Proceedings of

46th Annual Ornamental Horticulture Field Day

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MISSISSIPPI STATE UNIVERSITY™
MS AGRICULTURAL AND
FORESTRY EXPERIMENT STATION

Proceedings of

46th Annual Ornamental Horticulture Field Day

South Mississippi Branch Experiment Station

Coastal Research and Extension Center

Mississippi Agricultural and Forestry Experiment Station

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** Scheduled presenter*

All-America Selections Flower Winners for 2019: Superior Color and Proven Performance for Home Gardeners

Diane Blazek, All-America Selections, Downers Grove, IL (Email: dblazek@aaswinners.com)
Eugene K. Blythe, Coastal Research and Extension Center, South Mississippi Branch Experiment Station, Poplarville, MS

Four flower varieties became All-America Selections (AAS) National Award Winners for 2019. An additional five flower varieties were selected as AAS Regional Award Winners for 2019, showing outstanding performance in specific regional climates. AAS includes a network of over 80 trial grounds across the United States and Canada where new, never-before-sold varieties are "Tested Nationally and Proven Locally®" by skilled, impartial AAS Judges. Only the best performers are declared AAS Winners. For more information, visit: **www.all-americaselections.org**.

Begonia Viking™ XL Red on Chocolate F1
National Winner
Large, dark leaves maintain their deep bronze/chocolate brown color throughout the season. Compact plants retain their shape and are covered with vibrant red flowers. These extra-large (XL), mounded plants are perfect in both landscape beds and containers for a stunning display. Bred by Sakata Seed Corporation.

Marigold Big Duck Gold F1
National Winner
This marigold begins the season by establishing solid, healthy, 15-inch plants with clean, deep-green foliage, then produces full, plump blooms through the end of the season. Plants work well in beds and containers, as mini-hedges, and as fillers in perennial beds. Bred by AmeriSeed International Co., Ltd.

Petunia Wave® Carmine Velour F1
National Winner
This newest color of the popular Wave® petunias was one of the highest scoring plants in the 2018 trials. Large flowers literally cover the easy-care, spreading plants that rarely need deadheading because new blooms are produced to cover spent blooms. Plants perform well in the landscape, containers, and baskets. Bred by PanAmerican Seed.

Zinnia Holi Scarlet F1
National Winner
This beautiful winner is named after the famous Holi Festival of Colors because of its vibrant color. The uniform, compact, mounding plants will keep producing fresh, vibrantly colored, deep red flowers all season long, even through heat, humidity, and drought. Both people and pollinators will be attracted to these colorful plants. Bred by AmeriSeed.

Vinca Mega Bloom Polka Dot F1
Regional Winner
(Heartland, Mountain/Southwest)
The hearty Mega Bloom series has been bred to withstand heat and humidity without succumbing to disease. Polka Dot sports huge, flowers with overlapping petals of snowy white and a bright pink eye on full, vigorous plants that stay compact. Bred by AmeriSeed.

Nasturtium Baby Rose
Regional Winner
(Northeast, Heartland, Mountain/Southwest)
This petite-flowered, mounding nasturtium is ideal for small-sized gardens and containers. The rose-colored flowers contrast nicely with the dark green foliage. Both the leaves and flowers are edible. Bred by Takii Europe BV.

Marigold Big Duck Orange F1
Regional Winner (Heartland)
The vigorous, well-branched plants produce fully double, 4-inch orange flowers on 15-inch plants with superior resistance to disease, rain, heat, and drought. Bred by AmeriSeed International Co., Ltd.

Marigold Big Duck Yellow F1
Regional Winner
(Northeast, Heartland, Mountain/Southwest, West/Northwest)
The large, fully double, bright yellow blooms are set above deep green foliage. Bred by AmeriSeed International Co., Ltd.

Marigold Garuda Deep Gold F1
Regional Winner
(Northeast, Heartland)
This extremely vigorous, disease-resistant, cut-flower-type marigold produces flowers with a bright, regal shade of orange. Cut flowers tend to last at least 10 days in a vase. Bred by AmeriSeed International Co., Ltd.

All-America Selections Edible-Vegetable Winners for 2019: Proven Productivity and Taste for Home Gardeners

Diane Blazek, All-America Selections, Downers Grove, IL (Email: dblazek@aaswinners.com)
Eugene K. Blythe, Coastal Research and Extension Center, South Mississippi Branch Experiment Station, Poplarville, MS

Four edible-vegetable varieties became All-America Selections (AAS) National Award Winners for 2019. An additional five edible-vegetable varieties were selected as AAS Regional Award Winners for 2019, showing outstanding performance in specific regional climates. AAS includes a network of over 80 trial grounds across the United States and Canada where new, never-before-sold varieties are "Tested Nationally and Proven Locally®" by skilled, impartial AAS Judges. Only the best performers are declared AAS Winners. For more information, visit: **www.all-americaselections.org**.

Pepper Just Sweet F1
National Winner

Just Sweet is a unique snacking pepper with four lobes like a bell pepper, but smaller. The 3-inch fruit are deliciously sweet with thick walls. The plants are vigorous growers (up to 36 inches tall and 15 inches wide) that don't need to be staked because they were bred to have a strong, bushy habit. Bred by Seminis Home Garden.

Potato Clancy F1
National Winner

This is the first potato from seed to be an AAS Winner. The compact plants produce dark green leaves, blue flowers, and tubers that are an ornamental mix ranging from red to rose blush skin tones with interiors of creamy white and yellow. Quality and texture are between that of a yellow-skinned potato and a russet. Bred by Bejo Seeds Inc.

Tomato Red Torch F1
National Winner

Red Torch is a striped, oblong tomato with 1.5-inch-long fruit that weigh about 1.5 ounces. The combination of excellent flavor, great texture, and high yields make this hybrid better than other varieties in the trendy niche market of striped tomatoes. The fruit are borne on indeterminate vines that grow 5 to 6 feet tall. Bred by A.P. Whaley Seed.

Tomato Fire Fly F1
National Winner

Fruit of Fire Fly are not as small as a currant tomato and not as large as a cherry tomato, but are a "just right" in-between size. The fruit are super sweet, pale white to pale yellow, round, less than 1 inch in diameter, and weigh about one-half ounce. The indeterminate plants must be staked or caged and are disease resistant. Bred by Seeds by Design.

Melon Orange SilverWave F1
Regional Winner (Southeast, Northeast)

Orange SilverWave is an exotic melon bred in South Korea with an extremely sweet, orange flesh and unique rind color. The attractive, 5-inch, oval melons grow on vigorous vines with up to six fruit per vine. The vines are best grown on a trellis (bracing the melons) for better disease control. Bred by Asia Seed Co., Ltd..

Tomato Chef's Choice Black F1
Regional Winner (Southeast, Mountain/Southwest, West/Northwest)

This variety is the sixth color variation in the popular Chef's Choice tomato series. Chef's Choice Black is a beefsteak-type tomato with a dark green/brown/black hue. This hybrid boasts a prolific yield of 8-ounce fruits on strong, indeterminate vines. Bred by Seeds by Design.

Tomato Mountain Rouge F1
Regional Winner (Southeast, Northeast, Heartland)

This new pink tomato exhibits robust resistance to verticillium, fusarium, nematodes, and late blight. Plants also perform especially well in cooler climates. Bred by Bejo Seeds Inc.

Tomato Sparky XSL F1
Regional Winner (Heartland)

Sparky is one of the few X-tended Shelf Life (XSL) cherry tomatoes available to home gardeners. The very sweet, 1-ounce fruit have an average Brix score of 8.5. The plants are indeterminate. Bred by A.P. Whaley Seed.

Watermelon Cal Sweet Bush F1
Regional Winner (Great Lakes)

This is a true short-internode watermelon. The compact, bushy vines grow only 14 to 18 inches long with good foliage cover to protect the fruit. Each plant yields two or three fruit weighing 10 to 12 pounds. Bred by Seeds by Design and Enza Zaden.

MISSISSIPPI STATE UNIVERSITY
MS AGRICULTURAL AND FORESTRY EXPERIMENT STATION

VALUATION SURVEY

OF THE RESEARCH PROGRAM ON ORNAMENTAL HORTICULTURE, VEGETABLES, FRUITS, AND NUTS AT THE MISSISSIPPI STATE UNIVERSITY – COASTAL RESEARCH AND EXTENSION CENTER

MISSISSIPPI STATE UNIVERSITY
COASTAL RESEARCH & EXTENSION CENTER

This valuation survey is a critical step in conducting a systematic impact assessment of the Ornamental Horticulture, Vegetables, Fruits, and Nuts Research at the Mississippi State University - Coastal Research and Extension Center.
Please answer all ten questions. We sincerely appreciate your participation in this valuation survey of our research program.
Posadas, Ben; Knight, Tricia; Bachman, Gary; Coker, Christine; DelPrince, James; and Stafne, Eric

1. Did you learn useful information from the extension events or activities, field days, producer meetings, publications, presentations, radio, television, media, online, and social media networking conducted by the Horticulture Research Program during the last five years? (Please check only one):
   - o Strongly disagree
   - o Disagree
   - o Neutral
   - o Agree
   - o Strongly agree

2. The new information you learned from the Horticulture Research Program was applied to your household, office or business operations during the last five years? (Please check all that apply):
   - o Own household
   - o Private business
   - o Local government office
   - o State or federal regulatory agency
   - o Non-profit organization
   - o Research or extension project
   - o Other (please specify)

3. The new information you learned from the Horticulture Research Program benefitted your household or business operations during the last five years? (Please check one):
   - o Strongly disagree
   - o Disagree
   - o Neutral
   - o Agree
   - o Strongly agree

4. Did your household or business operation generate any increase in savings or reduction in costs after applying this information during the last five years? (Please write the annual change in $. If not applicable, enter 0):
   - o Increase in savings ($/yr)
   - o Decrease in costs ($/yr)

5. Did your household or business operation generate any increase in gross sales or project funding after applying this information during the last five years? (Please write the annual change in $. If not applicable, enter 0):
   - o Increase in gross sales ($/yr)
   - o Increase in project funding ($/yr)

6. For valuation purposes, how much are you, your household, office or business is willing to pay for the information you learned from the Horticulture Research Program during the last five years? Please write the amount in $. (If not applicable, enter 0).
   - o $

7. Please specify the information your household, office or business needs most on horticulture, vegetables, fruits, and nuts.

8. What are the most preferred means of access to the Horticulture Research Program for your household, business or office?
   - o Online newsletter
   - o Emails
   - o Social media networks
   - o Websites
   - o Presentations in workshops, field days, meetings, conferences
   - o Extension publications, research bulletins
   - o Journal articles
   - o Other (please specify)

9. If applicable, how many miles did you drive and how much did you spend in traveling to get the information from the Horticulture Research Program during the past five years?
   - o Mileage (miles/yr)
   - o Meals & hotels ($/yr)
   - o Air fare & baggage fees ($/yr)
   - o Other expenses ($/yr)

10. What is the location of your household, business or organization?
   - o Name of State
   - o Name of County

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Diversity and Distribution of Leafhoppers (Hemiptera: Cicadellidae) in Muscadine Vineyards in South Mississippi

C. Werle,[1] O. Mavrodi,[2] E. Stafne[2] and E. Babiker[1]
[1]USDA-ARS, TCSHL and [2]MSU-CREC, Poplarville, MS

Introduction

- Pierce's Disease is an important problem in grape production, leading to leaf scorch, wilting and plant death due to restriction of vascular tissues
  - PD is caused by the bacteria *Xylella fastidiosa*, which is widely present in native grasses, sedges, bushes and trees
  - Muscadine grapes can exhibit PD resistance and/or tolerance
- Leafhoppers are a large and diverse family of insects, related to cicadas, aphids and the "true bugs"
  - Herbivorous generalists with piercing-sucking mouthparts
  - Sharpshooters (one subfamily) are primary vectors, but other leafhoppers may also be important
  - Managing PD should include dormant pruning, but also vector management

Objectives: 1. determine the leafhopper species present at South MS vineyards; 2. assess timing of leafhopper population peaks; 3. determine if leafhoppers have a cultivar preference

Methodology

- Yellow sticky traps deployed on vines of 5 muscadine cultivars (Alachua, Carlos, Nesbit, Noble and Southern Home) from 2 vineyards in South Mississippi (Pearl River Co. & Stone Co.), changed out biweekly from 30 April – 2 October
- Traps assigned positions of "edge" or "interior" within each vineyard
- One application of bifenthrin in mid-August
- Leafhoppers ID'd to spp., and hopper counts contrasted with total insect capture
- Main effects of cultivar, site, vineyard position, bifenthrin spray and leafhopper species will be tested on counts of trap captures; mean separation using Tukey's HSD test ($\alpha = 0.05$)

Results

- The Glassy-winged sharpshooter *Homalodisca vitripennis* was the dominant species collected, representing >50% of leafhopper specimens
  - The exotic-invasive *Sophonia orientalis* also was abundant, as well as the versute sharpshooter *Graphocephala versuta*
- Captures were modest in April, but much higher from late May – early July
- *H. vitripennis* was collected more abundantly from traps at the cultivar Southern Home, as compared with Alachua

Discussion

- *H. vitripennis* is regarded as the most important vector; it also is the most abundant leafhopper species in our area. Managing this species may provide a good chance at preventing PD infections
- Other species listed as vectors also are present, but many more are of unknown vector potential
- The spike in leafhopper abundance in mid-May could allow vineyard managers to save money by timing chemical applications during peak abundance
- Further research is needed to determine an actual preference for Southern Home over Alachua, or whether this was simply a facet of trap location. Identifying vector-resistant traits will aid in developing more successful muscadine crops

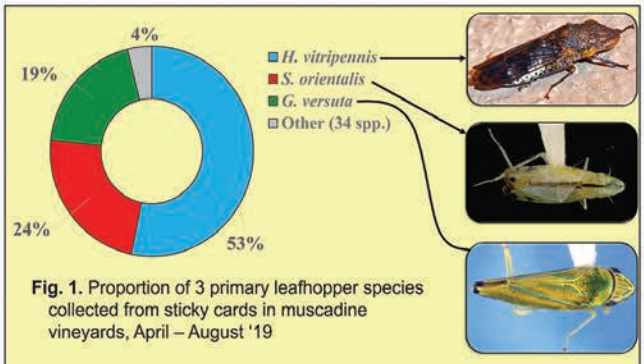


Fig. 1. Proportion of 3 primary leafhopper species collected from sticky cards in muscadine vineyards, April – August '19

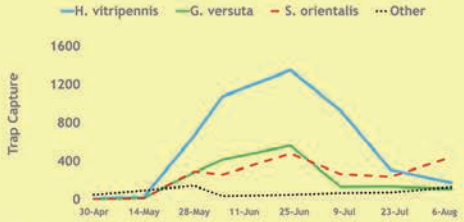


Fig. 2. Trap captures of 3 primary leafhopper species on 8 collection dates from 30 April – 8 August '19

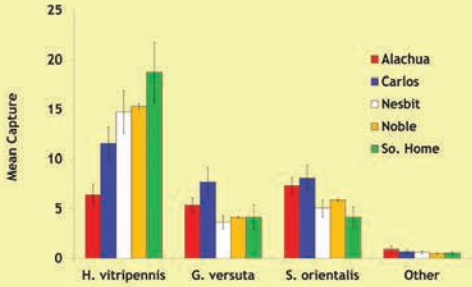


Fig. 3. Mean trap captures (+/- SE) of leafhoppers from 5 muscadine cultivars, April – August '19

Fig. 4. Select "other" leafhoppers collected: *Oncometopia orbona; Scaphytopius verecundus; Penestragania robusta; Xyphon reticulatum; Tylozygus geometricus; T. fasciatus; Paraulacizes irrorata; Phera insolita; Cuerna costalis; Erythroneura tricincta; E. rubra; E. diva; Graminella villica; G. nigrifrons; Sanctanus cruciatus.*

SPOTTED LANTERNFLY (SLF)
A NEW PEST OF AMERICAN GRAPEVINES

Drs. Blair J. Sampson and Christopher T. Werle, *USDA-ARS Southern Horticultural Laboratory, Poplarville MS.*

ADULT (Body: 1" long)

Spotted lanternfly, *Lycorma delicatula,* is a large planthopper native to China, India, and Vietnam, and recently became established in the States of PA, NY, NJ, VA, DE

Actual Size

EGG MASSES (HIGHLY CRYPTIC)

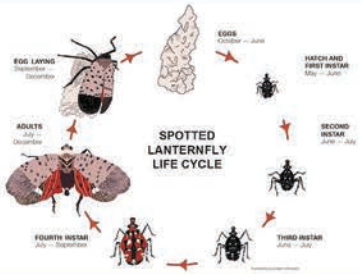
Brought into US via shipments from Asia. Quarantine difficult because SLF egg masses are well camouflaged and easily transported on farm equipment, vehicles, stone, masonry & wood.

IMMATURES (NYMPHS)

PRIMARY HOST (TREE OF HEAVEN, CHINESE SUMAC)

Chief host plants of SLF include grapes, stone fruits, and apples, though its preferred host is *Ailanthus altissima* (AKA Chinese sumac or tree of heaven).[

LIFECYCLE



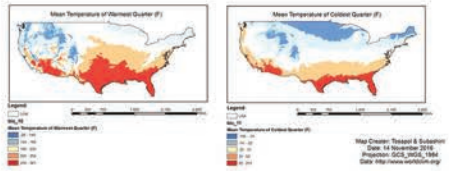
INFESTATIONS

SLF swarm on grape

SLF swarm on tree trunks

In field trials, a pyrethroid (Brigade), 2 neonics (Scorpion and Actara), and a carbamate (carbaryl) gave >95% control for 7 days on grapes. OP insecticides also recommended.

PROJECTED DISTRIBUTION OF SLF



Southeast (especially the Deep South) Is optimal for SLF reproduction

MISSISSIPPI STATE UNIVERSITY
Coastal Research and Extension Center, South Mississippi Branch Experiment Station

South Mississippi Branch Experiment Station Tomato Yield Study

Anthony Bowden, Scott Langlois, Gene Blythe, Jonathan Smith, Brennan Grant, David Lee, and Rankin Morris

Summary

With the addition of salad tables at the South Mississippi Branch Experiment Station (SMBES) in 2016, we began fielding questions from home gardeners asking, 'which method should I use for growing vegetables if I don't want to plant a traditional in-ground garden?' Scott Langlois anecdotally observed that several of the All-American Selection (AAS) vegetables seemed to have higher yields in the station's salad tables when compared to other systems such as the Earthbox® containers. After discussing the observations with Dr. Eugene Blythe and Ph.D. student, Anthony Bowden, an experiment was conceived to test the hypothesis. The salad tables for this experiment were constructed by the Pine Belt Master Gardeners and both the required number of Earthbox® and nursery containers were ordered from the appropriate supplier (Table 1). Three AAS dwarf tomato cultivars, Patio Choice Yellow, Terenzo, and Lizzano, were selected based on their similarities in plant height. 60 plants of each cultivar (180 total) were randomly assigned to one of the growing methods. The experimental design was a completely randomized design consisting of two sections of a single salad table, four Earthbox®, and eight standard nursery containers (Figure 1). Plants in the Earthbox® were treated with the recommended amounts of fertilizer and lime at the time of transplant. Substrate in the salad tables and nursery containers were amended with lime at the start of the experiment but fertilizer was withheld until one week after transplant due to the possibility of burning the plants. Harvest initially occurred 1x/week but as plants continued to grow harvests occurred 2x/week.

Fig.1: Scott Langlois (center) instructing David Lee (right) on the proper stage of harvestable tomatoes.

Fig.2: Representation of Tomatoes in "Full Blush" for harvest.

Table 1. Comparison between different growing methods.

Growing method	Supplier	Volume (ft^3)	Material of Growing Method	Area (in^2)	Number of plants
Salad Table	Pine Belt Master Gardeners	3.32	Cypress 2x8	166.88	4
EarthBox®	Novelty Manufacturing Co.	1.19	#2, #4, and #5 plastic	295.51	2
#7 Nursery Container	BWI	0.868	Blow-molded Plastic	148.49	1

Table 2: Average number of harvested tomatoes across three home gardening systems

Growing method	Tomato Variety		
	Lizzano	Patio	Terenzo
Earth Box	222.3a[z]	158.2a	161.9a
Container	169.5b	159.1a	166.1a
Salad Table	177.2b	104.6b	120.1b

[z]Means followed by same letter in a column are not significantly different

Table 3: Average weight of harvested tomatoes across three home gardening systems

Growing method	Tomato Variety		
	Lizzano	Patio	Terenzo
Earth Box	1,798.8a	2,381.8b	2,259.5b
Container	1,597.7b	2,722.9a	2,551.5a
Salad Table	1,493.7b	1,541.4c	1,584.1c

[z]Means followed by same letter in a column are not significantly different

Fig.3: Example layout for each block.

Fig.4: Salad table construction by the Pine Belt Master Gardeners.

Efficacy of Disinfestants to Eliminate the Loropetalum Knot Bacterium On Stainless Steel, Pressure-Treated Wood and Loropetalum Stems.

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OBJECTIVE.

Evaluate efficacy of disinfestants to kill *Pseudomonas amygdali* pv. *loropetali* on surfaces of different materials.

INTRODUCTION.

***Pseudomonas amygdali* pv. *loropetali* (P. savastanoi pv. savastanoi (Gardan et al. 1992)) has recently been identified as the pathogen that causes bacterial knot on Loropetalum cultivars (*Loropetalum chinense* (R. Br.) Oliv.) (Conner et al. 2013, Harmon et al. 2018). Disease symptoms include small galls with a mean diameter of 1.2 cm on small to moderate-size limbs at the lower- to mid-canopy levels, with a progression of foliar nutrient deficiency symptoms, leaf dehiscence, and stem dieback distal of the gall over several months. The disease has been a problem in commercial plant nurseries in the southeastern U.S. and can be found in the landscape in the same region. The goal of this study was to evaluate efficacy of commercially available disinfestants and a copper compound against *P. amygdali* pv. *loropetali* on surfaces of stainless steel, pressure-treated wood and Loropetalum stems.**

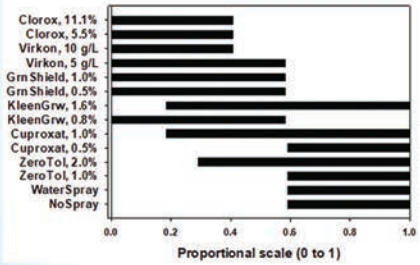

Fig. 1. Binomial probability distribution for chemical treatments applied to stainless-steel washers.

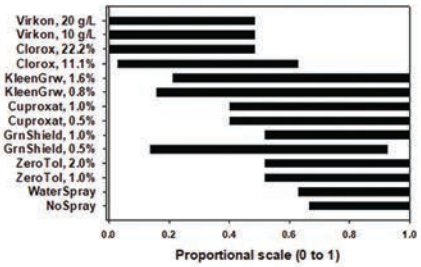

Fig. 2. Binomial probability distribution for chemical treatments applied to pressure-treated wood samples.

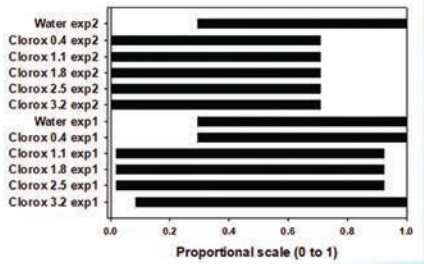

Fig. 3. Binomial probability distribution for rates of Clorox applied to Loropetalum stem sections.

RESULTS.

- **Clorox had strong activity against *P. amygdali* pv. *loropetali* on stainless steel (SS) and pressure-treated wood (PtW) substrates.**
- **Green Shield II and KleenGrow had stronger activity on SS than PtW, but still caused significant log reductions of bacteria on PtW.**
- **ZeroTol 2.0 and Cuproxat did not demonstrate good bacterial activity on either substrate.**
- **Clorox provided good control on Loropetalum stems as long as inoculum was low. Further investigation is needed to fully determine suitability.**

Fig. 4. Disinfestants: chlorine bleach (Chlorox, Chlorox Co., Oakland, CA), peroxygen compound (ZeroTol 2.0, BioSafe Systems LLC, East Hartford, CT), quaternary ammonium compounds (KleenGrow, PACE 49, Inc., Bumaby, British Columbia, Canada, and GreenShield, BASF Corp., Research Triangle Park, NC).

Disclaimer.

"Mention of trade names or commercial products in this manuscript is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the U. S. Department of Agriculture."

LITERAURE CITED.

Conner et al. 2013. Plant Dis. 97:835. Harmon et al. 2018. Plant Dis. 102:799-806.

An Overview of the MSU Extension Farmer Florist Series

Christine Coker, James DelPrince, Benedict Posadas, Eric Stafne, Christian Stephenson, and Patricia Knight

Snapdragons (*Antirrhinum majus*) for the Farmer Florist

Marigolds (*Tagetes erecta*) for the Farmer Florist

Stock (*Matthiola incana*) for the Farmer Florist

Included in each publication:

- Introduction
- Cultural Practices
- Postharvest Handling and Processing
- Disease and Pest Management
- Design Applications
  - Vase Arrangement
  - Flowers to Carry
  - Corsage/Boutonniere
- References and Resources

Wreath Designs

Coastal Research & Extension Center
Dr. Ben Posadas, Dr. Jim DelPrince

Willow; 30 mins.
40” outside, 12” inside
1.78 lb, $22.52, 4.5/7

Preserved Magnolia, 30 mins.
22” outside, 8” inside
1.83 lb, $26.17, 4.8/7

Fresh Magnolia, 30 mins.
24” outside, 6” inside
3.01 lb, $31.77, 5.5/7

Magnolia & Pine, 30 mins.
26” outside, 8” inside
3.37 lb, $27.09, 5.2/7

Mixed Crop, 60 mins.
25” outside, 6” inside
7.17 lb, $29.41, 5.3/7

Pine Cones, 70 mins.
22” outside, 8” inside
4.62 lb, $28.89, 5.5/7

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Planting Density and Fertilizer Placement Effects on Growth of Giant Marconi Peppers in Sub-Irrigated Containers

Gary R. Bachman*, Christine E. Coker, Patricia R. Knight, Jenny B. Ryals, and Corey Wheeler
Mississippi State University, Coastal Research and Extension Center

Introduction

Concerns of fresh produce sources and safety continue to drive the increased interest in establishing home vegetable gardens. This is especially true in urban situations where the perception that a large garden spot is needed and only small spaces are available. Sub-irrigated containers offer a successful gardening system for gardeners with limited space such as small yards, porches, or even balconies to grow vegetables. The goal of this project was to grow at three planting densities and two fertilizer placements the 2001 All-America Selections winner Giant Marconi pepper (*Capsicum annuum* "Giant Marconi") in sub-irrigated containers. Information on potential harvest from vegetables grown in sub-irrigated containers like an EarthBox is valuable for the home gardener with limited growing space to meet family needs.

Methods and Materials

The study was conducted at the MSU Coastal Research and Extension Center in Biloxi, MS.

- Commercially available sub-irrigated EarthBox (www.earthbox.com)
- Peat-based container mix, Sunshine #8
- Pre-plant dolomitic limestone (2 cups)
- Fertilizer treatments consisted of 10-10-10 (1 cup) applied in a band either longitudinally or transversely across the top of the container mix each EB
- Giant Marconi pepper plugs grown out in 4-inch cups and transplanted into the sub-irrigated containers on May 26, 2018
- Planting density treatments were 2, 4, or 8 transplants per sub-irrigated container.
- Irrigation as needed, pest control as needed
- Fruit were harvested approximately every 14 days beginning on June 27, 2019 and ending on November 8, 2019.
- Data collected included the total number of fruit harvested (both usable and culls), fruit weight by planting density and fertilizer placement.

Figure 1. Longitudinal (left) and transverse (right) fertilizer placement in EarthBox sub-irrigated containers

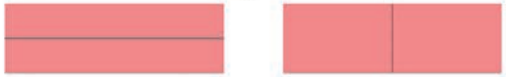

Table 1. Harvest weights and fruit numbers of Giant Marconi Peppers grown in sub-irrigated containers in response to planting density and fertilizer placement .

Harvest weights (lb) and fruit numbers in response to fertilizer placement of Giant Marconi Peppers grown in sub-irrigated containers.

	Harvest Weights (lb)			Harvest Numbers		
	Total	Salable	Cull	Total	Salable	Culls
Longitudinal	81.00 a	61.12 a	19.88 a	1414 a	920 a	494 b
Transverse	51.44 b	31.69 b	19.75 a	1147 b	532 b	615 a

Harvest weights (lb) and fruit numbers in response to planting density of Giant Marconi Peppers grown in sub-irrigated containers.

	Harvest Weights (lb)			Harvest Numbers		
Density	Total	Salable	Cull	Total	Salable	Culls
2	49.23 a	36.31 a	12.92 a	921 a	561 a	360 a
4	49.05 a	35.05 a	13.99 a	916 a	535 a	386 a
6	34.16 b	21.44 b	12.72 a	719 b	356 b	363 a

Results

- Harvest data is the cumulative totals across the growing season
- Planting density of 2 and 4 plants per EarthBox had similar harvest results and both were significantly greater than the 6 plants per EarthBox
- Longitudinal fertilizer placement, regardless of planting density, resulted in significant greater fruit harvested compared to transverse fertilizer placement for all measurable data
- All treatments had similar culls, possibly related to the harvest frequency

Figure 2. (Top) EarthBox preparation, (Middle) salable Giant Marconi peppers, and (Bottom) EarthBox sub-irrigated containers

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South Mississippi Branch Experiment Station Poinsettia Consumer Preference

Caitlin McLeod, Christine Coker, Patricia Knight, James Del Prince, Gary Bachman, Benedict Posadas and Scott Langlois

Summary

The poinsettia is known for its rich red bracts decorating local businesses, homes and churches during the Christmas holiday season. Increased breeding efforts have opened new windows of opportunity for growers and consumers alike to broaden the poinsettia season. Mums are the signature plant for fall. Although mums are a compliment to the fall décor, they do not seem to be a hardy alternative for presentation. Poinsettias offer a hardy alternative to mums.

Sixteen varieties were ordered and planted in 8- and 6-inch pots for consumer color preference. In addition, three of those varieties were also planted in 4- and 10-inch pots for consumer willingness to pay. Each variety was pinched back and is fertilized, shaded and watered in accordance with the Poinsettia Production Guidelines for the Gulf South. Once bracts have developed, surveys will be taken at public events. For survey incentive, demonstration plants will be raffled off to participants. The experiment results will provide growers insight on marketable varieties and profitable plant sizes.

Table 1. ***Pot size and color consumer preference varities.***

Variety	Bract Color	Vigor	Timing
Jester Red	Red	High	Early Season
Jubilee Red	Red	Medium	Mid Season
Majestic Pink	Pink	High	Mid Season
Princettia Red	Other Novalities	Low	Early Season
Winter Rose Early Red	Novelty Red	Low	Early Season
Jubilee White	White	Medium	Mid Season
Prestige Maroon	Novelty Red	Low	Mid Season
Tapestry	Novelty Red	Medium	Mid Season
Red Glitter	Jingle	Medium	Mid Season
Sparkling Punch	Other Novalities	Medium	Early Season
Winter Prose Dark Red	Novelty Red	Medium	Mid Season
Ice Punch	Other Novalities	Medium	Early Season
Red Soul	Red	Low	Mid Season
Orange Spice	Other Novalities	Low	Late Season
Gold Rush	Other Novalities	Low	Early Season
Autumn Leaves	Other Novalities	Low	Early Season

**Based on North Carolina University's Poinsettia Trials*

Photos retrieved from North Carolina Extension website.

QUICK GUIDE TO NURSERY WEED CONTROL

MISSISSIPPI STATE UNIVERSITY EXTENSION

SELECTIVE HERBICIDES		APPLICATION TIMING		CROP TYPE			NURSERY TYPE		WEED TYPE CONTROLLED			RESISTANCE MANAGMENT
Example Product Names	Active Ingredient	Pre Emergent	Post Emergent	Woody Plants	Herbaceous Perennials	Ornamental Grasses	Field	Container	Broadleaf	Grass	Sedge	WSSA Group
XL 2G	Benfluralin + Oryzalin	●		●	●		●	●	●	●		3 + 3
Basagran® T/O	Bentazon (sodium salt)		●	●	●		●	●	●		●	6
Envoy Plus®	Clethodim		●	●	●		●	●		●		1
Lontrel®	Clopyralid		●	●	●	●	●		●			4
Dacthal® Flowable; Dacthal® 75 DF	DCPA	●		●	●		●	●	●	●		3
Casoron® 4G; Casoron® CS	Dichlobenil	●	●	●			●		●	●	●	20
Tower®	Dimethenamid-P	●		●	●		●	●	●	●	●	15
Freehand®	Dimethenamid-P + Pendimethalin	●		●			●	●	●	●	●	15 + 3
Dimension® 1EC; Dimension® 40WP; Dimension® 2EW	Dithiopyr	●		●	●	●	●	●	●	●		3
Acclaim® Extra 0.57EC	Fenoxaprop		●	●	●		●	●		●		1
Fusilade® II; Ornamec®	Fluazifop		●	●	●		●	●		●		1
BroadStar®	Flumioxazin	●		●			●	●	●	●		14
Marengo®	Indaziflam	●		●	●	●	●	●	●	●	●	29
Gallery®	Isoxaben	●		●	●	●	●	●	●			21
Pennant Magnum®	Metolachlor	●		●	●	●	●	●	●	●	●	15
Devrinol®	Napropamide	●		●	●	●	●	●	●	●		15
Surflan®	Oryzalin	●		●	●	●	●	●	●	●		3
Ronstar®	Oxadiazon	●		●	●	●	●	●	●	●		14
Jewel®	Oxadiazon + Pendimethalin	●		●	●	●	●	●	●	●		14 + 3
RegalStar® G	Oxadiazon + Prodiamine	●		●			●	●	●	●		14 + 3
Goal® 2XL	Oxyfluorfen	●	●	●	●		●	●	●	●		14
Rout®; Double O® SPC	Oxyfluorfen + Oryzalin	●		●	●		●	●	●	●		14 + 3
Two OX E-Pro; Regal O-O Herbicide®	Oxyfluorfen + Oxadiazon	●		●			●	●	●	●		14 + 14
OH2®	Oxyfluorfen + Pendimethalin	●		●	●		●	●	●	●		14 + 3
Pendulum®	Pendimethalin	●		●	●	●	●	●	●	●		3
Barricade®	Prodiamine	●		●	●	●	●	●	●	●		3
Kerb®	Pronamide	●		●			●		●	●		3
Segment®	Sethoxydim		●	●	●		●	●		●		1
Princep®	Simazine	●		●			●	●	●	●		5
Dismiss®	Sulfentrazone		●	●			●	●	●	●	●	14
Certainty®	Sulfosulfuron		●	●	●	●	●		●	●	●	2
Treflan®; Trifluralin HF	Trifluralin	●		●	●	●	●	●	●	●		3
Snapshot®	Trifluralin + Isoxaben	●		●	●	●	●	●	●	●		3 + 21
Showcase®	Trifluralin + Isoxaben + Oxyfluorfen	●		●	●	●	●	●	●	●		3 + 21 + 14

herbicides should always be handled to minimize the possibility of harm to nontarget organisms. All users should be trained in the proper handling of herbicides and the following precautions:

1. Know the material being applied. READ THE CONTAINER LABEL AND UNDERSTAND THE DIRECTIONS and FOLLOW THE DIRECTIONS.
2. Wear protective clothing specified on the pesticide label and avoid prolonged exposure to herbicides.
3. Avoid contamination of food or drinking water.
4. When herbicide contamination of the body occurs, wash the affected area quickly and thoroughly with soap and water.
5. Keep spray equipment clean and in good condition.
6. STORE HERBICIDES IN PROPERLY LABELED CONTAINERS, OUT OF REACH OF CHILDREN AND ANIMALS.
7. Dispose of empty containers safely.

8. KNOW THE EMERGENCY MEASURES FOR TREATING ACCIDENTAL POISONING. Physicians and other medical authorities may obtain information on the toxicity of herbicides from the **Poison Control Center, University Medical Center, Jackson, MS, telephone 1-800-222-1222.**

9. If herbicides get into the eyes, flush the eyes with plenty of water for 15 minutes and call a physician.

10. If a herbicide is swallowed, apply the first-aid treatment printed on the label of the container and call a physician.

Particular attention has been taken to ascertain that all herbicide treatments in this poster are registered with the FDA for use in the manner described. Registrations for specific practices are frequently modified or deleted, often making it impossible for practices suggested in this poster to remain current. Therefore, **the manufacturer's label should be read and observed to prevent misuse of a herbicide.** Use directions may be in the form of supplemental labeling, which must be in possession of the user at the time of use. Supplemental labeling for these special uses may be obtained from the dealer or registrant. It is not intended or proposed that any practice suggested in this guide be in violation of existing registration or manufacturer's label.

This publication is for the distribution and guidance of agricultural workers. Specific and less technical information for various crops may be obtained at county offices of the Mississippi State University Extension Service.

Repeated applications of the same herbicide or a different herbicide with a similar mode of action on the same site, season after season, spread occurrence of resistance to herbicides in several weed species in Mississippi, the U.S., and around the world. Weed management programs would not depend solely on herbicides to be economically sustainable in the long term.

In general, a combination of the following strategies is recommended.

1. Use residual herbicides.
2. Practice crop rotation.
3. Rotate herbicides with different modes of action.
4. Tank-mix herbicides with different modes of action at full recommended rate(s).
5. Avoid sequential applications of the same herbicide continually.
6. Utilize tillage, cultivation, and other cultural practices when feasible.
7. Clean equipment thoroughly before and after each use.
8. Control weeds postharvest to reduce soil seedbank.

By Bradley C. Young, M.S.
Assistant Extension Professor,
Row and Turf Extension

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Effect of Auxin Concentration and Stem Position on Propagation of Sequoyah™ Crape Myrtle

J. B. Ryals*[1], P. R. Knight[1], S. A. Langlois[1], E. K. Blythe[1], J. S. Baldwin[2], C. E. H. Coker[3], G. R. Bachman[3], and J. DelPrince[3]

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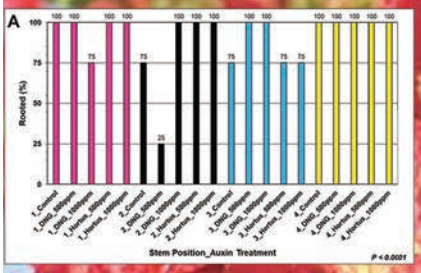
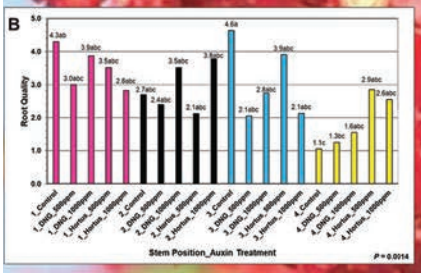
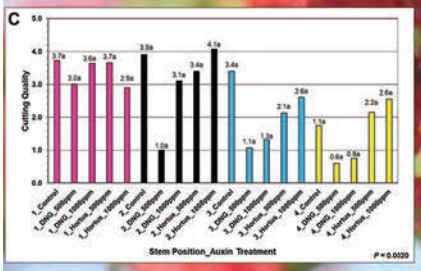
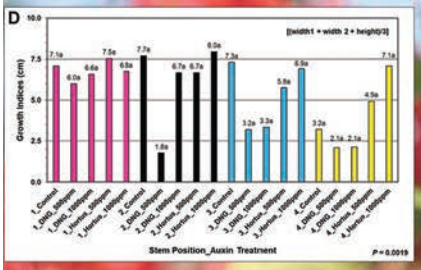








Abstract

Crape myrtles provide a reliable source of color for many southern landscapes. Understanding how to propagate the different cutting types gives growers the ability to propagate them at the most efficient time during their crop rotations. Mississippi State University has released six new crape myrtle selections, including Sequoyah™. Sequoyah™ is a hybrid resulting from the cross of Lagerstroemia 'Arapaho' and an unknown pollen donor. Sequoyah™ has a clear, true red flower color and medium to large growth habit. Three-year-old plants in a research setting are 4.5+ meters and have flowered from early June through late August. The objective of this research was to evaluate ease of rooting and determine optimal commercial auxin formulation and concentration and stem position for softwood and semi-hardwood cutting propagation of Sequoyah™. Results showed that number of roots and average length of the three longest roots were similar among treatment combinations. Percent rooted was greater for cuttings dipped in Hortus IBA Water Soluble Salts™ (Hortus IBA) compared to cuttings that received no auxin. Cuttings dipped in Hortus IBA exhibited better cutting quality and larger growth indices compared to cuttings dipped in Dip'N Grow® (DNG). Hortus IBA at a concentration of 1000 ppm IBA resulted in better root quality and growth indices compared to Hortus IBA at 500 ppm IBA, which resulted in higher rooting percentages. In preparing cuttings from a shoot, a cutting at position 1 was located at the site of attachment to the parent plant (most proximal) and positions 2-4 continued toward the branch tip with position 4 being the most distal. Stem positions 1 and 2 would serve as semi-hardwood cutting types and positions 3 and 4 would serve as softwood cutting types. It was observed that semi-hardwood cutting positions (1 & 2) had higher rooting percentages, root quality, cutting quality, and growth indices compared to the softwood stem positions (3 & 4). Overall, the results suggested that dipping Sequoyah™ semi-hardwood cuttings in Hortus IBA at 1000 ppm resulted in a higher quality liner.

Methods

12.7-cm medial cuttings were harvested from the parent plant and inserted to a depth of 2.5-cm in propagation medium on 9 April 2018. Propagation medium was 100% perlite placed in 6-cm containers. Treatments included four stem positions, two auxin formulations [Hortus IBA (Hortus IBA Water Soluble Salts™) or Dip'N Grow® (IBA + NAA at 50% the rate of IBA), and three levels of auxin (0, 500, or 1000 ppm IBA). Data collected after 60 days included rooting percentage, growth index (new shoots), cutting quality (0-5, with 0 = dead and 5 = transplant-ready cutting), total root number, average root length (of three longest roots), and root quality (0-5, with 0=no roots and 5=healthy, vigorous root system).

Data

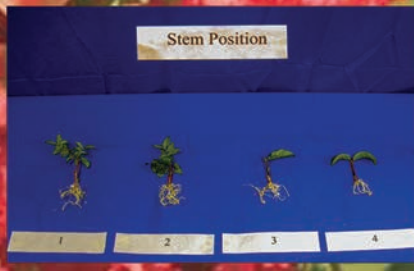
Data were analyzed using linear mixed models and generalized linear mixed models with the GLIMMIX procedure of SAS

Conclusions

- Treatment had no effect on number of roots and average length of the three longest roots.
- Semi-hardwood cutting positions resulted in better rooting percentages, root quality, cutting quality, and growth indices compared to softwood cutting positions.
- Hortus IBA dipped cuttings did have better cutting quality and growth indices compared to cuttings dipped in DNG and root quality and growth indices did increase when Hortus IBA hormone concentrations were increased.
- Rooting percentages were increased when Hortus IBA concentrations were 1000ppm.

Figures

A. Percent of cuttings which had some amount of rooting.
B. Root quality rating is based on root development (0-5, with 0 = no roots and 5 = good root distribution and branching).
C. Cutting quality rating is based on overall cutting development (0-5, with 0 = dead and 5 = transplant ready).
D. Growth indices is a measure of the new stem growth (cm).



Literature Cited

1. Blythe, E.K., J.L. Sibley, K.M. Tilt, and J.M. Ruter. 2003. Foliar application of auxin for rooting stem cuttings of selected ornamental crops. J. Environ. Hort. 21:131-136.
2. Byers, D. 1983. Selection and propagation of crape myrtle. Comb. Proc. Int. Plant Prop. Soc. 33:542-545.
3. Dirr, M.A. 1990. Effects of P-ITS and IBA on the rooting response of 19 landscape taxa. J. Environ. Hort. 8:83-85.
4. Dirr, M.A. and C.W. Heuser, Jr. 1987. The Reference Manual of Woody Plant Propagation. Varsity Press, Inc. Athens, Georgia.
5. Hartmann, H.T., D.E. Kester, F.T. Davies, Jr., and R.L. Geneve. 2011. Hartmann & Kester's Plant Propagation: Principles and Practices, 8th ed. Prentice Hall, Boston, Massachusetts.
6. Knight, P.R., J.M. Anderson, D. Lee, M. Lee, L. DeJean, and D. Murchison. 2006. Crape myrtle evaluations in south Mississippi. HortScience 41:512.

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Effect of Cutting Submersion Duration and Auxin Concentration on Survivability and Root Response of Florida Azalea

J. B. Ryals*, P. R. Knight, D. R. Chastain, L. E. Ryals III, C. E. H. Coker, G. R. Bachman, J. DelPrince, P. R. Drackett, and A. T. Bowden

Abstract

Florida azalea (*Rhododendron austrinum)* is a deciduous azalea native to northern Florida, coastal Alabama, southern Georgia, and southeastern Mississippi. To provide growers with relevant cutting propagation recommendations, the objective of this research was to determine optimal commercial auxin concentration and submersion timing on very soft stem cuttings. Auxin source was Hortus IBA Water Soluble Salts™ (Hortus IBA) at 0, 1000, 2500, 5000, 7500, or 10000 ppm IBA. Submersion durations were 0, 1, 6, 12, or 24 hours with 0 receiving a 5 sec basal quick-dip. Duration of submersion effected root percentage (P<.0001), number of roots (P=0.0101), and average length of the three longest roots (P=0.0415). There was an interaction between auxin concentration and submersion duration for root quality (P=0.0056), cutting quality (P<.0001) and growth indices (P<.0001). Results indicate that very soft Florida azalea cuttings had a better rooting response when treated with a 5 sec basal quick-dip and auxin concentration was 2500.

Methods

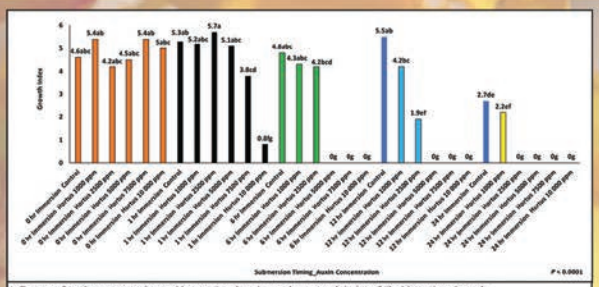
Cuttings with an average length of around 5 cm (2 inches) long were taken from tissue soft enough to be removed via pinching. Based on previous studies, Hortus (Hortus IBA Water Soluble Salts™) was chosen as the auxin. Treatments included six auxin rates (0, 1000, 2500, 5000, 7500, or 10000 IBA ppm) and five cutting submersion durations (0, 1, 6, 12, or 24 hours). The 0 hour duration received a 5 sec basal quick-dip. Cuttings were wounded then submerged for each time interval, removed, and stuck into 100% perlite substrate in a 6.4 cm (2.5 inch) container. They were then placed under intermitted mist for 4 seconds every 6 minutes during daylight hours. Sixty days after sticking, it was noted that most all cuttings had callused, but formed no roots. At this time, mist intervals were reduced to 2 seconds every 10 minutes and a liquid application of 20-10-20 (Peters® Professional, J.R. Peters, Allentown, PA, USA) general purpose fertilizer at the rate of 50 ppm nitrogen was applied to try and encourage root growth. Data collected after 120 days included rooting percentage, growth index (new shoots), cutting quality (1-5, with 1=dead and 5=transplant-ready cutting), total root number, average root length (of three longest roots), and root quality (1-5, with 1=no roots and 5=healthy, vigorous root system).

Data

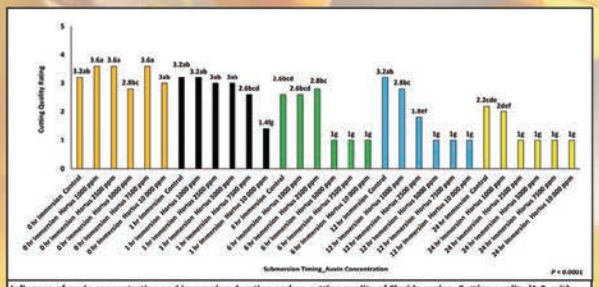
Data were analyzed by JMP 14.1.0 Student Edition (SAS Institute, Inc., Cary, NC, USA). All parameters were analyzed by two-way mixed effects ANOVA using standard least squares.

Conclusions

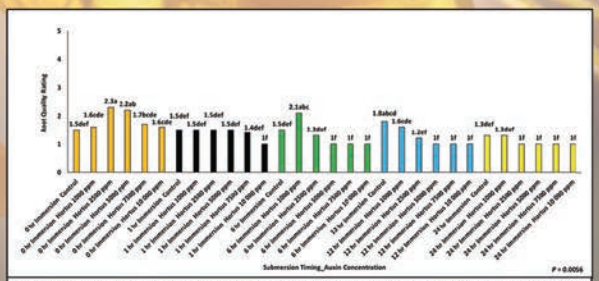
- Root quality, cutting quality, and growth indices all responded to an interaction between auxin concentration and submersion.
- Root and cutting quality were increased using the 0 hour submersion.
- Root quality increased when 2500 ppm IBA was applied at the 0 hour submersion.
- Cutting quality increased when 1000, 2500, or 7500 ppm IBA was applied at the 0 hour submersion.
- Growth indices increased when 2500 ppm IBA was applied at the 1 hour submersion.
- Root percentage, number of roots, and average length of the three longest roots responded negatively to immersion duration treatments except for average length of the three longest roots for cuttings submerged for 6 hours.
- The 0 hour immersion timing resulted in better cuttings compared to the other four timing treatments for root percentage, number of roots, and average length of the three longest roots.
- Based on these results, young new plant tissue cuttings performed best overall when subjected to Hortus at a rate of 2500 ppm IBA at a 0 hour immersion timing (five second quick-dip).



Influence of auxin concentration and immersion duration and on growth index of Florida azalea. Growth index=(width1+width2+height)/3). Means followed by the same letter are similar and not significantly different (α = 0.05).



Influence of auxin concentration and immersion duration and on cutting quality of Florida azalea. Cutting quality (1-5, with 1=dead and 5=transplant ready cutting). Means followed by the same letter are similar and not significantly different (α = 0.05).



Influence of auxin concentration and immersion duration and on root quality of Florida azalea. Root quality (1-5, with 1=dead and 5=healthy, vigorous root system). Means followed by the same letter are similar and not significantly different (α = 0.05).

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Effect of Auxin on Rooting of Seven Species of Passionfruit

J. B. Ryals*, P. R. Knight, and E. Stafne

Overview

Production of passionfruit (*Passiflora* spp.) is largely accomplished by growing them from seed. The downside to growing from seed is the amount of genetic variation seen in the progeny. Propagation via cuttings is a way to reduce genetic variation in the crop. This will give you plants that are more "true to type" to the stock plant from which the cutting was taken. Propagation from cuttings can also aid in reduced growth and establishment time since the plant will not be starting from a seed. This could enable producers to increase their production and maintain their genetic lines.

The objective of this research was to evaluate ease of rooting and determine optimal auxin concentration and formulation for seven species of passionfruit.

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Native Milkweed Species (*Asclepias spp.)* for Home Gardens in South Mississippi

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The Crosby Arboretum

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INTRODUCTION

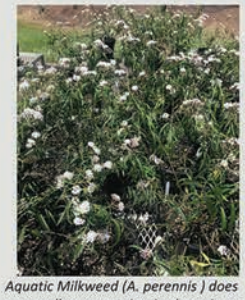
In spring 2015, in response to a steep decline in eastern North American monarch butterfly populations which overwinter in Mexico, the Crosby Arboretum began receiving inquiries about native milkweed species suitable for the home garden, an attempt by gardeners to provide supplemental host plant material to potentially offset the population decline and additionally as an alternative to the commonly widely available but invasive, non-native tropical milkweed (*Asclepias curassavica*).

GARDEN TRIALS

Since early 2016, field trials have been conducted at the South MS Branch Experiment Station in Poplarville to determine the best native milkweed species for home garden use. Trials are also being conducted in the Crosby Arboretum's pollinator garden, the home gardens of Pearl River Master Gardeners, and in the gardens of persons who purchase native milkweed at Crosby Arboretum plant sales, and who are increasingly reporting highly positive results.

The Crosby Arboretum website (http://crosyarboretum.msstate.edu) contains information on the **Mississippi Milkweeds Project**, which includes photographs of the 15 most common native milkweed species and a table giving cultural information for each species, in addition to information on past garden trials. Native milkweed is being propagated at the Arboretum and is periodically available during the year, and at plant sales.

Swamp Milkweed (A. incarnata) can grow from seed to 4 to 5 feet in a year.



Aquatic Milkweed (A. perennis) does very well as a containerized specimen.

WHEN DO MONARCHS NEED MILKWEED?

SPRING! This is when migrating female butterflies lay their eggs on milkweed for the emerging caterpillars to feed on. According to monarch biologist Karen Oberhauser, female monarchs lay 300 to 400 eggs in the wild, usually one egg at a time, on leaf undersides. One caterpillar can consume **up to three milkweed plants** throughout its life cycle from egg to chrysalis.

Provide LARGE BEDS of milkweed that will be an abundant source of vegetative host material.

To track monarch migration, see ***https://journeynorth.org/monarch.***

FALL is when monarch butterflies need NECTAR, not milkweed, to fuel their migration to Mexico.

NATIVE MILKWEEDS FOR SOUTH MISSISSIPPI HOME GARDENS:

The Crosby Arboretum in Picayune, Mississippi encourages the planting of native milkweed species in place of the commonly available tropical milkweed (*Asclepias curassavica*), which is non-native, invasive, disease-prone, and highly toxic. The two most suitable native species for average garden conditions in Mississippi are:

Swamp milkweed (*Asclepias incarnata*) is very easily established. It grows in full sun, and wet or dry soils

Aquatic milkweed (*Asclepias perennis*) prefers wet conditions and part shade. It performs well in containers.

MILKWEED WILL ATTRACT INSECTS!

Grow aromatic plants, i.e. basil, marigold, chrysanthemums, mints, petunias, or rosemary near milkweed to reduce the presence of aphids and other insects.

Avoid using pesticides, especially systemic pesticides. These can harm monarch caterpillars and insects feeding on nectar.

Locate milkweed at a distance from other plants, or in the back of your garden bed, where the presence of insects will not be a visual deterrent.

OE DISEASE IN TROPICAL MILKWEED

In the southern U.S., monarch butterflies that feed on tropical milkweed often breed during the winter months, rather than completing their fall migration to Mexico. This increases the likelihood of the transmission of a protozoan parasite *Ophryocystis elektroscirrha* (OE), debilitating to monarchs.

If you already have tropical milkweed, cut back the plant to stubble before fall migration to deter the spread of OE disease.

Gradually replace tropical milkweed with native milkweed species.

Use caution to avoid getting the highly toxic sap in the eyes, which can cause painful chemical burns.

RECOMMENDATIONS

Propagate milkweed from cuttings or seed to establish large "mother beds" in a short period of time. Use species of native milkweed that will colonize rather than individual plants, to support feeding caterpillars.

Grow milkweed originating from coastal **Ecoregion 232,** which **is** adapted to the region's high heat and humidity. Seed from this ecoregion also usually germinates without cold stratification.

COLONIZING *ASCLEPIAS* SPECIES FOR NATURAL AREAS:

BUTTERFLY WEED
Asclepias tuberosa

Sunny, well-drained sites
Dry meadows; upland pine-hardwood margins
Prairies/open pine forests

GREEN ANTELOPEHORN
(*Asclepias viridis*)

Sunny, well-drained sites

To be useful, milkweed must be present in abundance in order to provide an ample food source. Colonizing native milkweed species will offer dense vegetative masses for feeding caterpillars.

MS AGRICULTURAL AND
FORESTRY EXPERIMENT STATION

The mission of the Mississippi Agricultural and Forestry Experiment Station and the College of Agriculture and Life Sciences is to advance agriculture and natural resources through teaching and learning, research and discovery, service and engagement which will enhance economic prosperity and environmental stewardship, to build stronger communities and improve the health and well-being of families, and to serve people of the state, the region and the world.

Keith H. Coble, Interim Director **www.mafes.msstate.edu**