successful, but it was the only plant they produced that the workers wanted to take home. The 'VIP' petunia was a stand-alone SuperStar®, which was soon to give rise to one of the most famous Texas SuperStars® of all time.

'Laura Bush' Petunia (*Petunia* 'Laura Bush'). A seedling of the 'VIP' petunia produced a superior selection of old-fashioned, fragrant, reseeding petunia which was given the name 'Laura Bush' after the then first-lady of Texas. Mrs. Bush married well and now the 'Laura Bush' (*Petunia* 'Laura Bush') petunia is the only flower named after the First Lady of the United States of America. In the Spring 2001 the 'Laura Bush' petunia became the 21st Texas SuperStar®, a couple of years before George W. Bush became the 43 President of the United States; see <http://www.plantanswers.com/petunia_bush.htm>. Both of these petunias have been lost to virus contamination during vegetative propagation. A virus-free population of the 'Laura Bush' petunia can be obtained by periodically (every 6 months) growing a seedling population from the only seed source which is Wildseed Farms <www.wildseedfarms.com>.

Propagation Research from Mississippi State University©

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INTRODUCTION

Native azaleas are undoubtedly one of the most spectacular flowering deciduous shrubs. They add much needed color to the landscape in the early spring when few other plants are blooming. Two of the earliest flowering native azaleas are *Rhododendron austrinum* (Small) Rehder. and *R. canescens* (Michaux) (Galle, 1987).

Rhododendron austrinum (Small) Rehder, Florida azalea, is a medium to tall branched shrub that reaches 4.6 m (15 ft) in height (Galle, 1987). Flower color ranges from pure yellow to yellowish-orange. Flowers 2.5 to 4 cm (1 to 1½ inch) long appear prior to the leaves in clusters of 8 to 15 blossoms. Native range of Florida azalea is northern Florida, coastal Alabama and Georgia, and southeastern Mississippi. Florida azalea is hardy in U.S.D.A. Hardiness Zones 6b to 10a.

Rhododendron canescens (Michaux), Piedmont azalea, is a medium to tall shrub that may exceed 4.6 m (15 ft) in height and may sometimes be stoloniferous (Galle, 1987). Flower color ranges from white to medium or dark pink with white to dark pink corolla tubes. Piedmont azalea seldom has a blotch. Flowers 2.5 to 4 cm (1 to 1½ inch) long appear prior to or with leafing out. Native range of Piedmont azalea is the coastal plains of North Carolina to Florida and west to Oklahoma and southeastern Texas. Piedmont azalea can also be found in the Piedmont areas of North Carolina, Georgia, Alabama, Mississippi, Tennessee, and Arkansas. Piedmont azalea is hardy in U.S.D.A. hardiness Zones 6a to 10a.

Reports vary concerning the ease of propagation for native azaleas. Bir (1992) reported that native azaleas root best when terminal softwood cuttings are taken when new growth has ceased. A 0.5 to 0.8% IBA powder or 1000 to 2500 ppm IBA solution is recommended. New growth should be forced under lights or rooted cuttings should be left undisturbed through normal winter chilling until new growth

starts in the spring. Galle (1987) reported that Florida azalea is easy to propagate from softwood cuttings, while Piedmont azalea is moderate to easy to propagate from softwood cuttings. Berry (1998) reported that Florida and Piedmont azalea can be propagated from soft new growth using 5,000 ppm K-IBA. Optimum months are mid-May through mid-June. Knight et al. (2001) reported the best rooting response for Piedmont azalea occurred between 8,000 and 10,000 ppm K-IBA. Utilization of a 10,000 ppm K-IBA quick dip also resulted in 100% rooting.

Dirr and Heuser (1987) reported that stoloniferous native azaleas often root easier than nonstoloniferous species. Major problems associated with native azalea propagation are rooting the cuttings and inducing new growth in the spring. Cuttings that are 15 cm (6 inch) long should be taken when they are slightly firm. Cuttings should have all but 4 leaves removed and are wounded. Cuttings are treated with a 4,000 ppm IBA plus fungicide, and stuck in a 100% peat moss medium.

The objective of this experiment was to determine the optimum hormone concentration and mist interval for propagation of *R. austrinum* and *R. canescens.*

MATERIALS AND METHODS

Terminal softwood cuttings of 15 cm (6 inch) in length of *R. austrinum* and *R. canescens* were taken on 11 April 2003, from established plantings at Crosby Arboretum, Picayune, Mississippi (U.S.D.A. Zone 8b). Cuttings were stored at 100% relative humidity during transport to Poplarville, Mississippi, and were stuck the same day. Two to four terminal leaves were left on each cutting, and the basal end was wounded to a length of 2.5 cm (1 inch). Cuttings were quick-dipped for 5 sec in the respective hormone solutions and immediately stuck in 7-cm (3-inch) pots to a depth of 2.5 cm (1 inch). Propagation medium was 100% pine bark amended with 2.9 $kg \cdot m^{-3}$ (5 lbs/yd^3) dolomitic limestone and 0.9 $kg \cdot m^{-3}$ (1.5 lbs/yd^3) Micromax. Cuttings received mist from 7:00 to 19:30 HR. Average maximum light levels ranged from 800 to 1000 $\mu mol \cdot m^{-2} \cdot sec^{-1}$.

Auxin concentrations utilized in this experiment included 0, 2,500, 5,000, 7,500, or 10,000 ppm K-IBA. Misting intervals were 4 sec/6 min or 4 sec/12 min. Data collected for this experiment included percent rooting, cutting growth, cutting quality (0 to 5, with 0 being dead and 5 being a healthy, well-rooted cutting), root number, length of three longest roots, and root quality (0-4, with 0 being dead and 4 being excellent).

Cuttings were arranged in a 5 (hormone concentration) × 2 (mist interval) factorial arranged in a randomized complete block design with 6 replications consisting of 2 plants per treatment (n=12). All data were subjected to ANOVA and means were separated using Fisher's Protected Least Significant Difference (LSD, $p<0.05$). Each species was analyzed as a separate experiment.

RESULTS

Florida Azalea.

Hormone Level. Percent rooting ranged from 62.5% for cuttings dipped in 0 or 2,500 ppm K-IBA to 100% for cuttings dipped in 10,000 ppm K-IBA. Cuttings treated with 5000 or 7500 ppm K-IBA had 50% or 37.5% rooting, respectively (Table 1). Hormone concentration had no influence on cutting growth. Cuttings treated with 7500 ppm K-IBA had 2 to 5 times more roots compared to cuttings treated with 2500 or 0 ppm K-IBA. There were no differences in root number between cuttings

Table 1. Influence of hormone concentration and mist interval on rooting for *Rhododendron austrinum*.

Treatment	Rooting (%)	Cutting growth	Root (no.)	Average root length[z] (cm)	Root quality[y]
Hormone					
0 ppm K-IBA	62.5	3.0a[x]	6.6c	2.1b	0.2b
2,500 ppm K-IBA	62.5	4.4a	17.1bc	3.4b	0.7ab
5,000 ppm K-IBA	50.0	3.6a	21.9ab	4.2ab	0.7ab
7,500 ppm K-IBA	37.5	4.7a	33.9a	5.9a	1.2ab
10,000 ppm K-IBA	100.0	4.4a	21.8ab	6.0a	3.7a
Mist interval					
4 sec/6 min	75.0	4.6a	25.6a	4.9a	0.9a
4 sec/12 min	60.0	3.5a	14.9b	3.8a	1.7a
Significance[w]					
Hormone		NS	*	**	**
Time		NS	*	NS	NS
Hormone*Time		NS	NS	NS	NS
Rep		NS	NS	NS	NS

[z] Average root length=length of three longest roots/3.

[y] Root quality rating = 0-4 with 0 being dead and 4 being a well rooted cutting.

[x] Means followed by the same letter are not significantly different.

[w] NS, *, or ** means nonsignificant or significant at the 5 and 1% levels, respectively, according to LSD, $p<0.05$.

Table 2. Influence of hormone concentration and mist interval on rooting for *Rhododendron canescens*.

Treatment		Rooting (%)	Cutting growth	Root (no.)	Average root length[z] (cm)	Root quality[y]
Hormone						
	0 ppm K-IBA	75.0	3.9a[x]	6.3b	2.5b	0.6b
	2,500 ppm K-IBA	75.0	2.2a	8.5b	2.8b	1.0b
	5,000 ppm K-IBA	75.0	2.3a	8.0b	2.9b	0.9b
	7,500 ppm K-IBA	100	2.5a	5.3b	2.8b	0.8b
	10,000 ppm K-IBA	87.5	5.6a	41.3a	7.0a	3.0a
Mist interval						
	4 sec/6 min	95.0	4.8a	14.3a	4.2a	1.4a
	4 sec/12 min	70.0	1.8a	13.5a	3.0a	1.1a
Significance[w]						
Hormone			NS	**	**	**
Time	**		NS	NS	NS	
Hormone*Time			NS	NS	NS	NS
Rep			NS	NS	*	*

[z] Average root length=length of three longest roots/3.

[y] Root quality rating = 0-4 with 0 being dead and 4 being a well rooted cutting.

[x] Means followed by the same letter are not significantly different.

[w] NS, *, or ** means nonsignificant or significant at the 5 and 1% levels, respectively, according to LSD, $p<0.05$.

treated with 0 or 2,500 ppm K-IBA or 2,500, 10,000, or 5,000 ppm K-IBA. Average root length was greatest for cuttings treated with 7,500 or 10,000 ppm K-IBA compared to 0 or 2,500 ppm K-IBA. Cuttings treated with 5,000 ppm K-IBA were similar to all other treatments. Root quality was greatest for cuttings treated with 10,000 ppm K-IBA and poorest for cuttings treated with 0 ppm K-IBA. All other treatments were similar.

Mist Interval. Percent rooting ranged from 75% for cuttings placed in mist for 4 sec/6 min to 60% for cuttings placed in mist for 4 sec/12 min (Table 1). Mist interval had no influence on cutting growth, average root length, or root quality. Root numbers were 58% less for cuttings placed in mist beds for 4 sec/12 min compared to cuttings placed in mist beds for 4 sec/6 min.

Piedmont Azalea.

Hormone Level. Percent rooting ranged from 75% for cuttings treated with 0, 2500, or 5000 ppm K-IBA, 87.5% for cuttings treated with 10,000 ppm K-IBA, and 100% for cuttings treated with 7500 ppm K-IBA (Table 2). Hormone level had no influence on growth of rooted cuttings. Root number, average root length, and root quality were greatest for cuttings dipped in 10,000 ppm K-IBA compared to all other treatments.

Mist Interval. Percent rooting ranged from 95% for cuttings placed in mist for 4 sec/6 min compared to 70.0% for cuttings placed in mist for 4 sec/12 min (Table 2). Mist interval had no influence on root number, average root length, or root quality ratings. Growth was best for cuttings placed under mist for 4 sec/6 min.

DISCUSSION

Florida Azalea. Hormone concentration had no influence on cutting growth. Root number, average root length, and root quality was generally the same regardless of whether cuttings were treated with 5,000, 7,500 or 10,000 ppm K-IBA. However, percent rooting was improved to 100% when cuttings were dipped in 10,000 ppm K-IBA compared to cuttings dipped in 5000 or 7500 ppm K-IBA. These results suggest that higher hormone levels may be most beneficial for propagation of Florida azalea. Mist interval only impacted root number. It appears that 4 sec/6 min is the preferred mist interval for propagation of Florida azalea.

Piedmont Azalea. Hormone concentration did not influence growth of rooted cuttings. Cuttings treated with 10,000 ppm K-IBA consistently had higher root numbers, average root lengths, and root quality ratings compared to cuttings treated with other levels of K-IBA. Knight et al. (2001) reported similar results in a previous Piedmont azalea experiment. Mist interval only impacted growth increase, and 4 sec/6 min appears to be the preferred mist interval for propagation of Piedmont azalea.

While cuttings of both species treated with low levels of hormone rooted, the use of higher levels of K-IBA increases root numbers, lengths, and quality. While the cuttings did root fairly easily as reported by (Galle, 1987), poor overall cutting quality suggests that initiating new growth is as difficult as reported by Dirr and Heuser (1987).

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New Plant Evaluation and Propagation Processes©

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INTRODUCTION

In the society that we live in today, new and improved products are what the consumers are expecting. In the green industry, this means that we also have to keep up with society by developing new and improved selections of plants to keep up with the trends. The development of new and improved plants presents growers and breeders alike with many challenges. To develop new plants there are certain steps and processes that you must go through that are very time consuming and in some cases very expensive. The first step in this process is to obtain a plant that is new and improved. Next it must be evaluated for an extended period of time to be sure the plant will perform for the end consumer in such a fashion that will prove it to be a plant worthy of introduction. Once you have a new plant you then must develop the methods to propagate and produce such a plant. When you have a plant that will perform and can be produced, you still have to determine how you will market this product so the end consumer will see the added value and a premium price charged.

DISCOVERY

While the idea of a new and improved plant selection is easy to conceive, actually coming up with this new product is much more difficult. There are several methods that we use to discover new and improved plant selections. The most obvious way to find these new selections is to just use your eyes. Plants are living things, and they sometimes develop mutations or sports that can be developed into new plants. In mass production where you are planting thousands of plants, the odds are somewhere in the middle of the masses there will be plants that do something unusual. The hard part is finding that needle in the haystack. We spend numerous hours riding and looking through the masses that we have already produced looking for that one diamond in the rough. However, mutations must be evaluated during propagation to determine if the characteristics will remain the same in the plants that are produced as they were in the original.

Another method that we use to discover new selections of plants is to try to manipulate plant genes through the use of chemicals to cause mutations. There are a couple herbicides that are commonly used and on the market along with other types