

Color Explosion: Growing Azaleas From Seed®

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INTRODUCTION

Evergreen azaleas can be grown easily from seed. Although the process can be meticulous and time consuming, it can be extremely rewarding. There are no absolute correct or concrete guidelines for this process; however, there are accepted procedures and conditions that can be successfully incorporated into most situations.

EVERGREEN AZALEA SEED

The seed capsule of evergreen azaleas can be inconspicuous and almost undetectable among the leaves. A developed seed capsule is usually green in color and approximately 0.3 to 0.6 cm ($\frac{1}{8}$ to $\frac{1}{4}$ inches) long, depending on the cultivar. Later in the season, seedpods start to turn brown as they mature. Azalea seeds are located inside this seed capsule. Some azaleas, such as *Rhododendron* 'Formosa,' are sterile and will not produce seed capsules. On the other hand, the cultivar 'Hinode-giri,' will usually set numerous seed capsules. Because shearing after they have bloomed in the spring usually shapes azaleas in commercial production, most, if not all developing seed capsules, are also removed during shearing. Even in established azalea plantings in the landscape, azalea seed capsules may be difficult to locate because many evergreen cultivars do not set that many seed capsules. Pollination must occur if a seed capsule is to develop with viable seeds. Open pollination occurs when pollen (male germplasm source) from a flower of an azalea cultivar or species is carried by insects or wind to the pistil (female floral structure) of another azalea cultivar or species. If the pollen successfully moves down the style (tube) to the egg nucleus, successful pollination generally results in viable seeds. Controlled cross-pollination occurs when pollen from a selected evergreen azalea is placed upon the stigma (tip of the pistil) of another selected evergreen azalea. The following paragraphs contain brief descriptions of pollination steps, propagation, and seedling establishment. A more detailed study is advised if one ventures into azalea breeding. Any plant breeding program can be expensive and long termed, but it would be more time efficient and productive if one becomes knowledgeable about the plant species and cultivars of interest.

PREPARING THE GERMINATION MEDIA

Evergreen azaleas thrive in loose well-drained soil composed mainly of organic material, which promotes root growth and helps retain moisture. A soil acidity level of 4.5 to 6.0 is also important for evergreen azalea survival. For growing healthy azaleas, I prefer a soil and irrigation water supply to have a pH of 5.0 to 5.5. The same conditions for growing healthy azaleas are also critical for germinating azalea seeds. For the germination tray, I use a standard 21 × 51 cm (10 × 20 inch) tray filled with medium-ground pine bark 1.3 cm (0.5 inch) from the top of the tray. The remaining portion of the tray is filled with pre-soaked peat moss and distributed evenly across the tray to make a level surface where the azalea seeds can be sown. Watering-in the peat moss also helps level the media surface. Later, as the seedlings in the tray germinate and grow, their roots grow through the layer of peat moss into the pine bark. The pine bark used to fill the bottom of the tray is the same potting media that will be used in transplanting seedlings to larger containers.

This process of using pine bark in the germination tray helps reduce transplanting stress since the seedlings become acclimated to pine-bark potting soil.

HARVESTING AND PREPARING THE SEEDS

As the seed capsule matures, its green color will start to change to brown. Some azalea breeders suggest waiting until late autumn or even after the first frost to collect the capsules. A seed capsule consists of five chambers with each chamber containing numerous seeds. If the seedpod is left on the plant too long, it will dry out and the capsule will split open to form a star-shaped pattern, which allows the small seed to fall to the ground. I collect seed capsules around the first of August and have had very good germination success. Maturation of evergreen azalea seeds usually occurs approximately 90 days after successful pollination. Some years I have harvested seed capsules as early as mid-July and have had good results; however, the date of pollination on these seed capsules probably occurred between March and April. When the seed capsules are collected, they need to be placed in a paper cup and placed in an area that will allow them to become dry and freely split open, releasing the seed. This drying out process usually takes approximately 7 days. There may be as many as 500 or more seeds in each capsule; however, in some cases the seed count may be fewer than 100, depending on the cultivar and environmental factors. Once the capsule has split open, the seed can be removed from the capsule chambers by shaking the cup. This motion will cause the seed to fall out of the chambers. After the contents of the cup are emptied onto a sheet of paper, all the old capsule parts and other debris (chaff) from the seed should be removed. I prefer to sow the azalea seed immediately after cleaning them. From my experience, I find that the seed germinate faster and have a higher rate of germination when they are sown in the fall. Some azalea breeders, however, prefer to save the seed until the following spring. Winter protection of seedlings in geographic areas of extreme cold is a major deterrent in waiting to sow seeds the following spring. The cleaned seeds are sown by carefully sprinkling them from a cup or sheet of paper onto the prepared germination media, making sure to sow them evenly and not too thick.

CARING FOR SEEDLINGS

After seeds have been sown, they are placed in a 3 × 6.1 m (10 × 20 ft) open-sided greenhouse. The seeds are moistened by using a mist water nozzle, making sure that the media does not become too wet or too dry. Within 7 to 14 days, seeds will start to germinate. The open-sided greenhouse allows a more natural environment for azalea seed germination. Its main purpose, while the temperature is still warm, is to protect the seed from the direct sun and rains. No supplemental lighting is used in the greenhouse. The night and day temperatures are, respectively, around 21 °C (70 °F) and 32 °C (90 °F) during the time when the seeds have initially been sown and until they start germinating and growing. Later, as the temperature gets colder, the open sides of the greenhouse are closed with plastic sheeting. I use propane heaters when needed to keep the greenhouse above freezing temperatures. Seedlings are fertilized weekly starting in March with a half-strength solution of liquid fertilizer that is recommended for azaleas. Controlling plant disease and pest are extremely important. Sticky paper placed above the trays is great for controlling some insects. Applying a light application of multi-purpose fungicide about every 10 to 14 days can control most fungal diseases such as web blight (*Rhizoctonia solani*), which can destroy an entire tray of seedlings. Applying insecticide around the greenhouse periodically can help create a barrier to stop insects. Germinating seeds and young growing seedlings are very fragile and need to be monitored frequently. Problems need to be addressed immediately to prevent plant losses.

TRANSPLANTING SEEDLINGS

When the seedlings reach approximately 2.5 cm (1 inch) in height, they can be transplanted into individual grow cells. This initial transplanting usually occurs in late May or June of the following year after seeds were sown. I like to use the standard 72-cell-size trays for the initial planting. I transplant all seedlings of each cross at this stage and continue to weekly fertilize with half-strength liquid fertilizer until the seedlings have rooted into the soil. I apply a light application of granular nursery fertilizer, following recommendations as needed. As the plants grow larger, the more vigorous and healthy seedlings are transplanted into 10-cm (4-inch) containers and fertilized.

At each transplanting stage, the less vigorous seedlings will be discarded. Later the seedlings in the 10-cm (4-inch) containers will then be transplanted into 15-cm (6-inch) containers and grown to flowering. This is the most exciting and rewarding phase of the seedling growing process for most azaleas breeders. Not only are plants mature enough to evaluate growth habits and many other characteristics, but also plants are mature enough to give an explosion of color when in bloom.

SUGGESTED REFERENCES

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Plant-Water Relationships for Woody Ornamental Crops[®]

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INTRODUCTION

The management of plant-water relationships has a tremendous bearing on the development of adventitious roots and the subsequent development of a healthy root system. Plant-water relationships and their specific impact on rooting of cuttings have been studied for over a hundred years with contributions that have greatly changed the way we propagate plants today. With the development of intermittent mist systems and more sophisticated environmental controls, plant propagators are realizing higher levels of rooting success leading to the development and introduction of many new plant cultivars, formerly considered impossible or economically unviable to propagate. Proper management of plant-water relationships entails maintaining a proper balance between air and water in the propagation media, on the leaf surface, and in the environment surrounding the cutting. Of course, the physiology is much more complex, but for the purposes of this study, we will look at the direct impact of soil moisture and misting frequencies on the rooting of five selected woody ornamental plants.

MATERIALS AND METHODS

The design of the trial was to look at a range of woody ornamental species with rooting potentials from easy to difficult. The species were propagated in different media with varied moisture retention properties. These test groups were then placed in the greenhouse in ten discreet groups with ten differing mist schedules. The plants