

CENTER FOR APPLIED NURSERY RESEARCH RESEARCH PROJECTS 2000

Evaluation of *Hydrangea macrophylla* cultivars for remontant flowering and cold hardiness.

Jeffrey A. Adkins and Michael A. Dirr

Flower buds of *H. macrophylla* are formed during the fall as a response to shorter day length and decreasing temperatures. Stem and bud tissues are killed at temperatures below -10° F and early spring frosts can damage leaves, stems and flower buds, which have broken winter dormancy. Some cultivars may have increased tolerance to cold stresses and/or the ability to flower on new growth. *Hydrangea macrophylla* 'All Summer Beauty', 'Dooley', 'Endless Summer', 'Forever Pink', 'Generale Vicomtesse de Vibraye', 'Goliath', 'Mme. Emile Mouilliere' and 'Veitchii' are most often cited by growers and the literature as possessing these characteristics. These types could be marketed as reliably reblooming taxa used as progenitors for breeding superior garden plants with improved flowering characteristics, cold hardiness, disease resistance and growth habit. This research project is designed to determine the remontant flowering potential and /or cold hardiness, the above of the above taxa.

Development of training resources for pest and beneficial insect identification for the nursery.

Kris Braman

Development of resources to assist the on-site pest management team in identification and management of nursery insect pests. Improved IPM through better problem diagnosis. The resources developed will include a display collection of the major insect pests and beneficials and the development of a pictorial pocket guide of major nursery pests and beneficials.

Development and evaluation of formulations of the entomogenous fungus, *Beauveria bassiana*, for red imported fire ant control in nursery plant containers.

Mark A. Brinkman and Wayne A. Gardner

The shipment of nursery plant containers infested with the red imported fire ant (RIFA), *Solenopsis invicta* Buren, from quarantined areas can spread the pest into uninfested areas of North America. The presence of "RIFA in California, New Mexico, and North Carolina has been attributed to these accidental introductions. Nurseries must insure that plant material is free of RIFA in order to continue to market outside of the quarantined area. While chemical insecticides efficaciously control infestations in containers, nursery personnel express continued concern for safety in using conventional insecticides. This study will look at the use of *Beauveria bassiana*, an entomogenous fungus, for red imported fire ant control in nursery plant containers.

Evaluation of native southeastern *Hypericum* species for growth, ornamental characteristics and nursery container culture.

Sara Crockett, Jeff Adkins, Michael A. Dirr

The southeastern *Hypericum* species are evergreen to semi-deciduous shrubs with restrained habit, beautiful foliage and remontant yellow flowers throughout summer. Nothing (almost) is know about their adaptability to nursery production and garden culture. The identification of superior species and selections provides an entirely new group of commercially exciting plants. This study will evaluate native southeastern *Hypericum* species for growth, ornamental characteristics and nursery container culture.

Development of compact, white, pink, red and purple *Lagerstroemia* selections utilizing open-pollinated seedlings of genetically dwarf clones.

Michael A. Dirr

The purpose of this study is the development of compact, white, pink, red and purple *Lagerstroemia* selections utilizing open-pollinated seedlings of genetically dwarf clones. The first true, mildew resistant, genetic dwarf *Lagerstroemia* taxa, 'Chickasaw' and 'Pocomoke' involved 5-parental types and 20- years of crossing and selection. The flower colors are pinkish rose on both types. This work builds on the genius of Dr. Egolf, US National Arboretum, using genetic segregation from these open-pollinated true dwarfs to increase the range of growth habit, foliage, and most important, flower colors.

Influence of benzyladenine dips on growth of *Hosta* cultivars.

James M. Garner and Allan M. Armitage

This study looks at the influence of benzyladenine (BA) dips on growth of *Hosta* cultivars. The application of BA to *Hostas* can promote lateral growth. Dip application to bare-root transplants could allow growers to treat plants efficiently and increase lateral growth upon emergence.

Automated measurement of container temperature and moisture for improvement of irrigation scheduling in nurseries.

Gerrit Hoogenboom and B.P. Varma

A study to evaluate automated measurement of container temperature and moisture for improvement of irrigation scheduling in nurseries. Water is one of the most critical inputs for nursery plants. We propose to dynamically monitor container temperature and moisture, as well as other environmental variables, using automated data logging equipment and sensors. This information will then be used to help develop improved irrigation scheduling systems that can reduce the total amount of water needed for irrigation.

Evaluation of *Abelia* taxa for cold hardiness potential.

Orville Lindstrom, Sloane Scheiber, Carol Robacker, and Michael Dirr

The evaluation of *Abelia* taxa for cold hardiness potential is the goal of this study. The genus *Abelia* contains 30 species that vary in many traits including flower color, growth habit, and hardiness. Interspecific hybridization among various taxa of *Abelia* R. Br. offer the potential for new cultivars with improved flower size, compactness, and adaptation to environmental stresses. Breeders are particularly concerned with the acclimation of woody plants to freezing stress because cold, more than any other environmental factor, limits the northern distribution range. Cold hardiness evaluations are needed for selection of superior parental germplasm and insurance of improved hardiness among progeny.

Reuse of waste media

Bryan Maw and Paul Sumner

This is a continuation of a study started last year looking at the reuse of waste media. There is a need for media from pots to be reused without it being further ground. A separation of pot, media and discarded foliage is needed in order for both pots and media to be reused with only the discarded foliage being ground.

Evaluation of organic fertilizers on the growth of perennials and woody ornamentals.

Wayne J. McLaurin

The evaluation of organic fertilizers on the growth of perennials and woody ornamentals is the subject of this study. In recent years the use of organic fertilizers was replaced by the use of newer, higher analysis fertilizers. With the advent of slow-release fertilizers and their increased use in soil mixes during the past 15 years there has been an interest in the use of organic or "natural" fertilizers since most of their nutrients are in a slow-release form. Current nursery fertilizer mixes are comprised of inorganic, slow-release materials. With the ever-increasing cost of fertilizers and possible water contamination from these products, organics may be an alternative fertilizer source. Reducing cost while not affecting quality is a prime objective for the nursery industry. The use of organic, slow-release fertilizers could benefit this bottom line. Also, growing in an organic medium with organic fertilizer might give a marketing advantage.

Evaluation of Spurge weed control measures.

James T. Midcap

Prostrate spurge has become a serious weed problem in Georgia container nurseries. Identification of herbicides that provide control and proper timing of applications is necessary. This study will evaluate spurge weed control measures.

Control of *Hydrangea* flower color.

James T. Midcap

This study looks at the factors involved in controlling *Hydrangea* flower color. The red bract color of blooming *Hydrangeas* requires a pH of 5.5 or more. Last years results with the micro sized flowable lime produced rapid an effective pH elevation. The rates were quite high requiring a high volume of drench. By lowering the rate and increasing the number of drenches, a more cost-effective rate might be achieved. Also, the pH level that produces the purple/grape color could be identified.

Production of *Abelia* to overcome plant yellowing.

James T. Midcap

Abelia frequently becomes yellow and unsalable by seasons end. What causes this problem has not been identified nor has it been controlled. The proper problem identification and control would result in increased plant sales.

Screening *Loropetalum* cultivars for abnormality caused by high lime.

James T. Midcap

'Sizzling Pink' *Loropetalum* develops leafless twigs and reduced growth when planted early in high lime potting mixes. Other *Loropetalum* cultivars have been reported to exhibit similar symptoms under various production conditions. A screening of the most widely produced selections under controlled conditions would identify the susceptible cultivars and their response to treatment.

Pruning Techniques for Foster's Holly.

James T. Midcap

This study looks at pruning techniques for Foster's Holly. Large container and field grown hollies are usually pruned one to three times each season. Pruning is usually heavy, removing much of the growth produced by each flush. Soft pinching in 1999 caused only one break while pruning into woody stems produced 2 to 3 branches. Pruning by removing short woody tips based on growth stage should increase breaks and shorten production time.

Fertilizer evaluations.

James T. Midcap

This year this study will involve evaluation of organic and chemical fertilizers. New organic and chemical fertilizers are being released that may meet the needs of Georgia container producers. Evaluation of these new products against a standard nursery fertilizer will evaluate their worth. New products are also being introduced to the industry and require evaluation.

Role of point-of-sale information and plant quality (appearance) on consumer's purchase decisions.

Forrest Stegelin and Steve Turner

This study looks at the role of point-of-sale information and plant quality (appearance) on consumer's purchase decisions. Labels, tags, tab sticks, and container stickers convey information that may include name of plant (most frequently the culture and variety), a photo in bloom or mature, source (grower-wholesaler's name), bar code, and growing /handling conditions. Price cards are presented separately, for retailer individuality. What is the relative importance of this information (and the appearance and perceived quality of the plant) on the consumers' decision to purchase a particular plant?

Monitoring of root zone temperature, soil moisture and root rot disease development in container-grown *Azalea*.

Jean Williams-Woodward

Root rot disease caused by the fungi *Pythium*, *Phytophthora*, and *Rhizoctonia* is the most common and serious problem in container nurseries. Root rot symptoms peak in mid-summer when air temperatures are the warmest and root stress is evident. Monitoring the root zone temperature and soil moisture within different container sizes and colors and determining its effect on fungal populations in the container soil mix can greatly help growers better target disease control programs. This study will monitor root zone temperature, soil moisture and root rot disease development in container-grown *Azaleas*.

Evaluation of Leyland cypress cultivars for growth characteristics and canker disease susceptibility.

Jean Williams-Woodward

Leyland cypress is the most popular needle evergreen grown in the southeast. Numerous cultivars exist, but few are in commercial production and none have been evaluated for canker disease susceptibility. Canker diseases including *Botryosphaeria* and *Seiridium* cankers are the most common cause of Leyland cypress decline in landscapes and nurseries. This study will evaluate Leyland cypress cultivars for growth characteristics and canker disease susceptibility.