

PROCEEDINGS OF



**RESEARCH
CONFERENCE**

Forty-Forth Annual Report

1999

Compiled and Edited by:
Bryson L. James
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McMinnville, TN 37111



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RESEARCH CONFERENCE

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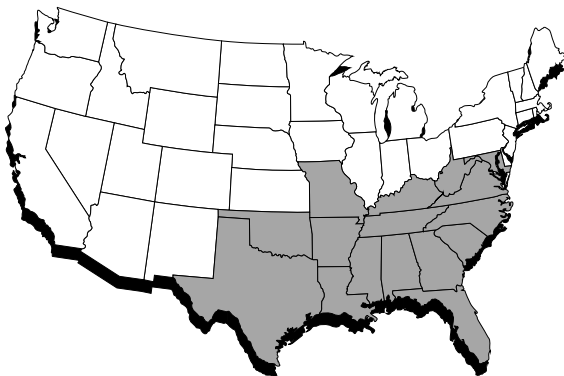
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SIXTEEN GREAT STATES AND BEYOND!



Annual SNA Research Conference

This two-day Horticultural Research Conference is held annually in Atlanta, GA in conjunction with the SNA... The World's Showcase of Horticulture® and has become world-renowned for quality research. Participants are the top horticultural research and educational leaders representing the South's top universities. All industry members are invited to attend any and all sessions. 100's of topics in twelve categories is shared in presentations approximately seven minutes each. The conference format allows you to sit in on all or only those topics of interest to you. Research presented at the conference is published in the annual publication "SNA Research Conference Proceedings" contained herein. For more information on the SNA Research Conference or the SNA Horticultural Trade Show and Convention, contact:

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ACKNOWLEDGMENTS

The editor and the Board of Directors of the Southern Nursery Association wish to express their sincere appreciation to Gary Bachman, Donna Fare, Charles Hesselein, Mark Windham, Mark Arena, Richard Harkess, Doug Findley, Patricia Knight, Gary McDaniels, Gary Knox, John Booker and Ken Tilt for the fine job they did as Section Editors and Moderators.

We would like to extend our gratitude to all the researchers and nurserymen who attended the 44th annual conference and/or contributed to these Proceedings and continue to make this annual event an industry success.

NOTICE

Mention of a trademark name on a proprietary product does not constitute a guarantee and/or warranty of the product by the researcher(s) or their respective universities or the Southern Nursery Association and does not imply it's approval to the exclusion of other products that may also be suitable.

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The Southern Nursery Association is not responsible for the statements and opinions printed in the Proceedings SNA Research Conference; they represent the views of the author(s).

**USING RESEARCH DATA
SAFELY AND EFFECTIVELY**

Good research is conducted under an exact set of controlled conditions, varying only the specific treatments which are to be evaluated. Results from the specific treatments are directly applicable to your operations only if all the conditions in your operation are controlled the same as in the research. Unfortunately, this seldom happens. However, this does not mean that you can not benefit from the research. What it does mean is that you should use the research information on a trial basis first, if your plant species, soil type, watering method, size and age of plant, climatic region, etc. is different than that described by the researcher.

What an alert grower should expect to gain from these research reports is ideas - ideas as to the best control for insects, disease, nematodes and weeds - labor saving ideas such as chemical pruning and using growth regulators to minimize maintenance. Also, ideas on water management, nutrition, alternative growing media, new plants for landscaping and guides for improving profits and marketing skills.

Should you desire additional information on any report, please write to the author. We would like to extend an invitation to you to attend all sessions of the SNA Research Conference held in Atlanta each year in conjunction with The World's Showcase of Horticulture®.



**44th ANNUAL
SOUTHERN NURSERY ASSOCIATION**

**RESEARCH CONFERENCE PROCEEDINGS
1999**

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Proceedings of the SNA Research Conference is published annually by the Southern Nursery Association and one copy is provided at no charge to all SNA members, horticultural libraries and contributing authors.

It is the fine men and women in horticultural research that we, the Southern Nursery Association, pledge our continued support and gratitude for their tireless efforts in the pursuit of the advancement of our industry.

ADDITIONAL COPIES:

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**THE PORTER HENEGAR MEMORIAL AWARD
for
HORTICULTURAL RESEARCH**



Dr. John M.

The Southern Nursery Association (SNA) honored Dr. John M. Ruter with the Porter Henegar Award on Friday, July 30, 1999, during the 44th annual SNA Research Conference which was held in conjunction with the annual SNA Convention and SNA '99... The World's Showcase of Horticulture® in Atlanta. The award, originally known as the Research Award of Merit, was created in 1968 to honor those individuals who have made outstanding contributions to ornamental horticulture research and more specifically to the SNA. In 1972, the

award was renamed the Porter Henegar Memorial Award to honor one of SNA's past Executive Secretaries, the late Porter Henegar. Nominations are made each year by the past four recipients and Dr. Bryson L. James, SNA Director of Research.

Dr. Ruter is an associate professor with The University of Georgia. He has been with the Department of Horticulture at the Coastal Plain Experiment Station in Tifton since 1990. He is originally from southern California and received his B.S. degree in ornamental horticulture from California Polytechnic State University, San Luis Obispo. He received his M.S. degree in ornamental horticultural science from the University of Florida in 1989.

His research is focused on nursery crop production in the state of Georgia. He is known primarily for his research on pot-in-pot production systems and controlled release fertilizers. His research has also contributed significantly to the development and marketing of copper-treated fiber containers.

Dr. Ruter has published over 170 scientific and popular articles, including more than 40 in the Proceedings of the SNA Research Conference since 1985. He has co-authored the popular high school and community college text "Introduction to Horticulture" which is now in its 3rd edition. Among Ruter's awards and honors are "The Award of Excellence for Junior Scientist" - University of Georgia Coastal Plan Experiment Station and the Award of Merit from the Garden Clubs of Georgia for his work in preserving and promoting native plants. In 1999 Ruter was named the "Educator of the Year" by the Georgia Green Industry Association.

**THE
BRYSON L. JAMES
STUDENT RESEARCH COMPETITION
1999 AWARDS**

This long-standing program was renamed in August 1989, in honor of Dr. Bryson L. James, Director of Horticultural Research for the Southern Nursery Association. Dr. James has been an active participant and leader in the annual Research Conference for more than 40 years, and the award, named in his honor, is a tribute to his tireless efforts on behalf of the researchers, the association and the industry. Listed below are the guidelines for the Student Competition as well as this year's winners:

1. Any student of a university or college having researchers can participate in the Southern Nurserymen's Association Research Workers Conference if not more than a one (1) academic year removed from graduation and whose research was completed prior to graduation.
2. Research is to be that of the presenter and a part of his/her educational studies. Contract work, unless a part of a thesis or classroom report (credit given), is not acceptable since it may provide unlimited funding and an unfair advantage.
3. Previous first-place winners are not eligible.
4. The student must have submitted a title to the SNA Conference Chairman by the specified time in the Call For Titles. The paper should be submitted to the Section Chairman for the Student Paper Award no later than **July 1**. Also, a copy should be sent to the appropriate "topic" Section Editor.
5. The paper should follow the guidelines for the SNA Research Workers Conference in relation to format and subject matter.
6. The student and his advisor should be listed as co-authors.
7. Oral presentation must be limited to seven (7) minutes. An additional three (3) minutes will be allotted for questions. A penalty of two (2) points per minute or part thereof for every minute over seven (7) minutes will be assessed.
8. Judging shall be based on preparation of the paper (50 points) and oral presentation (100 points) for a total of 150 points.

1999 Bryson L. James Student Competition Award Winners

B.S. Candidates

1st Place	-	\$500	Amy Riggs, Auburn University
2nd Place	-	\$300	Sarah White, Clemson University
3rd Place	-	\$200	Catherine Broussard, Louisiana State University

M.S. Candidates

1st Place	-	\$500	Gina Penny, NC State University
2nd Place	-	\$300	David R. Sandrock, University of GA
3rd Place	-	\$200	Jean-Jacques Dubois, NC State University

Ph.D. Candidates

1st Place	-	\$500	Teresa Cemy, Clemson University
2nd Place	-	\$300	Christine Harris, Auburn University
3rd Place	-	\$200	Shani File, Auburn University

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Container- Grown Plant Production

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North Carolina	018-020	Where Are We And Where Are We Going With Compost Research? - Helen T. Kraus and Stuart L. Warren
Alabama	021-023	Chilling Duration Affects Shoot Emergence in Hosta - Jay W. Amling, Gary J. Keever, J. Raymond Kessier and Doug A. Findley
Georgia	024-028	High Temperature of Roots of Container-Grown Red Maple Cultivars - Jeff L. Sibley, John M. Ruter and D. Joseph Eakes
Mississippi	029-033	Rooting-Out Controle in Pot-in-Pot Production - David Tatum, Frank Matta and Kerry Johnson
Tennessee	034-036	Fertilization and Cutting Number Affect Growth of Potted Chrysanthemum - Christopher J. Catanzaro and Roger J. Sauve
Florida	037-040	Evaluation of Two Variegated Monocots to Shade Levels - Svoboda V. Pennisi, Dennis B. McConnell, John Feidt Jr. and Michael E. Kane
Georgia	041-043	Dolomitic Lime Rates Affect Top and Root Growth of Delaware Valley White Azalea - Dr. James T. Midcap
Georgia	044-046	Dolomitic Lime Rates Cause Growth Reduction and Stem abnormality on Sizzling Pink Loropetalum - Dr. Jim Midcap
Georgia	047-049	Supplemental Magnesium Influences the Growth of Three Ornamental Species - John M. Ruter
Georgia	050-052	Production Systems Influences Growth Of 'Kanzan' Cherry and 'Chanticleer' Pear - John M. Ruter
Georgia	053-054	Fiber Pots Improve Survival of 'Otto Luyken' Laurel - John M. Ruter
Georgia	055-057	Tex-R Geodiscs and Fertilizer Placement Influences Growth of 'Compacta' Holly - John M. Ruter
North Carolina	058-061	Nitrogen Nutrition or Containerized Thuji x 'Green Giant' - Jason J. Griffin, Stuart L. Warren, Frank A. Blazich and Thomas G. Ranney
Alabama	062-064	Recycled Paper Multch and Fertilizer Placement Affect Container Nutrition - J.O. Sichivitsa, C.H. Gilliam, J. H. Edwards, G. J. Keever and J. W. Olive
South Carolina	065-068	Symptomology of Nutrient Deficiencies in Hosta - Preliminary Report - Betsy Corn, Sarah White, Jeanne Briggs, Beth Hardin, Joe Albano, R.T. Fernandez and Ted Whitwell
South Carolina	069-072	Fertility and Marginal Leaf Necrosis in Hosta - Sarah White, Besty Corn, Jeanne

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Louisiana	073-076	Briggs, Beth Hardin, Joe Albano, R.T. Fernandez and Ted Whitwell Effects of Hardwood and Pine Bark on Growth Response of Woody Ornamentals - Catherine Broussard, Edward Bush and Allen Owings
South Carolina	077-079	Supplemental Winter Chilling Increases Spring Emergence Uniformity and Growth of Several Herbaceous Perennials - Jason B. London
Florida	080-086	What Do These Container Nutritional Levels Mean? - Thomas H. Yeager and Claudia A. Larsen
North Carolina	087-091	Comparing Potting Substrates for Growing 'Hershey Red' Azaleas - Donald Breedlove, Lee Ivy and Ted Bilderback
Louisiana	092-096	Growth Responses of Woody Ornamental Shrubs to Nitrogen Fertilization Rate and Supplemental Potassium Application - G. Stephen Crnko, Edward W. Bush, Allen Owings
Tennessee	097-102	Application Method Affects Controlled-Release Fertilizer Response In Pot-In-Pot Production - Donna C. Fare, Mark Halcomb and Stephen Mullican
Virginia	103-106	Effects of Root Pruning and Container Depth on Growth of Pin Oak (<i>Quercus palustris</i> Munch) - J. Roger and Jody Fanelli
Kentucky	107-111	Container Size and Root Pruning Method on Root and Shoot Development in Seedlings of Cherry Bark Oaks (<i>Quercus falcata pagodifolia</i>) - Gisele G. Martins, Robert Geneve and Sharon Kester
Virginia	112-116	Influence of Temperature on Nutrients Release of Three Controlled-Release Fertilizers - Chad Husby, Alex X. Niemiera, Roger Harris and Robert D. Wright
Virginia	118-122	A Comparison of B&B Stock Holding Methods - Roger Berrier, Bonnie Appleton, Tom Banko and Roger Harris
Florida	123-125	Are You Ready, WPS Inspectors Are Coming to Your Nursery - Liz Felter
Mississippi	126-130	The Use of Crumb Rubber as a Zinc Source in an Established Pecan Orchard - Frank Matta, David Tatum and Francisco Salcedo

Entomology

Texas	132-136	A Multiple Species Approach to Binomial Scouting of Greenhouse Ornamentals - Karol A. Burns, Kevin M. Heinz and Bastiaan M. Drees
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Georgia	140-142	Feeding Response of Azalea Lace Bug to Epicuticular Waxes from Leaves of Piedmont Azalea and Florida Flame Azalea - Mary B. Clark, Joyce G. Latimer, S. Kristine Braman and Carol D. Robacker
Georgia	143-147	Functional Response of the Azalea Plant Bug, <i>Rhinocapsus vanduzeei</i> , a Predator of the Azalea Lace Bug, <i>Stephanitis pynoides</i> - Colin D. Stewart, S. Kristine Braman and Andrew F. Pendley
Texas	148-152	Chemical Control of Different Grasshoppers, (<i>Melanoplus differentialis</i>) on Urban Landscape Plants - James A. Reinert, Steven J. Maranz, Wayne Mackay, Steve George, James Read and M.C. Engelke
Texas	153-161	Impact of Differential Grasshoppers, <i>Melanoplus differentialis</i> , on Urban Landscape Plants - James A. Reinert, Wayne Mackay, Steve George, James Read, M.C. Engelke and S.J. Maranz
Texas	162-166	Opportunities for Western Flower Thrips Biological Control in Potted Chrysanthemums - Kevin M. Heinz, Judy M. Mason and Paul Ode
Maryland	167-175	IR-4 Research for Pest Control in Nursery Crops-1998 - J. Ray Frank
Tennessee	176-178	Insecticide Evaluation for Control of the Asian Ambrosia Beetle, <i>Xylosandrus crassiusculus</i> , In Vitro - Frank A. Hale, Jason Oliver and Catharine Mannion
Georgia	179-181	Control of Tea Scale (<i>Florinia theae</i>) on 'Pink Snow' Camellia (<i>Camellia sasanqua</i> 'Pink Snow') Using Root Absorbing Systemic Insecticides - Charles P. Hesselein, Joseph R. Chamberlin and Michael L. Williams
Florida	182-184	Thrips Damage to Potted Anthurium Cultivars in Interior Environments - Jianjun Chen, Richard J. Henny, Lance S. Osborne, Russell D. Caldwell and Cynthis A. Robinson
Georgia	185-189	Potential Role of Wildflowers in Pest Management - S. Kristine Braman
Tennessee	190-194	Insect Resistance Evaluation among 58 Ornamental Crabapples - W.E. Klingemen, W.T. Witte and P.C. Flanagan
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Tennessee	208-212	Insect Visitors to Flowers of Flowering Dogwood, <i>Cornus florida</i> L., in Eastern Tennessee: Potential Pollinators - Adriean J. Mayor, Jerome F. Grant, Mark T. Windham and Robert N. Trigiano
Florida	213-215	Integrated Pest Management Demonstrations in Manatee County, Florida - Frank Melton and Sylvia Shives
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Tennessee	226-228	Control of Powdery Mildew on Flowering Dogwood Using Soybean Oil - M.T. Windham, A.S. Windham, M.A. Halcomb and D.E. Deyton
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