

AZALEA PRODUCTION FOR THE GARDEN CENTER AND THE LANDSCAPE MARKET

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We have, during the past five years, leaned our plant production towards the Garden Center and Landscape Gardener, and azaleas have been a major part of our total production.

Three types of plastic houses are used in our propagation of azaleas. Some have spray mist but most now have controlled water sprinklers. Prior to sticking the cuttings in June and July we clean the houses, then fill each house with 3 inch cups, using a medium of pine bark, peat and sand. Though the soil is sterile, we will give the filled containers a shot of fungicide before sticking, if time permits. Cuttings of about 3-1/2 inches are then obtained, rinsed in fungicide, dipped in Hormodin#1, and stuck 2 to the cup. Azaleas produced are Kurumes and Indicas. We start our controlled water on a 3-1/2 minute to 4 second cycle. At the first sign of any roots we then lengthen to a 7 minute - 6 second cycle. With further root growth we reduce to 15, then 30 minutes, then off. During this period we spray twice weekly with fungicides, reducing this to once weekly after the cuttings have hardened off.

Until a root system begins to develop we have been using a Nachurs foliar feed. Thereafter we make GeWa applications of Peter's Azalea Special — based on our soluble salt readings which should be between 0.4 and 0.8. By October we have a well-rooted, established plant, ready for winter dormancy. We only use heat when a really hard freeze is predicted. Still they will bud and bloom and we constantly keep them pinched. This not only reduces fungus but also tends to promote growing plus early shaping.

As early in March as possible we begin to upgrade into 1 and 2 gallon containers, using a mix of 43% pine bark, 36% peat and 21% sand. We cut the root-ball 2 or 3 times at potting, helping to force new root pattern and growth. After a good watering we now go to the shaded field area, using a polypropylene of 30% shade.

We keep the plants bunched until mid-summer which conserves space until the old crop has been shipped and also gives the root system some added shade. Early prunings are made easier while plants are bunched because we can use electric shears operating off a portable generator. When the time comes to space the plants we use a marked aluminum pipe as a guide, which gives the field a neat appearance and also gives us the

ability to know exactly how many plants are placed on a given bed area.

During the warm months — March through October — we maintain a liquid fertilizer program of 9-0-8. Our winter feeding of 13-6-6 granular is applied 2 or 3 times between October and February.

We try always to be on a preventive program but still get caught short. Fungicides are applied weekly and more often during rainy spells. Insecticides are usually applied on a bi-monthly basis, or as needed. The same holds true for miticides. Our herbicide program revolves around the alternating use of pre-emergence herbicides. Clean field areas also help keep weed seeds from reaching the container. For us, there is no way to put a dollar value in savings created for us as a direct result of the work done by the Extension Service of the University of Florida on weed control.

At this point, the crop is in its last stage: it has been spaced and we have gotten our cuttings for the next crop. Now *all* we have to do is “fan and feed them” for the next 6 months. A percentage are ready enough for late spring sale, but only if the customer has personally seen the plant. Some customers have protective holding areas, allowing for fall shipping and the assurance of a spring bud and break for their season. A few of our larger and established nurseries in the South maintain their own holding areas farther north providing them with an ideal solution to this particular shipping problem. Other customers have us ship in the spring before the buds begin to swell — and this can get rather hectic at times. Landscapers are not as dependent upon color as Garden Centers, which makes for easier shipping schedules.

I have now completed our cycle of an azalea crop. We try constantly to change and improve our methods as we learn of new techniques or find that some of our practices can be eliminated. We may vary our propagation mix, our fertilizer program or hormone treatment. At present we contemplate eliminating the use of hormones altogether. I say “we” broadly and emphatically. I just happen to be the one up here talking. This has always been a joint venture with the combined efforts of my brother, Don, his sons and my sons. With all our heads together our efforts are multiplied, so are our mistakes.

JAMES WELLS: Hunter, would you, or any of the panel, elaborate on weed control programs for azaleas?

HUNTER BOULO: The main thing is applying the knowledge we have — we know how to kill weeds and we know how

to keep them out — the main thing is doing it. We use paraquat to burn down existing weeds and Lasso as a pre-emergent herbicide. With rigorous application of these two items we have come up with a fairly good weed control. We do still have some hand weeding — some of these things you just can't seem to get ahead of. We really have come a long way on it, though.

FOUNT MAY: We use preemergents on our containers, alternating between Lasso, experimentally; with Treflan, with really good results, although you still have to come in and hand weed sometimes. We use Roundup and even diesel fuel around the edges of our bed areas. There are certain things though that you don't dare use Lasso on, even experimentally.

BILL COLBURN: Hunter, do you use Lasso on your liners? What is the smallest pot you use it on?

HUNTER BOULO: No, not on liners. We have made some applications on our crops but primarily we stress keeping the environment as clean of weeds as we can; I don't advocate using herbicides on the crops.

CHARLIE PARKERSON: Hunter, how do you soak your cuttings?

HUNTER BOULO: We give them a 30 minute soak (recommended by Ray Self) in baskets holding 3-7,000 cuttings at a time in bath tubs, then we dump them out to drain before the women stick them. We keep records on which portions of the beds are stuck by which women.

DICK MARSHALL: Hunter, how deep do you stick them?

HUNTER BOULO: We try to make all our cuttings about 3 inches long and stick them no more than one inch deep.

JACK AICHELE: Does anyone use growth retardants?

ZACK WESTBROOK: We use B-9 during spring and early summer; growth is not too much of a problem in late summer. There have been some comments that growth retardants on azaleas stimulate bud formation; I don't think there is much evidence for that; it seems as though fast growth or long shoot growth are inhibited with indirect stimulation of bud growth resulting.

HUNTER BOULO: If your plant is compact and full, it is just as good without B-9 as it is with B-9.

ZACK WESTBROOK: You're exactly right, Hunter. Some cultivars are better without it. You may get a little bit smaller leaves and better foliage color with less bypassing growth if you were holding them for late spring forcing.

VOICE: Zack, have you had success using chemical pinching agents on 'Gloria' or 'Dorothy Gish'?

ZACK WESTBROOK: We've used Off-Shoot-O with varying results. If there is any indication of a bud forming there it doesn't do a job; you have to get them in exactly the right vegetative stage to do a good 100% job; our results have been rather spotty with those two cultivars, but we get good results with many other cultivars — 'Redwing' and 'Alaska' respond extremely well.

JIM WELLS: Has anybody used Atrinal as a pinching agent? It is available now; we tested it this year in our nursery. It did a good job on evergreen azaleas. It works differently from Off-Shoot-O — it doesn't kill the bud, but stops it from growing and natural branching results. The whole crop does turn yellow for about three weeks and it scares me, but it comes out of it.

VOICE: What about soil sterilization?

FOUNT MAY: Our medium is naturally sterile, being composed of Canadian peat, river sand and pine bark.

ZACK WESTBROOK: We don't heat our soil, but we do use a drench — Benlate and Dexon or Banrot — although as Fount says, with those ingredients we haven't had any problems.

HUNTER BOULO: We use some sandy soil and we sterilize only that part of the mix with methyl bromide, 2 lbs/100 sq. feet.

VOICE: Fount, you use foliar fertilizer; what is the formula?

FOUNT MAY: We use Nachurs 9-18-9, but we don't use it for a very long time and may eliminate it altogether.

HOMER THOMAS: What about the people who handle the Daconil-soaked cuttings — do the women wear gloves?

HUNTER: We haven't had any problems with Daconil to my knowledge. Thylate does cause rashes, so we don't use it anymore. They don't use gloves.

CHARLIE PARKERSON: Zack, you put Benlate and other things through your irrigation system — how much water do you mix with the Benlate?

ZACK WESTBROOK: We use a 1:100 injector. Use Benlate at 8 oz/100 gal, so the stock solution is concentrated enough to give a finished product of equivalent concentration through the injector. We run it 10 to 15 minutes through the injector via overhead sprinklers. The soil should be moist; this is for drenching. If we need to spray, we do.

VOICE: What about rooting aids?

HUNTER BOULO: We use Chloromone, made from alfalfa. It's easier than a powder.

FOUNT MAY: We use Hormodin #1.

ZACK WESTBROOK: We have used both of these and agree that there is a benefit to using a rooting aid.

JOHN MACHEN: Zack, how do you keep the Benlate in solution?

ZACK WESTBROOK: We have to stir it by hand occasionally in the separate vat that we mix it in; we only have to do this for about 10 to 15 minutes.

VOICE: You will find that if you will use a wetting agent this will keep it from settling.

CHARLIE PARKERSON: With a heavy material like Benlate? What do you use?

VOICE: We use liquid Aqua Gro.

BILL GREEN: Hunter, do you soak your cuttings with any toxic insecticides?

HUNTER BOULO: No, we don't use insect infested stock plants.

JUD GERMANY: Zack, in extending your day-length with the 100 watt bulbs, what distance are they from the plants?

ZACK WESTBROOK: We normally have them about 4 to 5 feet above the plants; try to locate them so you get the best light distribution. You want to get as many foot-candles as you can with the best distribution; generally the recommendations are similar to those for chrysanthemum production — between 20 and 40 foot-candles.

VOICE: Hunter, what is the rooting percentage on your direct stuck cuttings and what about Chloromone — we burnt some cuttings with it.

HUNTER BOULO: We get close to 100% take. The instructions for Chloromone are based on using much harder wood than we use; we use very tender tip cuttings and so use it at 5 parts water to 1 part Chloromone on Kurume azaleas — with further reductions in concentration for other tender material.

BILL COLBURN: Do you heat your houses, Hunter?

HUNTER BOULO: Not with the intent of forcing growth — just to keep them from freezing.

BRYSON JAMES: Hunter, you say not to use "old wood". How old is "old" — can you describe the cuttings better?

HUNTER BOULO: We like young tender growth — just at the point where you can bend the tip and it doesn't snap — the tip 1/2 to 2/3" will droop over occasionally for the first few days after sticking.

VOICE: When should mist be eliminated?

HUNTER BOULO: After 15 days in late spring or early summer, roots are beginning to form and within 7 to 8 weeks the cuttings are able to be taken out of the mist.

VOICE: Is there any advantage to removing that top half inch or so of the cutting that droops?

HUNTER BOULO: Yes, we like to do it if we get time — to cut down on the wilting and to get a soft pinch; we have a two-inch leafy cutting. We don't remove the lower leaves either.

VOICE: Does anyone use bottom heat to root azaleas?

FOUNT MAY: No, not for azaleas.

DICK STADTHERR: Do you remove the flower bud, if it is present, on a cutting?

HUNTER BOULO: I believe it would be advantageous to do so; the flower will sap the strength of the cutting and, as I said, we try to pinch the tips off if we can.

FACTORS INFLUENCING HERBICIDAL ACTIVITY

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Inasmuch as we are concerned with ornamental plants or dooryard fruits rather than commercial food and fiber crops I shall limit my remarks to those factors and those herbicides of potential interest relative to their use in nursery production situations. Before I proceed further, I must point out that it is illegal to use any pesticide in a manner inconsistent with its label recommendations, under penalty of law. Herbicides are classified as pesticides under EPA regulations and no herbicide is currently registered for use on container-grown ornamentals, while only a few are recommended for use on certain field-grown stock or established landscape plantings. Nevertheless, there are several herbicides which have been used experimentally on many container or field-grown species safely and efficaciously. We should not, however, forget that there are other methods for effectively controlling weeds or reducing their numbers; a herbicide program should be integrated with these and not solely relied upon. These methods include frequent shallow cultivation, the use of mulches, mowing, keeping weeds down in perimeter areas to prevent reinfestations of crop areas, early removal of initial invaders to prevent their going to seed, the use of naturally weed-free media components and/or the use of sterilized media, and filtering irrigation water to re-