

Useful Characteristics for Breeding in *Heuchera*, *Pulmonaria*, and *Tiarella*

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INTRODUCTION

There are a good number of garden-worthy genera in which very few cultivars have been bred or selected. This paper focuses on the author's work on breeding and selecting new cultivars of *Heuchera*, *Pulmonaria*, and *Tiarella*. Gardeners regard a number of species within these taxa as "nice woodlanders". I wanted to go beyond this and began collecting as many species as possible to enrich the genetic "palette". These were crossed in a range of combinations and hybrids analyzed to the following criteria:

- Is the new strain sufficiently different from current offerings (i.e.: are differences obvious to an observer standing 3 m away)?
- Does the leaf or flower excite customer interest?
- Is hybrid vigor evident?
- Does it have a wide climactic range? (determined from Pan-American trials)
- Is it capable of propagation in tissue culture to fulfill consumer demand?

Between three and ten selections would generally be made from each 1000 seedlings. Visitors to the nursery were polled for their favorites. The selected plants were trialled in different climatic zones over a 3-year period, and if successful were moved into full production.

HEUCHERA

Coral bells are often thought of as drab little plants with tiny but bright flowers but breeding has resulted in an explosion of stunning new foliage and flower forms. Numerous seedlings have been drawn from, to present plants that are superior in foliage, flower production, and hardiness. Handsome plants have been chosen bearing satiny silver or purple leaves measuring 25 cm across. Others include breakthrough forms showing ruffled foliage and flowerscapes to a meter tall, yielding superior cut flowers and new rock garden plants.

Listed below are the plants I have used in my breeding program, together with the positive and negative points of each.

***Heuchera americana*:** The backbone of my breeding program because of its incredible shade tolerance, tall flower spikes, repeat blooming, evergreen leathery foliage, metallic highlights, mildew resistance, insect resistance, cold and heat/humidity tolerance, and attractive seasonal variability.

***Heuchera parviflora*:** Drought resistant, sun tolerant, and good dwarf forms but has poor flower structure and dislikes lowlands and humidity.

***Heuchera micrantha*:** Ruffled leaves, good rhizomatous forms, huge flower spikes, and vigorous.

***Heuchera villosa*:** Good purple and discolor forms but has thin leaves and burns in sun.

***Heuchera cylindrica* and *H. pruhoniana* hybrids:** Nice foliage, good dwarf forms, some mottled leaves, large flower size, and has long stiff stems that florists love but also suffers from mildew problems and poor flower color.

***Heuchera sanguinea*:** Colorful flowers, mottled foliage, and extended flowering period but suffers from mildew and, in areas of high heat and humidity, from poor growth.

***Heuchera richardsonii*:** Tremendous hardiness to -15C, flowers small, but colored.

Through hybridizing, different “blends” of genes have yielded a plethora of new forms combining characteristics from *H. villosa*, *H. americana*, *H. sanguinea*, and *H. micrantha*.

TIARELLA

In American woodlands, *Tiarella* taxa are low understory plants, some rhizomatous, others clumping. The breeding goal was to improve leaf, flower, and “in-pot” presentation — an element which some breeders overlook. It has been our experience that vigorously running cultivars “fly” off the edges of the pots and are easily damaged in transit and at the nursery. We are selecting clumping forms for a better “show”. Available species for breeding show the following characteristics:

***Tiarella cordifolia*:** Good running habit, good fragrance, large short, if wispy, flowers; and large leaves.

***Tiarella wherryi*:** Nice clumping habit, some foliar and flower coloration but mildew-prone and smaller leaves and flowers.

***Tiarella trifoliata* ssp. *laciniata*:** Attractive, extremely dissected foliage with potential for introducing new leaf forms into other species but small wispy flowers and lack of vigor.

PULMONARIA

Natives of shady woods and scrublands from Siberia to Italy, *Pulmonaria* taxa are often the harbingers of spring. The flower colors range from salmon (*Pulmonaria rubra* ‘Redstart’) through raspberry (*Pulmonaria* ‘Berries and Cream’) to sky blue (*Pulmonaria* ‘Roy Davidson’). An outstanding characteristic of most *Pulmonaria* is the fact that the flowers turn totally different shades as they age — pinks may fade to blues, wines to reds, or the reverse. Some, like *Pulmonaria* ‘Sissinghurst White’ and the coral *P. rubra* ‘Bowl’s Red’ hold their color for the whole flowering period.

The other exciting aspect of *Pulmonaria* is foliage. Background colors may vary from apple green through olive to an almost black-emerald. Brilliant silver spotting may run from lightly dusted to solid silver (*Pulmonaria* ‘Excalibur’ U.S. Patent 8958). Foliage shape is another variable. Leaves can be lanceolate, such as *Pulmonaria* ‘Bertram Anderson’, to oval, as in *Pulmonaria angustifolia* ssp. *azurea*. The latter plant is one of the dwarves of the genus, rarely reaching 20 cm high. Plants like *Pulmonaria mollis* ‘Samobor’ can top out at 75 cm tall! One characteristic that I have bred into my plants is that of ruffled edges. This is seen in *Pulmonaria* ‘Berries and Cream’ and *Pulmonaria* ‘Silver Streamers’, an extremely wavy form that I hope to patent in 1997.

I have used the following species for their positive traits:

Pulmonaria mollis: Showy violet flowers, bronze new growth in spring, heavily veined foliage, huge upright leaves but mildew-prone and poor foliage color.

Pulmonaria saccharata: Showy, oft-changing colors, some good silver forms but long petioles tend to cause leaves to catch the wind more easily and self-destruct and the plants are susceptible to mildew.

Pulmonaria longifolia: Beautiful cobalt blues, lovely lance-shaped, well spotted foliage but some susceptibility to mildew, and the flowers are small, with very awkward flower stalks between flowering time and foliage production.

Pulmonaria rubra: Very early and floriferous with large flowers in salmon and coral tones and good mildew resistance but leaves do not age as well as other species.

Pulmonaria vallarsae: Extremely long blooming with short petioles and excellent mildew resistance. The plants have good substance and silvering with excellent vigor. The short pedicels show the flowers better while shorter petioles hold the leaves closer to the center.