, and Gary R. Bauchan. *Journal of Environmental Horticulture* 36 (4): 146–153

Eriophyoid mites are extremely small mites among which *Phyllocoptes fructiphilus* has been shown to be the vector of Rose Rosette Disease. Various microscopy techniques were used in this study to produce high resolution images for the correct identification of the mites and their locations on the rose plants. Surveys of roses from several states within the US indicate the presence of three species of eriophyid mites, *Phyllocoptes fructiphilus*, *Eriophyes eremus*, and *Callyntrotus schlechtendali*. Several predatory mites of the families Phytoseiidae, Cheyletidae and Bdellidae, as well as Tydeidae and Iolinidae, which are predators of mites as well as being fungi feeders, were observed on some of the rose samples. The correct identification of these three species of eriophyoid on roses is the first step in studying their biology and distribution and may aid in preventing the introduction of these exotic and potentially harmful species into other areas. In addition, this information will be useful to rose producers, breeders, growers, plant protection officers, entomologists, biologists and horticultural scientists who are interested in solving the rose rosette disease problem.

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