# VIREYA VINE

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E. White Smith, Editor

*And now WE are the "last" Vireya newsletter. At one time there was a newsletter in New Zealand, and up until this spring there was one in Australia. The person in Australia has passed the job on to the Victoria Chapter of the Australian Rhododendron Society, which has lots of Vireya news in their newsletter anyway.*

*OK fine, what are we (the Vireya Vine) going to do? We get very few letters to the Vine.* ***SO how about some letters. Letters about anything to do with Vireyas. Anything, anything, anything. You must be doing something out there in Vireya Land??? EWS***

***The following is from a great little newsletter about all kinds of interesting things in it. If you should subscribe please say that you heard about the Avant Gardener from The Bovees Nursery and we will get a couple of dollars and will donate them to the RSF***

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## SUPER PLANT' PROTECTOR

Not long ago, we reported that gardeners had found that plants from oats to orchids, grew "remarkably better" when given regular doses of tiny amounts of aspirin (1 part to 10,000 parts of water).

The Agricultural Research Service (ARS) is investigating why aspirin should have such beneficial effects. Plants make salicylic acid, the active ingredient in aspirin, to trigger natural defenses against bacteria, fungi and viruses. Aspirin thus is an activator of "systemic acquired resistance", (SAR).

However, plants often do not produce salicylic acid quickly enough when attacked by a microbe to prevent injury. Spraying aspirin on the plants speeds up the SAR response. Tests have shown this works on many crops from lettuce and tomatoes to spinach and tobacco, producing better plants with less pesticides. It also makes it possible to successfully grow many fine heirloom varieties, which were discarded because they lack disease resistance.

For these reasons, this may be the most important research of this century. Stimulating SAR defenses with aspirin or other activator compounds could result in increased food production and the elimination of synthetic pesticides. ARS scientists are studying plants' defenses; such as, antimicrobial materials like the protein chitinase, which degrades the cell walls of fungi, and nuclease enzymes, which break up the ribonucleic acid of viruses. At the same time, they are testing aspirin and other SAR activators which could be effective against non-microbial pests such as aphids and root-knot nematodes. If you'd like to experiment spray a few plants with a 1:10,000 solution (3 aspirins dissolved in 4 gallons of water) on a few plants, leaving other plants of the same species unsprayed. Tests with numerous plants have shown that the SAR activation lasts for weeks to months.

From Christy B Hartsell, Palo Alto, California
Dear Vireya Vine July 2004

Subject: compact plants

I grow vireyas in Palo Alto, California (Bay Area) near San Francisco. All my plants (over 100) are grown in pots. I have a very small yard, so keeping my plants compact and bushy is a high priority for me. The standard method of pinching every single leaf bud back and pruning gangly limbs back works fine for most of my plants. There are exceptions however, namely leucogigas hybrids, superbum hybrids, and some species (hellwigii, etc.). On these plants, when pinching back young plants, you sometimes only get one new leaf bud or none and once in awhile you might get two leaf buds. On these slow-growing plants, I suggest a different method.

In the last couple of years, I have been trying to grow a few vireyas as standards. This is done by leaving the central leader alone and pruning or pinching off all side shoots until your plant has reached a certain height. At this height you then pinch the central leader, repot to a larger pot to induce growth, and pinch out the new growth until you get nice rounded bushy standards. When I pinched these plants back, a lot of my plants produced multiple breakouts at the base of the plants. Really irritating if you want a standard. From this, I decided to try growing plants that don't readily respond to pinching, a try with this approach. Let the plant grow until it has at least 3 rounds of new growth. Then repot to about one and half times the size the pot it was in, pinch back all new growth from the tips, and lightly fertilize.

I tried this on my plants, I found that it usually produced multiple breakouts at the base, with sturdier branches and if the new growths were pinched back, I would get sometimes times 3, 4 or even 5 new leaf buds from 1 pinch back. I believe these plants only produce 1 or 2 new growths because they don't have enough energy stored up to produce more, when very young. They do produce more once there is plant energy available (from more leaves). After the new grow matures, I cut off the leggy branch that started it all. This leads to much bushier plants. I have also noticed on regular established vireyas, just increasing the pot size will usually cause some breakout at the base of the plant. On a few plants (hellwigii X konori), the plant produces new growth at almost all the old leaf nodes. How strange. I am continuing to experiment, but would recommend this procedure for any one who is frustrated by the slow growth from these plants.

Christy Hartsell
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**A Vireya Seed Odyssey: Some Observations**

From Bill Moyles Oakland, California
Dear Vireya Vine **Back sometime in 2002**

**Germinating Rhododendron Seed**

For the past 30 or so years I have been germinating and growing on rhododendron seed and after 30 years, I think I've gotten pretty good at it. Probably because it is so easy! It has been my experience that if one sticks to the typical lepidote or elepidote...and particularly hybrid seed...it is absurdly easy. The seed is very forgiving. Collecting and drying seed, and subsequent storing in the freezer is quite straightforward with no significant viability problems.

I have always germinated my ericaceous material on milled sphagnum in plastic-film covered containers under lights at around 60-70 F. No damp off with sphagnum and the milled sphagnum decreases the problem of moss "overgrowing" the seed to just about zero. A real no-brainer for the amateur. The only time I have deviated from fairly standard procedures was to experiment with GA3 (gibberellic acid) to "break dormancy" with seed of the Japanese species, yakushimanum. Yak seed was taking almost two months to germinate whereas most species took around 4 weeks. I sprayed in some yak seed with (as I recall) 400 ppm GA3. Treated seed germinated in less than a week. The control sowing took over a month. But breaking dormancy is never really a problem with rhododendron seed thus no heroic methods are called for.

**Vireya Section, Rhododendrons as a special case**

I find the situation changes somewhat when one moves to germinating and growing the seed of Vireya section rhododendrons, which is the focus of the odyssey. It becomes a different and more challenging (and interesting?) ballgame. The problem they seem to pose for the seed grower is basically one of touchiness. They just seem to be more specific in their needs and less tolerant of "sloppiness". Perhaps this is just a reflection of their needs in general as many are epiphytic in nature and detest sogginess and bad drainage.

**Becoming Hooked**

Some years ago I became interested in Vireyas. I happen to live in an area where they can (with caution) be grown. Strybing Arboretum where they were introduced to horticulture in this country became my hangout. The head propagator at that time, Peter Sullivan, (since retired) handled the Vireyas from Dr. H. Sleumer's early New Guinea collections and carried on an extensive hybridization program in an attempt to create plants that were more growable for the general public. Sullivan's original selections still grow in a church garden in San Francisco and are probably the oldest Vireya (hybrid) specimens in the United States. They are considered by many to be among the finest Vireya hybrids available today. Vireyas were then and still are a novelty and a challenge but their amazing diversity and unique beauty offer the rhododendron specialist an opportunity to grow something very special. I became hooked.

**Seed as a Way in**

Having been an avid seed grower of traditional rhododendrons, propagation by seed became the obvious way for me to extend my limited collection. Actually it was the only practical way, you quickly find that it is much easier to solicit and receive seed than cuttings! And, if you become interested in hybridizing (as I did) seed rearing is a necessity.

Outside of Strybing, seed was hard to come by. At that time the American Rhododendron Society seed manager in Oregon would send out what little Vireya seed she received immediately upon receipt. It had the reputation of having a very short shelf life and it was thought that stored seed would not germinate. Not very satisfactory if you run a seed list. This point of view really didn't encourage seed collection and distribution, and as a consequence seed availability was limited. Strybing through its international contacts and its own material was about the only reliable source.

Fortunately, through Strybing, I was put in touch with John Rouse at the University of Melbourne, Australia. Because of its benign climate and proximity to New Guinea, the Melbourne area supports extensive Vireya cultivation.

Rouse was an internationally recognized collector and grower of Vireya as well as a research scientist. Although not his field of specialty he has investigated issues related to pollination and germination of Vireya seed. Over the years Sullivan at Strybing had been receiving seed from him and gave my name to him as a potential U.S. seed 'distributor'.

My first seed from Rouse was seed that he received from a Japanese collector working in New Guinea. To my amazement it germinated vigorously. I felt that this seed must have traveled around a good bit before getting to me and if that were the case so much for 'limited viability'. I think that started it all and I was encouraged to develop and maintain a freezer full and circulate a list of stored seed.

Rouse was generous with his seed and was selfing many of the species in his collection as well as making hybrid crosses. I began to solicit additional seed from Australia and then New Zealand and eventually took over the Vireya seed distribution for the American Rhododendron Society (ARS). Over the subsequent 10 years or so of managing the Vireya list a wide selection of seed has been distributed from sources ranging from the southern hemisphere to the RBGE Edinburgh and Kew and from various private sources. Graham Smith at the Pukeiti Rhododendron Trust in New Zealand was extremely generous in his support. I no longer distribute seed for ARS and John Rouse is no longer with us, but those who grow Vireyas have pretty well identified themselves and still receive seed. The Hawaii Chapter of the ARS is now playing an active role in soliciting and distributing seed.

**Vireyas from Seed (or How to do it)**

Based on a good bit of personal observations and communication with others, I quite naturally have come to my own conclusions regarding the handling and germination of Vireya seed. As noted above compared with non-Vireyas their requirements seem quite specific and I have tried to outline the differences and similarities (as I see them) below. Obviously my conclusions are untested in the classic sense and most must be prefaced by: In my opinion.

**In the Beginning...**

Vireya seed should be collected only when pods are mature. That is when the seed coat is sloughing and the pod is beginning to split. I have germinated 'green' non-vireya seed, but have been unsuccessful with immature Vireya seed. All rhododendron seed dry easily and quickly at room temperature or under gentle heat. They can then be sown immediately or stored. If stored for later sowing or sharing, they should go directly into the freezer. No special treatment or desiccators is necessary. I am of the opinion that freezer stored seed as opposed to frig stored seed increases the seed's shelf life.

**The Germinating Medium**

I germinate all my Vireya seed (and ericaceous seed, in general) on milled sphagnum moss with perhaps 10 or 15% perlite added. Seed are sprinkled onto the surface of moistened (fluffy) moss and then sprayed in. The container (say a plastic cottage cheese container with drainage holes (a hot nail does it) holding 2 inches of moss/perlite) is then covered with plastic film, secured with a rubber band and placed under florescent lights 4" to 6" below the tubes. Rhododendron seed require light for germination. If the seed is good, germination can be expected in 3 to 5 weeks. The moistened moss may need spraying every two weeks or so but 2 inches of moss assures moisture retention – a thin layer of moss over other media tends to dry out too quickly.

The above seems to be accepted procedure for most rhododendron growers in non-tropical climates. In warmer climates (e.g. Hawaii) where 70F is the average and humidity is high germination on open benches should work nicely. And I am sure that other germinating media would work quite well. Shredded moss and fern fiber is a possibility. Unmilled sphagnum seems difficult and overgrows the seed. Coconut fiber is most often cited as an alternative. I have found it dense but I am sure it could be loosened up with perlite or sand.

I leave my lights on 16 hours a day and try to maintain (for Vireya seed) an ambient temperature of 70F. I have concluded that the germination of Vireyas is somewhat temperature dependent. That is, non-vireya rhododendron seed germinates nicely at 55 to 65/70°F but Vireyas do better at higher temperatures. Sixteen hours is more than sufficient for germination and sustained growth, and I feel that it is unnecessary to purchase expensive full spectrum tubes; cheap cool white tubes are just fine.

**Vigor and Viability**

Hybrid seed shows the greatest vigor and viability --- in general. I have germinated hybrid Vireya seed that has been freezer stored for 10 years! All seed is stored in the freezer and I go back into my 'stash' periodically now that I have discovered the possibility of germinating quite old seed. What does one have to lose?

Wild collected seed often (not always) shows vigor similar to hybrid seed. I am now annually testing seed of R. lowii collected 4 or 5 years ago by a friend, Dr. David Binney, (New Zealand) on Mt. Kinabalu in Sabah. This seed continues to germinate and I have sufficient seed to carry on for another (God willing) 5 or? years. The lowii seed is probably 'hybrid' seed with overlapping populations of R. retivenium. But, that is another story.

To be expected, self-pollinating (most) cultivated species does not show the same vigor or extended viability as does selfing, (pollinating) with a sib. But some do. And some just poop out or produce weak children. There is always a good deal of variation.

Quite understandably folks insist on getting seed of the 'real thing', but insisting on hand pollinated seed of the 'best form' often results in weak seed. Unfortunately many think that there is only one 'real' example of a species. And if I've got one, I've got 'it': the 'true species'. Hard for folks to accept the population concept of a 'range of variation'. It's that range of variation that is most interesting.

Most of this variation is a matter of genetics. What is this 'hybrid vigor'? Assuming perhaps that much of the 'species' seed collected in the wild is in fact 'hybrid' seed in the sense that it results from cross-pollination of different individuals. The only recent paper I have seen on vigor is John Richards' The Genetics of Vigor, appearing in the Bulletin of the Alpine Garden Society, Vol 61, 1993. I highly recommend it.

This is not to say that technique and environment count for naught! It is always best to do several sowings of the same seed lot at different times and perhaps under different conditions.

**Now That They've Germinated ...**

Vireya seedlings are much slower to establish themselves than are non-Vireyas. Sometimes they will sit and sit in their seed pan until they decide that it is O.K. to grow. Some may never make this decision. Again the differences between hybrid and species are evident. Several potential seed growers have left the fold because of this: "they just won't grow".

This recalcitrance is relatively easy to overcome by merely moving them to a fresh medium and feeding a bit.

Rhododendron growers will recognize this as 'Rule #1": if it isn't doing well just move it! I go a bit further and move seedling (1 to 2 sets of true leaves) to a mix of 50% perlite and 50% milled sphagnum in community plastic 'trays' (6 inch x 10", 2" deep) that are 'hooped' with cane and covered with plastic film. They look much like covered wagons. These are put back under florescent tubes and the temperature inside the wagon goes up by virtue of the enclosure, but humidity is maintained. A light (1/4 strength) foliar feed at 80+ degrees in the wagon generally does the job. Sometimes growth is phenomenal. I never lose a thing.

**Coping with Success**

After an inch or so of growth the hoops and covering can be removed (perhaps a month or two) and then it's just a matter of space and your growing environment. I move seedlings out of the lights into my protected conservatory very soon. But they could be kept under lights for longer. Some do move seedlings into individual (perhaps 1" square) containers and grow them longer under lights. It's really up to you an your overall growing situation.

Transitions can be touchy but small seedlings are very adaptable. I find that a one or two inch seedling can be moved out the seedling mix and find its way in a rougher growing medium very quickly. My rougher mix consists mainly of coconut chips, fine fir bark, perlite and bits of rough peat. This can be in a flat in your greenhouse any warm well-lit area or into individual squares. The objective is always a well-developed and active root system. It is a mistake to think that you must initially produce lush vegetative growth; it's what going on underneath that counts.

**The Big Question**

How long does it take to bloom a Vireya from seed? The answer is probably an optimistic 4 to 5 years. The more vigorous plant will probably bloom sooner and many later. Some growers feel that by taking tip cuttings of 1" seedlings and rerooting them in a peat/perlite mix will in time produce blooms sooner. I know of no data that supports this but certainly a tip cutting of a seedling roots easily and produces a fine new root system in an enclosed high-humidity environment. This is something the advanced grower can experiment with and is one way to cope with seedlings' refusal to grow. It is amazing to take a tip cutting from an inch seedling and see it root!

**In Addition**

For those interested, and even if you do not pursue your own seeding odyssey, I would highly recommend seeking out a paper by John Rouse: The Propagation of Rhododendron Section Vireya From Seed. (see Notes Rom the RBG Edinburgh, 1985, Vol 43: 1 pp 99-115).

I feel that Rouse's paper is essential background reading: pollination, seed germination, growth processes, the works, and quite readable for the non-botanist.

**Growing on to Maturity**

Vireyas love warmth but I think it has been shown that thy do not need to be treated as a 'tropical'. Obviously they must be protected from freezing and, if protected, they will grow nicely in a temperate clime: e.g. here in the San Francisco/Oakland Bay area and most of coastal California. Admittedly they grow faster where it is warmer year round but they do quite well here. Vireya hybridizers are now having some success breeding material that will take 25F for short periods. This work is being extended (see below re: R. saxifragoides) and evaluated.

Fortunately Vireyas take well to containerizing. They can be grown in boxes on patios and back porches and easily moved in and out during winter. They can be experimented with as 'house plants' and as hanging baskets in a conservatory. Where the climate supports it they take readily to growing in protected raised beds where sharp drainage is assured.

**But however grown some essential conditions must be met**

1. They should be grown in a rough fast-draining, chunky mix...medium to rough fir bark, coconut chips, redwood fiber, rough perlite or pumice and some chunky peat where available. Really any 'junky' mix avoiding traditional loamy soil. Always keep one eye on drainage!
2. If containerized they should never be over potted. In fact a pot bound plant is probably to be desired as long as fast drainage is maintained. It's really a matter of aesthetics and the balance between plant characteristics and container.
3. Periodic weak fertilizing will be necessary. Gypsum can always be applied as well as Epson Salts to maintain a Calcium Magnesium balance and acidity.
4. Vireyas seem to do well in strong filtered light. Full sun is probably to be avoided. But the appearance of your plants will tell you and some colors just do not look attractive in too much sun.

**In Conclusion**

Establishing an effective technique for raising seedlings opens one up to sampling the fantastic variation within this section of the genus and I will close with one example that has given me great satisfaction.

In the early 1990's Os Blumhardt (New Zealand) contributed several hybrid seed lots involving R. saxifragoides as one of the parents. Saxifragoides is a dense cushion-forming shrub growing in New Guinea at 9 to 12 thousand feet and is on every collector's list of most wanted. Saxifragoides itself has proved difficult to grow but we now see (thanks to Blumhardt) that its hybrids grow well and retain its dwarf characteristic. And, in addition, coming from such a high altitude one also hopes for a bit more tolerance for cold temperatures. Thanks to the Blumhardt seed, Jim Gerdemann in Yachats, Oregon is pursuing the hardiness issue with the saxifragoides hybrids and other parents, particularly R. commonae in both its red and cream forms. I am just having fun growing a spectrum of dwarf bonsai-like pot plants. I am now crossing several clones and siblings, and using them as parents crossed with larger flowering Vireyas. The criticism is often heard within traditional rhododendron circles that hybrids never really have that 'species look'. I do not think that this is necessarily the case with Vireyas. They are so diverse and can be combined in so many ways; you are able to create your own new 'species' with that distinctive look. And seed raising is the only way to do it.

I have tried to keep the above 'instructions' generic and they should be read more as guidelines than anything else. Nothing is hard and fast. Fortunately rhododendrons set copious seed and the seed stores well in a freezer. Experimentation costs little.

**See Chris Callard's wonderful Web site at www.vireya.net**
**Get into this group and let's talk about Vireyas www.groups.yahoo.com/group/vireya**

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