REDUCTION IN PRODUCTION TIME FOR 10 CM AZALEAS WITH CHEMICAL PINCHING

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Our work with azaleas usually has involved plants that are quite large with a multitude of flowers. The plants often were at least 18 to 24 months old and would have required a substantial wholesale price and consequently a high retail price in the florist shop. A few years ago we began to deliberately flower some of our plants that were much younger and were still in 10 cm (4") pots. We looked upon them as a novelty item, rather than as a bona fide florist product. Since then, however, there has been increased interest in the flowering of such small azaleas. Vic Ball called attention to our program in a couple of issues of Ball Grower Talks, a widely read publication in the floriculture industry. This publicity prompted visitors, letters and phone calls from people desiring more information about the small azaleas.

The small plants that we have in our program are not plants that are culls from other studies, nor are they fairly old plants that simply have not been pinched or repotted. In most instances the plants are approximately one year old, from the date of propagation to the date of flowering.

One of our major objectives in the 10 cm azalea program has been to get high quality, small plants into flower in a minimum period of time. The time required from the final pinch to the time of flowering has been quite well defined and would be difficult to shorten. The stages of production where the most significant reductions in time could be realized is in the propagation bench and in the "growing-on-to-size" stage -- from the time of rooting to the final pinch. With larger plants some growers have "increased" plant size quickly by putting more than one plant in a pot. This approach is not practical when a 10 cm pot is being used. Another way to increase plant size quickly is to pinch frequently, or to use chemical pinching agents that might produce more lateral shoots than would be achieved with manual pinching. This experiment was concerned with the last approach - the use of chemical pinching agents to increase lateral branching.

Cultivars 'Big Ben', 'Dogwood', 'Gloria', and 'Red Wing' were propagated in mid-May, 1978 and transplanted to 10 cm round plastic pots 3 months later. Cuttings were pinched on the day they were removed from stock and placed in the propagation bench, and again on the day they were potted.

The final or timed pinch, which is the major concern of this report, was made on November 1, 1978. Treatments were:

1. Off-Shoot-O (3.5%) + Atrinal (3%)
2. Off-Shoot-O (3.5%) alone
3. Manual pinch + Atrinal (3%)
4. Manual pinch alone

Atrinal was applied as a foliar spray 2 days after the Off-Shoot-O was applied (Trt. 1) or the plants were manually pinched (Trt. 3). On the date of the final

pinch 'Gloria' plants averaged 7 shoots per plant, 'Dogwood' averaged 9 shoots, 'Red Wing' averaged 6 and 'Big Ben' plants averaged 5 shoots. There were 7 plants of each cultivar in each treatment, and plants in the various treatments were placed at random on the greenhouse bench, at a minimum night temperature of 16°C (60°F). Plants were given long days (lights 10 PM - 2 AM) to promote vegetative growth. They were fertilized every 2 weeks with 21-7-7 (neutral) at 20 ounces/100 gallons of water.

The first plants to show much lateral shoot development were those which were manually pinched without the application of Atrinal (Trt. 4), followed by the Off-Shoot-O (Trt. 2). Atrinal delayed lateral shoot emergence and some of the new foliage was very narrow, with symptoms resembling those indicative of copper deficiency. Some plants had so many breaks that none of them developed adequately and many of the surplus shoots should have been pruned out.

New lateral shoots were counted in early February, 1979. The numbers of shoots per plant and the number of new shoots that developed per original shoot are listed in Table 1. Typical 'Dogwood' plants are shown in Figure 1.

Plants were approximately 9 months old at the conclusion of this study, including the 2 months in the propagation bench. About 5 more months would have been required to have the plants in flower (8 weeks to initiate and partially develop flower buds, 6 weeks in cold storage and 5 to 6 weeks for forcing), so the plants would then be 14 months old. Many of these plants would have had over 60 flowers, if only 2 flower buds had developed per shoot. This number probably exceeds the amount needed on a plant in a 10 cm pot.

Table 1. Vegetative shoot production on 10 cm azaleas treated with different pinching methods.

Cultivar	Treatment	Average Number of shoots/plant	Average Number of New Shoots/ Original Shoot
Gloria	1. Off-Shoot-0 + Dikegulac	24	3.4
	2. Off-Shoot-0 alone	7	1.0
	3. Manual pinch + Dikegulac	21	3.0
	4. Manual pinch alone	13	1.9
Red Wing	1. Off-Shoot-0 + Dikegulac	21	3.5
	2. Off-Shoot-0 alone	14	2.3
	3. Manual pinch + Dikegulac	14	2.3
	4. Manual pinch alone	12	2.0
Dogwood	1. Off-Shoot-0 + Dikegulac	39	4.3
	2. Off-Shoot-0 alone	18	2.0
	3. Manual pinch + Dikegulac	33	2.7
	4. Manual pinch alone	23	2.6
Big Ben	1. Off-Shoot-0 + Dikegulac	16	3.2
	2. Off-Shoot-0 alone	7	1.4
	3. Manual pinch + Dikegulac	14	2.8
	4. Manual pinch alone	7	1.4

Our goal is to produce high quality, flowering, 10 cm azaleas in 12 months or less. We have not yet determined the optimum number of flowers for such an item. Cultivars with large flowers, such as 'Red Wing' or 'Big Ben' would not require as many flowers as a cultivar such as 'Dogwood' which has smaller blooms.

We have also learned that a well-drained, aerated potting medium is essential for azaleas finished in 10 cm pots. Watering of 10 cm azaleas has been much more difficult for us than if the plants are grown in larger containers. Extra caution must also be observed when these small plants are undergoing the cold temperature treatment to break flower bud dormancy.

Figure 1. 'Dogwood' azalea plants treated, left to right, with Off-Shoot-O + Atrinal, Off-Shoot-O alone, manual pinch + Atrinal, manual pinch alone. Plants were pinched November 1, 1978 and photographed February 5, 1979.