

## AZALEA PROPAGATION AND GROWING-ON AS LINERS

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Chesapeake Nurseries is a wholesale grower of broad-leaved evergreens. We are located on the lower Eastern Shore of Maryland, 30 miles from the Atlantic Ocean and from Chesapeake Bay. Most of the Eastern Shore consists of farm land with a large poultry production industry, moderate seafood production industry, and a small amount of light industry. Chesapeake Nurseries has been in business for 26 years and sells mainly to metropolitan areas in and around Washington, D.C., Baltimore, Philadelphia, New Jersey, New York, and New England. At Chesapeake Nurseries we attribute our success to one thing in particular — *quality*.

My job as greenhouse manager is to produce heavy transplants and liners that are ready as soon as possible to go in the field and grow well.

### PROPAGATION

At Chesapeake Nurseries we propagate azaleas, rhododendrons, *Ilex*, *Pieris*, and other broad-leaved evergreens. Azaleas, our main crop, is the topic of this discussion.

All of our propagation is done during the months of June through August. Azalea cuttings are taken from healthy, vigorous plants that will be sold later in the season. We take cuttings that have a thick caliper of the stems — not toothpick thin. With azaleas, thick stems will root much better and give us the quality we strive for. We take our cuttings in the morning while the plants are still moist and cool. Then they are placed in styrofoam coolers with ice to keep them fresh and then are sent to the propagation shed.

After the azalea cuttings arrive at the propagation shed, they are dipped in a fungicide tank containing a captan solution using 1 lb of 50% captan WP to 100 gal of water. Cuttings are then placed loosely back into the coolers to keep them from heating which would ruin them. No ice is used at this time, for ice will also burn cuttings if it touches the foliage. Every cooler contains a label indicating cultivar.

Next, our propagation crew starts pinching off the soft growth, leaving 4 to 6 leaves and stripping off the rest. They then take a handful of about 15 cuttings and cut the bottom stems at the desired length. The entire cutting usually measures 4 to 5 inches long. The cultivar determines the length.

This way, after they are rooted, all will be the same height.

The sticking crew starts sticking while the cuttings are being made up so the cuttings will not dry out. We use plastic flats measuring  $14 \times 19 \times 2\frac{1}{4}$  in. These flats have been dipped in a disinfectant (1 part bleach and 9 parts water) and filled with a medium consisting of 50% peat and 50% perlite. With this medium we get the drainage that is so important in rooting azaleas. We do not use any hormone because we normally get 80% to 90% take. The cutting is stuck to a depth of  $1\frac{1}{2}$  in. Each flat contains 96 cuttings. This spacing allows for air movement and space to develop a strong root system.

As the cuttings are stuck, they are placed in greenhouses under about 50% shade. These houses have been sprayed with a disinfectant such as Physan 20, using 1 tsp./gal. water. Also, the water has been on ahead of time to build up the humidity. We have a 24-hour clock and a 30-minute clock in every house used for propagation. For the first two weeks the water comes on for 15 sec every  $7\frac{1}{2}$  min from 8:00 a.m. to 7:00 p.m. During the evening, 7:00 p.m. to 8:00 p.m., the water comes on for 15 sec every 30 min. This assures us that the humidity stays at a desired level (70% to 80% RH). We gradually stop running water in the evenings, usually within a 2-wk period. Also, after 2 weeks, the daytime watering is decreased, weather permitting, to 15 sec every 15 min. During this time of rooting (6 to 8 wk) we keep a check on the stems for any kind of stem rot. This will tell us if we are watering too frequently. We keep the houses vented during the daylight hours and closed during the evening. After rooting is evident, the vents are left open 24 hr a day. This helps prevent fungus problems.

Our fungicide program consists of weekly applications of one of 3 fungicides: Benlate (benomyl) Exotherm Termil (chlorothalonil) — (Smoke Bomb), or 7.5% captan dust. Each week a different fungicide is used.

### GROWING AS LINERS

All of our rooted cuttings are graded before they are transplanted into flats. We check them for a strong root system; weak ones are either thrown away or restuck.

One cu. yd. of the transplanting medium that we use consists of 11% Canadian peat and 89% old pine bark, along with 5 lb limestone,  $1\frac{3}{4}$  lbs phosphorus,  $1\frac{1}{2}$  lbs Aqua-Grow, and  $\frac{1}{2}$  lb fritted trace elements. The mixing is done in a 2 cu. yd. Bouldin & Lawson mixer. This mix gives good drainage.

The rooted cuttings are planted in two types of flats. One is wood,  $24\frac{1}{2} \times 15 \times 2\frac{3}{4}$  in. The other, plastic, called a Kadon flat, measures  $20\frac{1}{2} \times 14\frac{3}{4} \times 3\frac{3}{4}$  in. The liners are planted 3 in.



apart using a board the size of the flat with dowels making the holes. Azaleas grow well in both of these flats. After they are planted in flats, the liners go into heated greenhouses with a nighttime temperature of 55°F.

After most of the planting is done, usually by the end of November, we start taking soil samples every 3 wk to monitor the soluble salts and nutritional levels. Our liners usually grow well with a pH around 5.5.

Fertilizing is done only after we see fresh new roots started, usually by the third week. We use Peters liquid fertilizer, 20-20-20, at a low rate (1¼ lbs/100 ft<sup>2</sup>) every 2 to 3 weeks. Then, by late February we apply Osmocote 18-6-12 at a rate of 10 lbs/1000 ft<sup>2</sup>. Also at this time we increase our liquid rate to 1 lb/ft<sup>2</sup>. The amount of top growth will determine the time to change.

Our fungicide program is the same as during the propagation except the applications are made every 3 weeks instead of weekly. Pesticides are used whenever necessary. We use Orthene (acephate) at a rate of 1 tsp./gal. water. This gives us good control for mites and leafrollers, our biggest problems.

By mid-April we start grading the liners before they are sent to the field where they are planted in raised beds. Grading is done by first cutting everything into cubes. Each azalea is graded as a #1 or #2, according to the amount of root, caliper of stem, and top size.

## SUMMARY

We go through some extra motions and added expense to grow a top quality azalea transplant within 9 months. In our area this period includes a great deal of low temperature and low light weather conditions.

Growing azaleas or any other liners in greenhouses requires the full attention of the greenhouse manager. Observation on a day-to-day basis is necessary. Close observation will enable a grower to recognize the many little signals that a cutting or transplant gives to indicate the proper or improper level of air, water, temperature, humidity, nutrients, chemicals, or other factors. Extra care in growing a good liner will always pay off in producing a good finished plant.