

## **Growing Native Azaleas from Seed<sup>©</sup>**

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### **INTRODUCTION**

Appalachian Native Plants Inc. is a 501(c)(3) organization dedicated to preserving and propagating native azaleas and rhododendron from seed. We are located near Mountain City in the Blue Ridge Mountains of north east Tennessee. The U.S.D.A. Plant Hardiness Zone is 6A.

In practice there are many different native azalea seed propagation methods that yield relatively successful results. One of our goals is to produce healthy, fully rooted 50 cell plugs from seed in 6 to 8 months. Integrated Pest Management (IPM) methods are used through out our plant production.

Growing azaleas and rhododendron from seed is an old topic which has been presented several times to International Plant Propagators Society meetings. Our plant mentor, Zophar Warner, gave a presentation titled "Azaleas from Seed" at the Forth Annual Plant Propagators Society meeting on 4 Dec. 1954 in Cleveland, Ohio.

The following is a quote from Mr. Warner's presentation: "Now, if I seem to be going a little bit too much into detail, the people who know how to do this aren't going to change their method anyhow and I am sure the people who don't know can have success by using this method."

### **PROPAGATION OF NATIVE AZALEAS AND RHODODENDRON FROM SEED**

It is very important to know your seed source. The seed parents are chosen based on characteristics of flower, foliage, structure, and health. We predominately grow open pollinated seed. Open pollinated seed appeals to us because there is variability and sometimes an exceptional plant comes through a seedling population. We believe that genetic variability is good for plant populations.

In our mountain region seed collecting begins in October but many friends send us seeds that are collected earlier in the year from plant populations further south. The seed pods are dried in open pans. They should not be crushed, cutting or breaking them in half yields cleaner seed and fewer problems.

Cleaned seed is sown from December through January. Some species require longer growing times in order to finish a plug in one season. No pretreatment stratification is required prior to sowing. The seed is sown by hand directly onto 25×50×5 cm (10×20×2 in.) community trays filled to a depth of 4.4 cm (1.8 in.) with "Growers" grade milled sphagnum peat moss. The medium should be moist but not be too wet (soggy). After sowing we spray the seed and media surface with fungicide to prevent "damping off" problems. Germination generally takes place in 9 to 14 days after sowing. Clear plastic domes are used to cover the trays, creating a high humidity environment. The trays are placed on tables covered with propagation mats set at 21°C (70°F). For illumination, 2.4 m (8 ft) long cool white shop lights are hung six inches above the media surface and are illuminated continuously. After the seedlings have formed a second set of leaves, a liquid fertilizer [21-7-7 (21N-3.0P-5.8K) with minors] is mixed at 75 ppm and applied every 10 days as a foliar spray.

In early to mid-March the seedling trays are moved to the greenhouse propagation tables and hardened off for 2 weeks prior to transplanting into 50-cell propagation trays. These propagation tables have bottom heat provided by hot water circulated through ½-in. pex pipe embedded in perlite. The water is heated with three solar hot water panels and a 40-gal electric hot-water heater. The greenhouse has an air based geo-thermal system which prevents freezing temperatures and cools the greenhouse during the day. This allows for significant savings in fuel costs. There has been no propane consumed during

the last four growing seasons. The geo-thermal system buffers greenhouse temperatures. In mid-April the greenhouse is covered with 30 or 40% shade cloth.

This group of plants is classified “woody ornamentals” although the first 6 to 8 months of growth they are herbaceous. It was suggested that we treat the seedlings as herbaceous plants while they are in the greenhouse. A more “preventive” growing protocol for the greenhouse phase of production was adapted and has yielded significant improvements.

A commercially prepared medium consisting of peat, pine bark, and perlite is used to fill the plug trays. The peat-based medium is a vector for pests and pathogens. Prior to transplanting the media is drenched with fungicides designed to prevent *Phytophthora* spp. and *Rhizoctonia solani*. The trays are then allowed to rest for 2 or 3 days prior to transplanting. It is very important that the seedlings are planted in the plug tray at the same depth as they were growing in the community tray. Planting too deep causes a slow growth response and from our experience can kill the seedling in a few weeks. At the time of transplanting the seedlings are sprayed with an adjuvant mixed with a broad spectrum foliar fungicide. This treatment reduces transplant shock and disease pressures. This is one of the preventative measures adopted after talking with our friend that grows bedding plants. All transplanting from the community trays to plug trays should be completed by May 1<sup>st</sup>. After the transplanting is complete the plug trays are drenched with a product containing *Streptomyces lydicus* (strain WYEC 108) and a neonicotinoid class insecticide. Other insecticides are applied as needed. We apply alternating fungicide drenches every 2 weeks for the first 6 weeks. In the greenhouse liquid fertilizers are used as “constant feed” at a rate of 75 ppm. The following fertilizers are alternated every 10 days:

- 21-7-7 (21N-3.0P-5.8K) acid special with minors 21-7-7 (21N-3.0P-5.8K)
- 20-20-20 (20N-8.7P-16.7K) with minors
- 4-18-38 (4N-7.7P-31.9K) hydroponic tomato fertilizer

Beginning in July the plug trays are moved from the greenhouse to cold frames covered with 30% shade cloth. Fertilization and IPM continues in the shade houses. In late November the cold frames are covered with 3-mil white poly for over wintering. No supplemental heat is used through the winter.

The following April and May plugs that are not sold are transplanted into 11-cm (4.5-in.) square containers. The volume of these containers is ten times that of the plugs root mass. We found that an overly large container slows plant growth.

The containers are filled with composted pine bark fines and drenched with *Streptomyces lydicus* (strain WYEC 108). Slow release fertilizer with minors is applied at the low rate as a top dressing. These quarts finish by fall.

Also during April and May unsold finished quarts are transplanted into 3-gal squat pots filled with composted pine bark fines and top dressed with the same slow release fertilizer. On average it takes 18 months to finish a 3-gal azalea from a quart liner.

## **SUMMARY**

These growing methods have improved plant growth and have reduced average production times.

Our opinion is that this success has been accomplished by using prophylactic measures in the herbaceous stage of growth, providing constant feed fertilization, Integrated Pest Management and proper timing of transplanting.