

CENTER FOR APPLIED NURSERY RESEARCH

1999 RESEARCH PROJECTS

Scheduling of Butterfly Bush (*Buddleia davidii*) for Spring Flowering

Jeff Adkins, Dr. Michael A. Dirr, Dr. Allan M. Armitage

Butterfly bush (*Buddleia* spp.), a summer flowering woody perennial, has become a mainstay in southern gardens and an integral factor in the economic foundation of wholesale and retail marketers. Summer flowering has been a limiting factor in efforts to increase sales of butterfly bush. An investigation into the manipulation of spring anthesis, will elevate sales of butterfly bush by extending the marketing window.

Prophylactic Use of Microbial Control Agents to Prevent Colonization of Nursery Plant Containers by Red Imported Fire Ant, *Solenopsis invicta*

Mark A. Brinkman, Wayne A. Gardner, and Stanley K. Diffie

Red imported fire ants, *Solenopsis invicta* Buren, colonize soil in nursery plant containers and are a safety hazard to nursery personnel. Also, distribution of potted plants containing red imported fire ants may contribute to the spread of this insect pest. Treatment of soil in plant containers with microbial pathogens may prevent colonization by red imported fire ant and reduce the need for costly conventional insecticides.

The Development of New *Abelia* R. BR. Cultivars through Interspecific Hybridization

Michael Dirr, Sloane Scheiber, Carol Robacker

Flowering evergreen shrubs that are compact and resistant to pests are in great demand in the nursery and landscape industries. The genus *Abelia* contains 30 species that vary in many traits including flower color, growth habit, and hardiness. *Abelia x grandiflora* (Andre') Rehd. and its cultivars are the most widely grown and characterized by pest resistance, an abundance of pinkish white flowers, long flowering period and glossy evergreen foliage. *Abelia chinensis* R. Br., a plant rarely seen in cultivation, is a perpetually fragrant flowering shrub, but it is deciduous with an upright spreading form. Interspecific hybridization among these and other species, including *A. floribunda* Decne., *A. uniflora* R. Br., *A. biflora* Turcz., *A. zanderi* (Graebn.) Rehd. And *A. schumannii* (Graebn.) Rehd. offer the potential for new cultivars.

Automated Measurement of Container Temperature and Moisture for Improvement of Irrigation Scheduling in Nurseries

Gerrit Hoogenboom and B. P. Verma

Water is one of the most critical inputs for nursery plants. We propose to monitor container temperature and moisture, as well as other environmental variables dynamically using automated sensors. This information will then be used to help develop improved irrigation scheduling systems.

Evaluation of *Loropetalum* Taxa for Cold Hardiness Potential

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

The genus *Loropetalum* contains many species that vary in many traits including flower color, growth habit, and hardiness. Interspecific hybridization among various taxa of *Loropetalum* 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

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. The development of principles for achieving the objectives listed and building of experimental units to test the principles will be undertaken.

Sawmill Wood Waste Evaluation on Junipers and Azaleas for Root Rot Problems

Wayne J. McLaurin

Growing media is approximately 10% of the total variable cost in growing nursery plants. Because of the ever-increasing cost of media, looking at alternative media sources is very important. If Junipers and Azaleas can be grown in the sawmill waste without root rot problems, it would be a significant cost saving to the industry.

Evaluate Chopped Kenaf as a Possible Substitute for Part of the Potting Media Mix.

Wayne J. McLaurin

Growing media is approximately 10% of the total variable cost in growing nursery plants. Because of the ever-increasing cost of media, looking at alternative media sources is very important. If ornamentals and perennials can be grown in the Kenaf/media mix, it would be a significant cost saving to the industry. Current study involves eight perennial varieties in one gallon containers.

Control of *Hydrangea* Flower Color

James T. Midcap

The bract color of blooming *Hydrangeas* is quite variable and unpredictable. Last years results indicate high aluminum levels in the tissue alone do not insure good blue color. Other factors need to be determined and manipulated to determine predictable results.

Evaluation of 9 Month Controlled Release Fertilizers

James T. Midcap

Controlled release fertilizers are being improved to 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.

Improve Pruning Techniques on Evergreen Holly

James T. Midcap

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. Pruning by removing the young growing tips should increase breaks and produce larger plants in a shorter time.

Nutrient Deficiency Symptoms – Photo Library and Sufficiency Range

James T. Midcap

Nursery crops exhibit deficiency symptoms when fertilizers and amendments run out. A color photo library would aid in identification of the problem and sufficiency levels would help in the interpretation of results from the lab. Growers, landscapers and retailers could access from the web.

Evaluation of Atlantic White Cedar (*Chamaecyparis thyoides*) as a Potential Alternative to Leyland Cypress and Upright Junipers

David R. Sandrock, Michael Dirr, Jean Williams-Woodward

Adaptable, fast growing, screening needle evergreen plant materials are essential components of modern landscapes. A significant need exists for alternatives to Leyland cypress. The Atlantic white cedar offers the greatest potential to provide new genetic resources. The variability in growth habit and foliage colors is great and to date 54 different taxa have been accumulated. Forty-nine taxa are being evaluated at the Center for growth rate, pruning requirements, foliage colors, and disease and insect problems.

Can Humates Reduce Fertilizer Use of Container-Grown Ornamentals?

Dr. Tim Smalley

Humate products, such as Roots, can increase nutrient uptake into a plant and decrease nutrient leaching from a growing media. Incorporating humates into fertilizer media may reduce fertilizer requirements when producing container-grown ornamentals.

The Benefit Costs of Grading Liners Before Production

Dr. Forrest E. Stegelin and Dr. James T. Midcap

Liners are often stepped up without regard to the quality of the individual plants. Extra costs are associated with the production of inferior plants that remain unsalable at the end of the production cycle. Production time, plant quality and costs are all involved in making a profit.

Effect of Pelletized Systemic Deer Repellent on Deer Browsing of Susceptible Ornamental Plants

Gary L. Wade and Jeff Jackson

Deer browsing is a major problem in nurseries and landscapes. This study will evaluate the effect of Repellex Systemic Deer Repellent tablets on deer browsing. Length of control and economics will be considered.

Influence of Microclimatic Temperatures and Leaf Wetness Variables on Leaf Spot Development

J. T. Walker

Leaf spot diseases pose a constant threat in nursery and landscape environments where overhead irrigation is the principal means of watering plants. Data accumulated during 1998 at the CANR demonstrated that in a sunny location leaves were wet 30% of the time. A comparison of two watering methods relative to temperatures and leaf spot development could provide insight to disease incidence and severity.

Effectiveness of Different Mancozeb-Containing Fungicides and Fungicide Scheduling for Control of Shot-Hole on Laurels

Jean Woodward

Over the past two years, I have shown that mancozeb (Fore) reduced shop-hole disease development over copper fungicides but rotating or tank mixing copper and mancozeb may provide better control.

Evaluation of Mycorrhizal Products (Plant Health Care) and Reduced Fertilization Rates on Plant Growth Response

Jean Woodward and Jim Midcap

Mycorrhizal products are being marketed throughout the ornamental industry for increased plant growth response, as well as disease suppression. However, few studies have been conducted to prove or disprove the claims.

Powdery Mildew Control on Hydrangeas

Jean Williams-Woodward

The objective is to evaluate preventative and curative applications of fungicides to control powdery mildew on hydrangeas.

Rhizoctonia and Phytophthora Root Rot Disease Control

Jean Williams-Woodward

Evaluate the effectiveness of various fungicide drenches and sprays on *Rhizoctonia* and *Phytophthora* root rot control in container-grown Junipers and Azaleas.

Seedling and Plant Evaluations

Dr. Michael Dirr

Abelia

Buddleia

Calocedrus

Calycanthus

Clethra

Cephalotaxus

Cryptomeria

Dwarf Lagerstroemia

Fothergilla major

Magnolia x loebneri 'Leonard Messel'

Osmanthus heterophyllus

Selections from the National Arboretum, PlantHaven and Georgia green industry