

Hybridization, Selection, Propagation, and Introduction of Multi-Season Flowering Evergreen Encore Azaleas™

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Evergreen azaleas have been admired and enjoyed for many centuries. The first reported plants grew wild on the islands of Japan. In the late 16th century, the beauty of the azalea's flowers captivated early traders from the Western World (the English and Dutch). This quickly led to the exportation and spread of early azalea cultivars from Japan to Europe and then eventually to North America. Today, azaleas are still admired for their spectacular blooms and are popular in the Southeastern, Pacific West Coast, Ohio Valley, and East Coast regions of the United States.

Southern Indian hybrids are adapted to and popular in the warmer Deep South and Southern California. The Kurume hybrids were imported from Japan mostly in the early 1900s and they were most popular because of their cold tolerance and intense flowering. American horticulturists were most productive in creating many new hybrid groups, many of which have become commercially successful. Some of the most popular American hybrids are, Gartrell, Pericat, Glenn Dale, Girard, Pennington, and Back Acres. Recently the Satsuki group of evergreen azaleas have become more popular because of their May and June flowering characteristic.

The only slight drawback to an otherwise exceptional plant group is their brief blooming period. In pursuit of a longer blooming azalea, Robert E. Lee of Independence, Louisiana, U.S.A., initiated a breeding program in 1982. Intensely interested in plants since childhood, Mr. Lee discovered *Rhododendron oldhamii* flowering in midsummer at a friend's nursery. This *R. oldhamii* clone was particularly heavy flowering on July 1st. His friend, Dr. John Thornton, had obtained the clone from Hohn Patrik of California.

Obtaining a few plants from Dr. Thornton, Mr. Lee began to dream of hybridizing *R. oldhamii* with existing hybrids which have a tendency to flower in the fall. Pollinations were made in the fall while both *R. oldhamii* and the selected hybrids were flowering. Pollen was also collected that fall, dry stored under refrigeration, and used the following spring for pollinations. Thirty-six hybrid evergreen spring-flowering cultivars (Table 1) were selected to hybridize with *R. oldhamii*. Upon seed maturity, the seed pods were collected and the seeds were sown.

Germination yielded 25,000 seedlings, which were carefully transplanted into individual containers when they were large enough. The seedlings were given normal care with no winter protection. Five years later, 10,000 survivors were large enough to transplant into 6-inch containers.

All 10,000 unique hybrids were growing in Mr. Lee's back yard, being cared for by his wife, two children, and himself. As they grew and began flowering, he realized that his efforts had been very successful. Mid-summer brought a vast array of flower colors and forms. Many individuals were similar; some individuals as expected were less than beautiful. However, he was exhilarated with what he saw. Heavy flowering began and continued through the summer into the fall and again in the spring.

Realizing that much more work was needed he sought a relationship with Flowerwood Nursery, Mobile, Alabama, U.S.A. to select, produce, and introduce

superior individual plants. Flowerwood Nursery, Inc. is a very large wholesale nursery with the assets, integrity, and interest to further the development of hybrid evergreen azaleas that flower in spring, summer, and fall.

In 1992 and 1993, 7000 6-inch azaleas were transferred to Flowerwood Nursery, Loxley, Alabama and they were transplanted into 11-inch containers. Each plant was dormant-trimmed, fertilized, and otherwise treated as though they were in normal production.

Evaluation began in the mid-summer of 1993 as the seedlings began to flower. Each week many hours were spent observing each plant closely. Superior traits were noted. Foliage quality, growth rate, growth habit, flower color, flowering period, flower quality, and pest resistance were evaluated. In 1993, 100 individual clones were selected for propagation. Many were planted for long-term observation, under tall pine trees to provide filtered shade, while a few inferior plants were destroyed.

The original 100 selections were narrowed to 50 by 1995. Flowerwood Nursery, Inc. then had large quantities in 6-inch and 11-inch containers and they were trying to narrow the choices to 12 selections based on overall horticultural merit. During the winter of 1995 temperatures dropped quickly to 13F. Two of the chosen 50 were killed while others had severe cold damage, mild cold damage, or were unaffected.

That cold stress was very helpful in assessing cold tolerance of each clone. Clones with superior horticultural traits, yet lacking significant cold tolerances, were transferred to Flowerwood Nursery, Bushnell, Florida for further evaluation. Bushnell, Florida is situated in USDA Zone 9.

The University of Georgia stress laboratory tested samples of plant tissue from selected clones to determine cold hardiness. In 1995, 12 clones were selected for testing. Samples were collected and analyzed to determine late fall, early winter, mid-winter, and early spring leaf and stem acclimatization to cold temperatures. The 1995-96 evaluation was similar to field observation in the nursery. The same test was repeated in 1996-97 on fewer more promising clones.

During 1997 12 clones were designated as cultivars. Two additional clones are being introduced in 1998 as cultivars. Eight cultivars of Encore Azaleas™ are cold hardy to USDA Zone 7B and each cultivar is part of the Autumn Series. The selected clones are:

AUTUMN SERIES

Autumn Rouge™ PP#10438 azalea ('Conlea'). Autumn Rouge™ azalea is very prolific, flowering from early July through the fall. Peak flowering periods are July-September and mid spring. The blooms are semi-double and are strong pink almost red in color. This azalea tends to grow upright.

Autumn Royalty™ PPAF azalea ('Conlec'). This cultivar is robust. The shrub is upright and globose. The foliage is large and dark green. The flowering period is from August to frost. Autumn Royalty™ azalea again flowers in mid-spring. The blooms are large, single, and rich purple in color.

Autumn Coral™ PPAF azalea ('Conled'). This plant's growth habit is mounding. It blooms abundantly from July through the fall. Flowers are salmon pink with prominent fuchsia flecking and are medium in size. It flowers again in mid-spring.

Autumn Embers™ PPAF azalea ('Coneleb'). The growth habit is low, spreading, and dense. Foliage is dark green. Flowering is from early August through the fall

and very intense. Blooms are single and semi-double and are deep orange-red in color, producing unbelievable quantities in the fall. Autumn Embers™ azalea flowers again in mid-spring.

Autumn Amethyst™ PPAF azalea ('Conlee'). The foliage on this azalea is elongated, pointed and rough in texture. Leaves in the winter take a beautiful dark cast. Flowers are soft purple. The growth habit is moderately dense and spreading. Flowering begins in late July, heavy in late fall, and recurs in early spring.

Autumn Cheer™ PPAF azalea ('Conlef'). Foliage, growth habit, and flowers look like a Kurume-type azalea. Flowers are slightly larger than Kurume flowers and are deep pink. This cultivar is the most compact of the Autumn Series cultivars. Flowering is from September through the fall and repeats in early spring.

ENCORE AZALEAS™ FOR 1998 INTRODUCTION

Autumn Monarch™ PPIP azalea ('Conleo'). Autumn Monarch™ PPIP azalea flowers heavily in July, September, and mid-spring. The flowers are rich salmon and double. The growth habit is upright, similar to Autumn Rouge™ azalea, but taller. The foliage is light green.

Autumn Bravo™ PPIP azalea ('Conlen'). The growth habit of Autumn Bravo™ azalea is upright and spreading. The shrub is full and displays tremendous quantities of single, medium-sized deep orange-red flowers from September through fall and again in mid-spring.

The autumn Encore Azaleas™ were donated to many public gardens and public research facilities in 1997. We received quarterly reports from those institutions giving us more data covering landscape performance and areas of adaptation information.

The Encore Azaleas™ were introduced in 1997 into the Atlanta, Georgia market. In 1998, they are generally available in the Southeastern U.S. and in 1999, they will be introduced into the California market. We anticipate that the Encore Azaleas™ will become a major production item for our nursery because of the multi-season flowering.

PROPAGATION

Encore Azaleas™ propagate like all evergreen azaleas — easily. Cuttings can be taken year round. In the late spring through early fall, 3-inch cuttings treated with 1875 pp IBA or 5000 ppm KIBA and put under intermittent mist, will root in 4 weeks. Cuttings are directly stuck into 3-inch containers filled with a pine bark, peat moss, and perlite rooting medium (????, by volume). The medium contains a slow release N-P-K fertilizer, minor elements, and dolomitic lime.

The ease of propagation was very important in determining which clones would be named and marketed. Several clones still under evaluation are very beautiful yet very difficult to propagate. Flowerwood Nursery is exploring tissue culture as a variable method of propagation for those of a difficult nature.

Through the evaluation of the *R. oldhamii* hybrid seedlings, Flowerwood propagated over 100,000 plants, produced over 50,000 6-inch plants and over 30,000 11-inch plants. Most of these nursery-grown plants were never sold and the process cost considerably in supplies, time, and labor. The research is continuing since many outstanding azaleas remaining, deserve designation as a cultivar. It is projected that as many as 20 more cultivars will be designated over the next 10 years.

Encore Azaleas™ are currently being produced for the southeastern United States where azaleas are traditionally used in the landscape. The Encore Azaleas™ are suited to much of the Western U.S. coast from Southern California to Oregon and will be introduced into that market in 1999.

The Encore Azaleas™ are being managed by Plant Development Services, Inc. (PDSI) of Loxley, Alabama. PDSI will be investigating the opportunities to license, produce, and market these exciting multiple-season-flowering hybrids in traditional azalea markets in South Africa, Japan, Australia, and Europe.

Table 1. Taxa selected for hybridization with *Rhododendron oldhamii*.

Blaauw's Pink	Kromo Skikibu
Brian Harris	Mae Blaine
California Sunset	Mount Bold
Carita	Mrs. Henry Schroder
Carro	Mrs. Nancy Dippel
Copperman	Patrick
Daphne Salmon	Peter Pooker
Double Beauty	Pink Cascade
Elaine	Pink Cheer
Encore	Pink Cloud
Fisher's Pink	Pink Macrantha
Flame	Polypedlum
Fortunei Group Purple	Purple Macrantha
Georgia Giant	Red Slipper
Glirard's Rose	Schroder's Pink Perfection
Gumpo	Sherbrook
Hoosier's Sunrise	Shunrei
Ivan Anderson	Vespers
Jessie Cruz	White Jade
Karen	