HRI's Mission:

To direct, fund, promote and communicate horticultural research, which increases the quality and value of ornamental plants, improves the productivity and profitability of the nursery and landscape industry, and protects and enhances the environment.

(55.9 ppm) NAA or 300 μM (60.9 ppm) IBA prior to being moved to a medium without growth regulators (Table 2). Rooting percentages between 73 and 93% were obtained with these treatments *in vitro*. There was no root formation observed in cuttings treated with the quick dip method for either NAA or IBA (Data not shown).

NAA and IBA were both effective in initiating root formation. However, the roots formed in NAA-treated cuttings were short and thick with no secondary branching. IBA treated cuttings produced a finer, more branched root system than NAA treated cuttings (Fig. 1).

Microshoots developed from a mature form of Eastern white redbud have a high potential for root formation. This high rooting potential was probably related to the number of subcultures for these explants prior to the rooting experiments. Successive subculturing has been related to increased rooting potential in a number of species (3). Rooted microshoots were acclimated to greenhouse conditions, but these have not flowered to demonstrate maintenance of the white flowering phenotype.

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Control of Basal Sprout Regrowth on Crapemyrtle with NAA[1]

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Abstract

Inhibition of basal sprout development on *Lagerstroemia indica* L. × *fauriei* Koehne 'Natchez' and *L. indica* L.'Country Red' was achieved with 1-naphthaleneacetic acid (NAA) applied as a directed trunk spray or in a lanolin paste. A directed trunk spray was more effective than lanolin paste application in reducing sprout number and dry weight; plant height of 'Country Red', but not 'Natchez' crapemyrtle, was reduced by spray application compared to lanolin paste application or the control. Sprout number and dry weight of both crapemyrtle cultivars, shoot dry weight of both cultivars sprayed, and plant height of sprayed 'Country Red' crapemyrtle decreased with increasing NAA rate. NAA rate did not affect shoot dry weight of either cultivar or height of 'Country Red' crapemyrtle treated with NAA in a lanolin paste. Height of 'Natchez' crapemyrtle treated by either method of application was not affected by NAA rate.

Index words: auxin, naphthaleneacetic acid, growth regulator

Growth regulator used in this study: NAA (1-naphthaleneacetic acid).

Species used in this study: 'Natchez' crapemyrtle (*Lagerstroemia indica* L. × *fauriei* Koehne 'Natchez'); 'Country Red' crapemyrtle (*L. indica* L. 'Country Red').

Significance to the Nursery Industry

Considerable expense is incurred when hand pruning basal sprouts from tree-form crapemyrtles. Application of NAA either as a directed trunk spray or in lanolin paste suppressed development of basal sprouts on crapemyrtle. Greater control of basal sprouts occurred with directed sprays as the concentration of NAA increased from 0 to 1%. An average of 0.4 sprouts developed on plants sprayed with 0.75% NAA, while no sprouts formed on plants sprayed with 1.0% solution. Directed sprays suppressed overall shoot growth when compared to the control. Due to the time required to paint pruning cuts, NAA applied in a lanolin paste is not a viable option for nurserymen.

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Introduction

Crapemyrtles are popular landscape plants in the Southeastern U.S. Colorful blooms during the summer months,

attractive bark, and rapid growth are a few of its attributes. Many of the recently released cultivars display exfoliating bark revealing a two-toned inner bark. This year-round interest from the bark is often best utilized by training crapemyrtle into tree-form.

During production, tree-form crapemyrtles require repeated pruning of basal sprouts produced from latent buds on the trunk (watersprouts), especially around pruning wounds, and from adventitious buds below the soil surface (rootsuckers).

Plant growth regulators, including naphthaleneacetic acid ethyl ester (NAA), are effective in controlling watersprouts and rootsuckers on several tree fruit and nut crops (3, 4, 6, 7), grapevines (8), and woody landscape plants (2). NAA is currently labeled as a sprout inhibitor for use on apple, pear, olive, non-bearing citrus and nectarines and as a healing aid/sprout inhibitor applied following pruning of many flowering landscape and shade trees. NAA is not labeled for use on crapemyrtle. The objective of this research was to evaluate the effectiveness of NAA in controlling basal sprout regrowth of tree-form crapemyrtle following pruning.

Materials and Methods

Uniform 15.2 cm (6 in) liners of 'Natchez' and 'Country Red' crapemyrtles were potted April 12, 1988, into 26.5 l (#7) containers of milled pine bark:peat moss (3:1, by vol). The growth medium was amended per m^3 (yd^3) with 3.6 kg (6 lb) dolomitic limestone, 1.2 kg (2 lb) gypsum, 8.3 kg (14 lb) Osmocote 17N-3P-10K (17-7-12), and 0.9 kg (1.5 lb) Micromax. Plants were grown outdoors in full sun and watered daily by overhead irrigation.

On July 22, 1988, all branches originating on the lower 46 cm (18 in) of the main trunks (basal sprouts) were removed. The NAA (13.2% by weight, Tre-Hold, Union Carbide Agricultural Products Co., Research Triangle Park, NC 27709) was applied by 2 methods at 5 rates. Application methods included either a directed trunk spray using a hand-held, pump-up sprayer equipped with a fan nozzle or NAA in a pure lanolin paste applied directly to the pruning cuts with a paint brush. NAA was applied at 0, 0.25, 0.50, 0.75, and 1.00% concentrations (weight/weight basis). A control treatment that received neither spray nor paste was included for comparison. Climatic conditions when treatments were applied were clear, 31.7°C (89°F), and 55% relative humidity. There were 5 replicates of 2 plants per treatment completely randomized within cultivars. Five months after treatments were applied, data were collected on basal sprout number and dry weight, plant height, and shoot dry weight.

Results and Discussion

Basal sprout number of both cultivars was least when plants were treated with a directed trunk spray of NAA followed by NAA applied in a lanolin paste, and most on the pruned control plants (Table 1, Fig. 1). A directed spray also was more effective than lanolin paste in suppressing sprout dry weight. Basal sprouts on lanolin-treated plants developed on portions of the trunk not painted with lanolin as well as from below the growth medium surface, but not from painted pruning cuts. Containment pruning of vigorous trees often stimulates sprout growth some distance from the cut (6), which explains why NAA applied to individual pruning cuts is less effective in controlling sprouts than are treatments applied to larger areas. NAA is not translocated when applied to uncut bark and moves only about 30 cm (12 in) from the point of application on the cut surface of a pruning wound (1). Thorough coverage is required for complete sprout control on severely pruned trees, or on trees that normally produce abundant sprout growth on the trunk or scaffold limbs (5).

Plant height and shoot dry weight of sprayed 'Country Red' crapemyrtle were less than that of lanolin-treated plants and control plants. Shoot dry weight of 'Natchez' crapemyrtle was less when plants were sprayed compared to the

Table 1. Application method and concentration of NAA to control basal sprout regrowth on 'Natchez' and 'Country Red' crapemyrtle.

	'Natchez'				'Country Red'			
Treatment	Sprout no/ plant	Sprout dry wt./plant (g)	Plant ht. (cm)	Shoot dry wt. (g)	Sprout no/ plant	Sprout dry wt./plant (g)	Plant ht. (cm)	Shoot dry wt. (g)
Method								
Spray	0.4c[z]	6.6b	165.9a	489.3b	1.9c	31.6c	142.9b	287.9b
Lanolin paste	2.8b	40.0a	167.0a	551.7ab	6.6b	102.8b	157.5a	387.8a
Control	6.5a	41.3a	179.9a	653.1a	19.8a	142.8a	167.6a	394.1a
Spray rate (%)								
0.00	6.5	41.3	179.9	653.1	19.8	142.8	167.7	394.1
0.25	1.0	10.9	174.5	490.1	4.5	43.7	145.5	297.9
0.50	0.3	3.7	172.3	533.9	2.4	26.4	163.2	342.5
0.75	0.1	0.8	169.9	525.3	0.7	14.4	129.8	301.7
1.00	0.0	0.0	147.1	407.4	0.0	0.0	133.2	209.2
Significance[y]	C*	Q*	ns	L**	C**	Q*	L**	L*
Lanolin paste rate (%)								
0.00	6.5	41.3	179.9	653.1	19.8	142.8	167.6	394.1
0.25	2.9	41.7	172.6	504.9	6.6	104.2	158.2	384.8
0.50	3.1	31.8	156.8	584.8	7.5	120.8	159.7	408.2
0.75	3.6	67.8	177.0	493.6	6.4	96.5	156.4	393.1
1.00	1.8	11.5	161.5	615.2	5.7	89.7	155.7	364.8
Significance	C**	C*	ns	ns	C**	Q*	ns	ns

[z]Means within columns followed by the same letter are not significantly different using LSD at the 1% level.

[y]Linear (L), quadratic (Q) or cubic (C) regression response significant at 5% (*) or 1% (**) level, or not significant (ns).

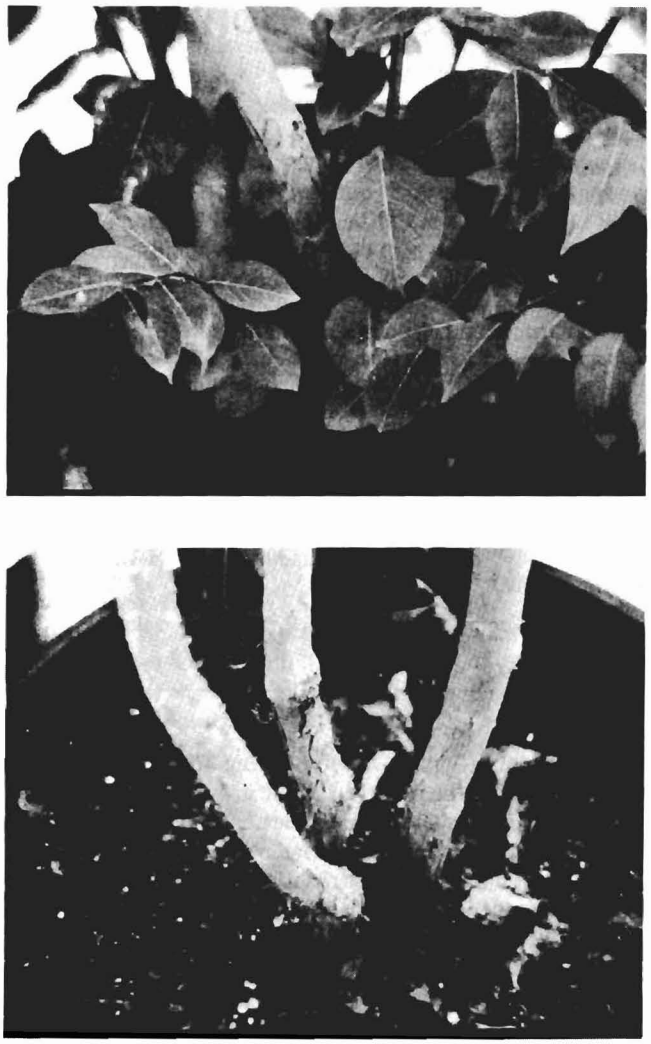

Fig. 1. Regrowth of basal sprouts on pruned 'Natchez' crapemyrtle (top photo) and control of basal sprouts (bottom photo) with a directed trunk spray of 0.75% NAA.

control; plant height of 'Natchez' crapemyrtle was not affected by method of NAA application.

Sprout number and dry weight of the 2 cultivars treated with both application methods decreased with increasing NAA rate. Increasing spray rates of NAA suppressed plant height of 'Country Red' crapemyrtle and shoot dry weight of both cultivars. Neither plant height nor shoot dry weight of either cultivar was affected by increasing NAA rates applied in a lanolin paste. Suppression of plant height and shoot dry weight from a directed NAA spray, but not with lanolin paste application, probably relates to a greater absorption from the spray and agrees with earlier research with apple nursery stock (3). However, little or no adverse effects were observed in other research (2).

(*Ed. note:* This paper reports the results of research only, and does not imply registration of a pesticide under amended FIFRA. Before using any of the products mentioned in this research paper, be certain of their registration by appropriate state and/or federal authorities.)

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