CENTER FOR APPLIED NURSERY RESEARCH

1998 RESEARCH PROJECTS

Forcing of Perennials for Early Spring Sales
Dr. Allan Armitage

The presence of flowers on a potted nursery crop enhances sale potential. In previous research, we have determined that many herbaceous perennial taxa respond to vernalization and photoperiod by earlier flowering and different growth habit. I would like to determine if the same environmental protocols discovered under controlled conditions could be repeated under nursery conditions.

Accelerated Growth of Hydrangea
Dr. Michael Dirr

Evaluation of direct stick propagation and subsequent pruning of *Hydrangea quercifolia* 'Alice' in producing a one season, 3 gallon, salable plant for market in the fall. Similar methods used on *Hydrangea macrophylla* 'Nikko Blue' and 'Mariesii variegata'

Evaluation of Buddleia
Dr. Michael Dirr

2nd Year of Project: According to a recent survey conducted at the University of Georgia, Buddleia taxa are worth over $200,000 annually to Georgia growers, not to mention outside of Georgia where Buddleia are worth well in excess of $1 million annually. A study has been planned for assessing different qualities of these plants including relative cold hardiness, growth habit, size, and flower characteristics including color, size of inflorescence and degree of flowering of more than 70 Buddleia taxa already collected. A more in –depth evaluation of spider mite resistance, which is the major cultural difficulty with producing Buddleia in Georgia, is also planned. The above evaluations would benefit Georgia growers by producing pertinent information detailing characteristics of superior Buddleia taxa. Additionally approximately 350 seedlings are under evaluation for appeal.

Iris Seedling Evaluations
Dr. Michael Dirr

Trying to develop larger, longer-persisting, true pinks, velvet blues, purples and reds. Seedlings are grown from open-pollinated cultivars. Takes two-years to flower from seedlings outplanted in spring. To date, have several large-flowered forms with good color but nothing better than what is already in the marketplace.

Clethra alnifolia Seedling Evaluations
Dr. Michael Dirr

Seedling populations of 'Ruby Spice' were screened for flower color, length of inflorescence, foliage, growth habit, etc. The goal was to produce a deep rose flower color like 'Ruby Spice' but with larger inflorescences and more compact growth habit. The seedlings flowered after 3-years with 20 pinks in the population of approximately 100 plants. The 5 best pink forms were selected and will be propagated and evaluated. Only one selection, With inflorescences about twice as long as 'Ruby Spice' and with good (not as deep as 'Ruby Spice') rich pink flower color, holds commercial promise.

Abelia Breeding Project

Dr. Michael Dirr

Goal is to produce compact growing, hardier, deeper pink flowering forms using controlled breeding techniques. Early work with open-pollinated *Abelia chinensis* seedlings showed extreme diversity in seedling populations from compact types with yellow foliage, to wild-growing types with lustrous dark green foliage. Interestingly, not a single seedling resembles *Abelia chinensis.* Michele Scheiber, Ph.D. candidate, is using the large red-flowered Mexican Abelia, *A. floribunda* and the cold hardy *A. mosanensis* to bring new genes to the hybrids. This project is extremely exciting and will yield new woody plants with tremendous commercial potential.

Nursery Pest Management: A Self-Prompting Computerized Record Keeping Approach

Dr. Dan Horton, Kenny Jenkins, Julie Henderson

Integrated pest management (IPM), where it has reached the stage of commercial utility, is a cost-effective tool; in addition, it helps mitigate pesticide resistance while affording commercial agriculture a rational vehicle for environmental stewardship. Unfortunately, nursery IPM, especially in the Deep South, is still in its infancy. Regular nursery IPM monitoring data would be recorded and software developed that would archive and provide, as needed, prompting of IPM personnel to suspected risk periods in the future.

Cold Hardiness Evaluation of Hydrangea

Dr. Orville Lindstrom

The cold hardiness of new selections of hydrangea is unknown. Therefore, determining the seasonal cold hardiness will benefit nurseries and growers by providing an estimate of the range of adaptability.

Nursery Waste Composting and Recycling

Dr. Wayne McLaurin

2nd Year of Project: Nursery waste from dead container plants and other organic sources in the nursery must be properly disposed of and cannot legally be stored on the nursery. Costs to deposit in landfills are prohibitive. Proper treatment and composting should allow reuse of this waste product in a productive manner.

Herbicide Evaluation on Flowering Perennials

Dr. Jim Midcap

Weed control on perennials in containers needs evaluation to determine safe, effective controls.

Controlling Hydrangea Flower Color

Dr. Jim Midcap

The bract color of blooming Hydrangeas is quite variable and somewhat unpredictable. A reliable method of producing blue flower bracts would enhance the product in the retail garden center.

Evaluating the Effectiveness of Using Gypsum in Pine Bark Media

Dr. Jim Midcap

The elimination of gypsum to supplement dolomitic lime in potting mixes would save growers money in propagation and growing on.

Evaluation of 12 Month Controlled Fertilizer Products

Dr. Jim Midcap

Controlled release fertilizers are being improved to meet the needs of Georgia container producers. Evaluation of these new products against the standard nursery fertilizers will evaluate their worth. Proper release of controlled release fertilizers can reduce pollution of surface and ground waters.

Evaluation of Acti-Gro Products

Dr. Jim Midcap

Acti-Gro (a blend of super absorbent polymers and Zeolite, a mineral) is reported to reduce watering frequency, hold nutrients, and increase aeration. The product will be evaluated under normal irrigation and at 40% reduction in irrigation. Plant growth, plant tissue nutrient levels and visual quality will be determined.

Influence of Supplemental Magnesium on Growth of Container Nursery Stock

Dr. John M. Ruter

Dolomitic limestone only supplies Mg for a 4-5 month period under southern growing conditions. Magnesium deficiencies are common in South Georgia due to excessive calcium and may limit production at Georgia nurseries due to low levels of Mg in well and runoff water.

Fertilizer Use Efficiency of Plants Grown Pot-In-Pot versus Conventional Above-Ground Production

Dr. John M. Ruter

2nd Year of Project: Current challenges facing the nursery industry are to adopt management practices which conform to public policy mandating decreased nitrogen and phosphorous contamination of ground and surface waters. Nurseries may meet these challenges through the use of controlled release fertilizers. The pot-in pot production system offers further advantages in that the root-zone is cooler then plants grown above ground, thus fertilizer longevity and release characteristics may be altered to reduce nutrient
contamination. Coupled with improved root development, lower rates of fertilizer application should be possible, thereby decreasing production costs.

Evaluation of Chamaecyparis thyiodes, Atlantic White Cedar as a Potential Alternative to Leyland Cypress and Upright Junipers

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

2nd Year of Project: 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. As a native conifer from Maine to Florida to Mississippi, its adaptability range exceeds that of any other native needle evergreen. The variability in growth habit and foliage colors is great and to date 17 different taxa have been accumulated. Growth rate, pruning requirements, foliage colors (persistence throughout seasons), disease and insect problems are being evaluated.

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.

Incorporation of Bedminster Municipal Solid Waste into a Container Media

Drs. Tim Smalley, Wayne McLaurin and Jim Midcap

Bedminster Compost is municipal solid waste produced by Cobb County. Mountain Stream Nursery has used this product as a container media component, and has been very satisfied with the growth results. The Bedminster Compost; may be able to provide nutrients.

A Nursery Management Primer (People, Resources, Information, Marketing, Economics, Risk).

Dr. Forrest E. Stegelin

Nursery managers realize the importance of quality plant materials in achieving success, and frequently these nursery managers are trained horticulturists. However, the “bottom line” of a nursery’s business survival and success is influenced more by financial, marketing, economic, people, and business principles, for which there is not a single teaching manual. Therefore, A Nursery Management Primer will put key information about nursery management and operations in the readily available forms of a basic guide and as a management trainee workshop/seminar.

Efficacy of Root Rot Disease Controls

Dr. Jean Williams – Woodward

Root rot diseases are the most common problems for nurseries. Junipers and azaleas are the most susceptible plants. Plants decline, typically, in mid-summer. This study will evaluate several different products and application methods in an effort to prevent or control root rot in azaleas and junipers.

Shot–Hole Leaf Spot Development on P. laurocerasus 'Otto Luyken'

Dr. Jean Williams-Woodward

2nd Year of Project: 1997 data indicates/shows that the leaf spot and branch die back on laurels is due to both bacterial and fungal pathogens. This study will evaluate use of both fungicide and bactericide products to control leaf spot on *P. laurocerasus* (cv. Otto Luyken).

Developing Environmental Data Patterns Relative to Leaf Spot Development on Several Ornamentals

Dr. Jerry T. Walker

Micro climatological data are essential in understanding the etiology of leaf diseases and developing economic control measures that are environmentally compatible. Project offers the opportunity to relate the hours of leaf-wetness and other environmental factors to the incidence and severity of decease development.

Plant collections under evaluation

Dr. Michael Dirr

Loropetalum – 19 varieties
Cephalotaxus – 2nd Year of Evaluation and Classification Nomenclature Study
Dwarf Crape-Myrtle Seedlings

Miscellaneous plant material under observation

National Arboretum Selections