

RESEARCH RESULTS FOR NURSERYMEN

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Horticulture Series No. 14

AGRICULTURAL EXPERIMENT STATION  
AUBURN UNIVERSITY

## Container Media and Fertilization

by

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Objectives of this experiment were: (1) to compare processed garbage and imported peat moss-amended media in container plant production, and (2) to determine the best fertilizer treatment for plants grown in these media.

Potted liners of Ilex cornuta 'Burfordi', Thuja occidentalis, and Viburnum burkwoodi were transplanted into one gallon cans containing either soil, perlite and peat or soil, perlite and processed garbage. Fertilizer treatments consisted of (1) constant 150 p.p.m. N, 60 p.p.m. P and K; (2) bi-monthly fertilizer 1 oz per 3 gal 25-10-10; (3) 12 g Agriform tablet 14-4-6; (4) 1 oz Eeesy-Gro packet 16-8-16; (5) Mag-Amp 7-40-6; (6) Osmocote 18-9-9; (7) Osmocote 14-14-14; (8) 8-8-8 inorganic; (9) Sta-Green 12-6-6. Dry granular fertilizers were applied at the rate of 3/4 lb per bu. Data on plant dry weight, height, and spread were statistically analyzed. Only statistically significant results are reported.

Results

Dry weight and height of plants in garbage-amended media were greater than those grown in peat-amended media. Constant and bi-monthly fertilizer applications produced plants with the most dry weight. Mag-Amp and 8-8-8 produced shorter plants than constant bi-monthly and Osmocote 18-9-9. Spread of plants fertilized with constant and bi-monthly exceeded the spread of plants fertilized with Mag-Amp, 8-8-8, and Sta-Green. Constant or bi-monthly in either media produced plants with the most dry weight and differed from other fertilizer-media combinations. Constant, bi-monthly, and Osmocote 18-9-9 in either media

and Agriform tablet and Eeesy-Gro packet in garbage-amended media produced the tallest plants. Constant and bi-monthly in both media produced plants with the greatest spread.

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Publications: None at the time of this writing. Annual progress reports are available from the author.

## 2. Effects of Photoperiod and Temperature on Azalea Shoot Development

by

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### Nature of Work

Effects of photoperiod and temperature on shoot development in azalea cultivars, 'Kingfisher', 'Red Wing', 'Roadrunner', and 'Red American Beauty', were studied under both controlled environment and greenhouse conditions at Auburn University from December, 1968, to March, 1970. Objectives were to determine if photoperiodic and temperature treatments applied after shearing affected shoot length, number of shoots per lateral branch, number of leaves per shoot, and dry weight per shoot. These measurements were recorded as indices of desirable plant quality.

### Results

Plants grown under increased photoperiodic treatments generally tended to have increased shoot lengths, decreased number of shoots, no differences in number of leaves, and increased dry weights. Plants grown in low temperature (75-65°F) chambers generally tended to have greater shoot lengths, higher number of shoots, more leaves, and decreased dry weights. This research might be applicable in formulating cultural practices for commercial production of greenhouse forcing azaleas. Since the number of shoots tended to decrease with increases in photoperiod, it might be feasible to reduce the daylength during the period of shoot break. After shoot break occurs, light could be applied to increase shoot length. Lighting might be applied as an extension of natural daylengths, rather than as "light break" treatments. A reduction in daylength could be used for an opposite effect, a reduction in shoot length. Temperature control could be beneficial in cultural practices; 75-65°F appeared an ideal temperature

for shoot development in greenhouse forcing azaleas. Continued research is needed in this area. Effect of photoperiod and temperature seemed to be most critical during the period of shoot break. Additional experiments using different photoperiod and temperature combinations to determine optimum conditions for maximum shoot break could be conducted.

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Publications:

Barrick, W. E. 1970. Effect of photoperiod and temperature on shoot development in greenhouse forcing azaleas, Rhododendron cv. Masters Thesis. Auburn University.

Sanderson, K. C., W. E. Barrick, W. C. Martin, Jr., and R. L. Self. 1969. Research Results for Flower Growers, Azalea Studies 1966-69. Hort. Ser. No. 13. Auburn University, Alabama Agricultural Experiment Station.

### 3. Chemical Pinching of Azaleas with Ethrel and Offshoot-0

by

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#### Nature of Work

Ethrel, a new growth regulator, has been reported to exert a synergistic effect on the action of other growth regulators. Experiments were conducted on azaleas to determine the effect of Ethrel alone and in combination with the chemical pinching agent, Offshoot-0, on the number of breaks per shoot. One experiment was conducted on the cultivar 'Chimes' during September-October, 1969, and another experiment was conducted on the cultivar 'Kingfisher' during March-May, 1970. Treatments consisted of (1) hand sheared; (2) 2,500 p.p.m. Ethrel spray; (3) 5,000 p.p.m. Ethrel spray; (4) 2,500 p.p.m. Ethrel plus 3.5% Offshoot-0 spray; (5) 5,000 p.p.m. Ethrel plus 3.5% Offshoot-0 spray; (6) 3.5% Offshoot-0 spray; and (7) 4.5% Offshoot-0 spray. Sprays were applied to run off with a Halaby mist blower.

#### Results

A reddish discoloration of the leaves was observed on some leaves in both cultivars of Ethrel treated plants. Older, lower leaves fell off both cultivars soon after Ethrel spraying. Plants usually recovered from leaf discoloration and produced new leaves after leaf drop. A combined spray of 5,000 p.p.m. Ethrel and 3.5% Offshoot-0 averaged the most number of breaks per shoot in 'Chimes' (3.4). 'Kingfisher' (2.9) had the most breaks when sprayed with 2,500 p.p.m. Ethrel plus 3.5% Offshoot-0. Fewest number of breaks per shoot was obtained with 2,500 p.p.m. Ethrel in 'Chimes' (2.3) and with 4.5% Offshoot-0 in 'Kingfisher' (1.6). A 5,000 p.p.m. Ethrel spray averaged 2.6 breaks in both cultivars. Both cultivars produced 2.8 breaks when sprayed with 2,500 p.p.m. Ethrel

plus 3.5% Offshoot-0. 'Chimes' and 'Kingfisher' had 2.9 and 2.6 breaks, respectively, when sprayed with 3.5% Offshoot-0. A 4.5% Offshoot-0 spray yielded 2.8 and 1.6 breaks with 'Chimes' and 'Kingfisher', respectively. Ethrel sprays seemed to have some influence on the number of breaks produced. Combined with Offshoot-0, Ethrel increased the number of breaks per shoot. The small increase in breaks, cost of materials and initial plant damage would probably rule out commercial use of the Ethrel-Offshoot-0 sprays.

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Publications:

Sanderson, K. C. 1969. Growth Retardants for Florist Crops A to Z. Florist Rev., Vol. 145, No. 3757.

Annual Progress Reports available from authors.

## Weed Control Studies

by

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An experiment was designed to study the uses of herbicide mulches on liner production. Processed garbage, sawdust, and no mulch were compared. Dichlobenil ('Casoron') 4-G was incorporated into the mulches at the rate of 114 g and 57 g per cu ft when applied as a 1 in. and 2 in. mulch, respectively. Incorporation was done in a cement mixer in 1968 and by raking in broadcast dichlobenil in 1969. Other treatments included no mulch, no mulch with 114 g dichlobenil per 125 sq ft, and 1 in. and 2 in. mulches. Potted liners of Buxus harlandi, Rhododendron obtusum japonicum 'Rose Banner', Juniperus chinensis 'Pfitzer', Viburnum burkwoodi, Ilex cornuta 'Matthew Yates', Juniperus conferta, and Thuja pyramidalis were mulched immediately after planting in July, 1968.

Results

Herbicide mulches were more effective in controlling weeds than other treatments. Combinations of 2 in. of sawdust and dichlobenil gave the best weed control. Check plots which received no mulch or no herbicide were completely covered with weeds three to four months after treatments were applied in 1968. Sawdust without a herbicide was quite effective in controlling weeds when applied to a 2 in. depth. Plant death was higher with herbicide mulches (19%) than non-herbicide (13%); however, 1 in. sawdust-dichlobenil mulch had the least plant loss (2.9%). Processed garbage mulches had a high plant loss. Plant height and spread was greatest in plants mulched with the 2 in. sawdust-dichlobenil combination. Herbicide mulches offer nurserymen and landscapers an effective weed control method. Not all plant species will tolerate dichlobenil.

Publications:

Sanderson, K. C. and W. C. Martin, Jr. 1969. Processed Garbage - Useful Mulch for Ornamental Plants. 1969. Highlights of Agric. Res., Vol. 16, No. 3. Auburn University, Alabama Agric. Exp. Sta.

Sanderson, K. C. 1970. Herbicide Mulches - A New Method of Weed Control. Highlights of Agric. Res., Auburn University, Alabama Agric. Exp. Sta.

