



case (hurry before the lepidotes are over!). There's no reason any reader who has more than one compatible cultivar can't join in the fun. The following article appeared in the RhodoGravure in 2016, and it's all good advice. The editorial addendum at the end includes online links for additional hybridization advice.

**By Don Hyatt**

Potomac Valley Chapter, ARS

How do new rhododendron crosses come into being? The bees have no trouble making crosses, but since that is not their goal (getting nectar is), they keep no records of what pollen they may be spreading around. When a breeder wants to create a new hybrid, hand-pollinated crosses where both parents are known are the rule.

A typical flower is composed of a number of basic parts. Protruding from the center of the flower are the important parts needed for hybridization. The female part of a rhododendron blossom is a solitary structure called the pistil. Typically, it is a little longer and thicker than the male parts of the flower, which are the stamens. At the end of the pistil is a sticky surface called the stigma. This is where pollen must be placed in order to make a cross. At the other end where the pistil adjoins the flower is the ovary. This will later become the seedpod. The portion between the ovary and the stigma is called the style.

Most rhododendron and azaleas have from five to 10 stamens and each stamen has an obvious pollen sac at the end called the anther. With some rhododendrons like *R. fortunei*, the anthers contain so much pollen that it drools from the holes at the end and hangs in long strands. Pollen seems to exude from the anthers more readily when the stamens are jostled or twirled as when visited by a bee. With other rhododendrons, the pollen is not easily accessed and sometimes the anthers must be cut open to get to the grains. I prefer to use "promiscuous parents" with gobs of pollen.

The process of making a cross is rather simple. Just remove a couple of stamens from one flower and dab the pollen on the stigma of another blossom. Pollination is done! Within a day or two, the minute pollen grains on the stigma will germinate and send tiny tubes down the style to fertilize the undeveloped seeds in the ovary. By midsummer, the ovary should be much larger than it was when the flower was first pollinated, and the rest of the pistil will have withered and turned brown. As the seedpod dries out in late fall, it will split open to release the tiny seeds inside. At that time, the seeds can be planted but they can also be saved for future years. Seed viability does diminish with time, so if they are not planted during that first year, it is best to store them in a refrigerator in order to keep germination rates high.

There are some procedures that hybridizers use to ensure a "pure" cross with no possibility of contamination. If you simply place pollen on a stigma and do nothing else, the bees may still come seeking nectar and leaving who-knows-what pollen, often from the adjacent flower; the bee pollen may end up joining your pollen in the fertilization process. When someone has a hybridizing goal in mind, why waste time raising stray seedlings that don't meet goals of the desired cross? (However, hybridizers will admit that some of the best things often come from those chance seedlings.)

Personally, I like to force budded plants in my greenhouse so I can make crosses in late winter where there will not be a problem with rain, wind, or bees bringing in stray pollen from another flower.

When making crosses outside, it is best to remove the corolla (petals) and stamens from unopened buds of the seed parent prior to making a cross (this is known as emasculation, since the pollen-bearing stamens are the male component). That way, insects will not be attracted to the flower and without stamens there will be less chance of self-pollination.

Because the flower parts were removed in the bud stage it is not easy to tell when the flower would be open and thus ready for pollination. The stigma should be watched carefully to see when it becomes moist and sticky, since that is when it is ready to accept pollen. After pollen is applied, many hybridizers protect the stigma with a small piece of aluminum foil crimped over the tip or even a plastic bag covering the entire flower truss.

I usually try to pollinate at least half the flowers in rhododendron truss. That way if I see big seed pods develop on flowers where I made a cross, and only undeveloped ovaries elsewhere, I feel certain the cross is good. It also provides extra seed to share. Always label the cross so it is easy to find later and there is no confusion as to the parentage. By convention, the seed parent is listed first and the pollen parent is listed second.

When the seedpods are just mature (turning from green to brown) in late summer or early fall, collect them, store in envelopes with complete information of the seed and pollen parents and date of crossing, and store in the refrigerator until sowing indoors in early winter.

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*Editor's addendum:*

Note that hybridization between the basic rhododendron groups (e.g., an elepidote with a deciduous azalea) almost never succeeds; keep like with like. (The five basic groups are elepidotes, lepidotes, evergreen azaleas, deciduous azaleas, and vireyas.) While hand-pollination can be carried out with any rhododendron cultivars, sometimes with marvelous serendipitous results, thoughtful selection of seed and pollen parents is recommended. To create hybrids that will survive in the Philadelphia area, at least one of the parents should be cold hardy and heat tolerant, or one of each.

Over the years, the ARS Journal has published articles in which accomplished hybridizers articulate their tactics and cite preferred parent plants for achieving particular goals, such as a red flower without blue tone or a hardy yellow. Their near-scientific approach can be daunting for a first-timer.

One way to piggyback on their success is to study parentage data of quality cultivars, both in books and in the compilation of newly registered plants in the Journal. Look for plants hybridized in this region. Identify those that you like and determine whether you have access to their parent plants. You could repeat the crosses or go for variations on a theme. Remember that pollen can come someone else's garden, or an arboretum (or, if you have the moxie, a nursery). If you examine the data on enough hybrids, you'll begin to notice that certain parent plants show up with a degree of frequency, usually because they are relatively reliable at passing on their good genes.

Two venerable ARS figures, Albert J. Muller of New York and Jim Barlup of Washington state, have written about hybridization for beginners, and their wisdom is at the ARS website.

Muller's "Tips for Beginners: Mechanics of Basic Hybridizing" may be found at <http://www.rhododendron.org/v50n1p36.htm>.

Barlup's "Tips for Beginners: Hybridizing Notes," Parts 1 and 2, may be found at <https://scholar.lib.vt.edu/ejournals/JARS/v50n2/v50n2-barlup.htm> and <https://scholar.lib.vt.edu/ejournals/JARS/v50n3/v50n3-barlup.htm>. Part 1 includes a useful illustration of flower parts.

Alternatively, go to [www.rhododendron.org](http://www.rhododendron.org) and click on “Resources”; then click on “Plant Care”; toward the end of the index, click on “Propagation and Hybridizing.”

It’s interesting to note that intentional hybridization of flowers is not that old a practice. In the pre-Darwin era the earliest forays were considered a sensation – and not in the positive sense of the word. Thomas Fairchild is credited with the first human-made plant hybrid, *Dianthus caryophyllus* X *D. barbatus*, in 1717. Many regarded it as an act of blasphemy.

## *Sunnier days*

Flower Show exhibit is viewed by thousands

One of the minor miracles of early March was that the Philadelphia Flower Show was not canceled due to coronavirus. It closed March 8, and presuming the 14-day window for the virus’ incubation is scientifically valid, it seems that the event did not turn into a significant vector of the disease. Make that a major miracle.

And thus the Greater Philadelphia Chapter’s exhibit – “Coastal Paradise” – was installed, judged, staffed by docents, and viewed by thousands of gardeners and flower-lovers. And it was accorded the Pennsylvania Horticultural Society’s Silver Medal in the educational exhibit category.

What does a plant society dedicated to a largely woodland genus (e.g., rhododendrons) do when the Flower Show theme is the Riviera? Even though the Flower Show just loves wedding tableaux, re-inventing Grace Kelly’s wedding dress in rhododendron trusses was not deemed sane or feasible. The design team went totally azalea, since they can take the sun. Mix in some groundcover roses, lavenders and prickly pear cactus and a patio for enjoying it all.

The design and installation crews (at work since late summer) were led by Linda Hartnett, Barbara Olejnik, Kim Kopple, Bill Halberstadt, and Karel Bernady, ably assisted by Ron Rabideau, Michael Martin Mills, Alan Kirkby, Joan Roberts, Toby Roberts and Tom Lloyd.

The essential complement of docents included: Cynthia and Rupert Rossetti, John and Julie Bartlett, Sue Thomson, Maggie Zimmerman, Jerry and Kate O’Dell, Ron Rabideau, Nils Knutzen, Mary Clifford, Joan and Reid Warren, Myo Myint, Gary and Mary Ammon, Mimi Favre, Craig Conover, Victoria Buckley, Bob and Chris Smetana, Frank Brouse, Erin and Cliff Van Yahres, Renee Thomson-Hohl, Steve and Darlene Henning, Cathy Keim, Ellin Hlebik, and Maris Ogg, plus most of the folks on the design and installation crews.

[See Flower Show photos on Pages 6-7]

# Calendar

**All listings should be considered tentative  
pending coronavirus developments.**

**Important:** If you do not receive this newsletter electronically, you will not receive email reminders a week before events. Please use this calendar to mark your own.

**June 21, Sunday** Annual meeting and picnic, 2 p.m., Fort Washington State Park.

**August 16, Sunday** District 8 Cutting Exchange and Auction.

**September 13, Sunday** Plants for Members Sale, Morris Arboretum.

**September 25-27** ARS Eastern Regional Conference, Gettysburg, Pa.

**October 11, Sunday** Chapter meeting and potluck brunch, Morris Arboretum.

**October 27-30** New Zealand Rhododendron Association annual conference, Timaru, South Island, New Zealand.

**June 3-6, 2021** JARS national conference, Annapolis Valley, Nova Scotia, Canada, hosted by the Atlantic Rhododendron & Horticultural Society.

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The American Rhododendron Society is a horticultural organization devoted to the genus Rhododendron – which includes azaleas. At the national level, the society holds annual conferences, publishes the quarterly Journal of the ARS, and fosters plant research and conservation. Its website, [www.rhododendron.org](http://www.rhododendron.org), is a trove.

The Greater Philadelphia Chapter gathers eight times a year. Sunday afternoon meetings are held September, October, and January at Morris Arboretum. February through August we are mobile, with a banquet, plant sale and picnic at various sites. Latest meeting information may be found at [www.GPChapterARS.org](http://www.GPChapterARS.org).

Dues are \$40 per year, for chapter and national membership and a subscription to the Journal. Contact the president or treasurer (see above) for a form or go to [www.GPChapterARS.org](http://www.GPChapterARS.org); click on “Join us.”

## *Scenes from the 2020 Flower Show*



Azaleas and other sun-loving plants were featured. Note the fish-shape labels, made by Alan Kirkby, who is seated at left with Barbara Olejnik and Karel Bernady.



Just as the show closed, Linda Hartnett ensconced herself in the exhibit, with the Silver Medal the exhibit received. Below: The RhodoGravure stopped counting all the blue ribbons won by ARS member Debby Evans in the, ahem, tender classes.



Photos by Michael Martin Mills