

An Intersectional Point of View, Column #3  
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## An Intersectional Point of View

by Don Smith

Ever since their discovery and introduction into the US in the late 1960's, intersectional hybrids have for the most part been treated like herbaceous peonies, probably because they grow primarily from below ground buds like other herbaceous peonies. This herbaceous treatment is especially true with regards to their propagation, where intersectional peonies have been propagated almost exclusively by division. This method has proved to be very effective and has over time produced thousands of intersectional clones that have reached the marketplace. The main drawback to this approach is that production is painfully slow. Typically, it now takes 7-10 years to produce sufficient stock to begin sustained annual sales. Consequently, supplies of most varieties have been insufficient to satisfy rising demand, therefore prices for these hybrids have remained very high. This, in turn, has severely limited the widespread distribution of these wonderful new garden plants.

In most aspects the intersectional hybrids are really more like the tree peony types. This fact, combined with a strong desire to bring new and popular varieties to market more quickly, has resulted in serious consideration of several alternative methods of propagation for the intersectional hybrids. Some of these alternative methods, such as grafting, take full advantage of the woody (tree peony) characteristics of these plants by using the many above-ground buds that appear beginning in late summer. The use of these buds is especially economical since the majority of these buds do not survive the winter in most northern locations. Any plants that can be obtained from these buds, therefore, are a pure bonus. For example, a young plant, which may be too small to divide, can nonetheless easily provide 15-25 stems with 1-3 buds each and thus yield as many as 15-20 grafted plants without any disruption to the original plant. In addition, propagation by grafting (generally onto herbaceous roots) can be done every year rather than every second or third year as is standard with propagation by division. In fact, each year there are more and more stems available as the young plants continue to grow and mature undisturbed. Propagation by grafting is much faster than by division and is also proving to be just as successful with the intersectional hybrids as it has been over the years with tree peonies. This adds an important propagation option for the intersectionals that is not available with other herbaceous peonies.

In addition, there is another method that is quickly becoming established as a viable alternative to the more traditional methods and has already proved especially effective with the intersectional hybrid group. This method is usually referred to as “tissue culture”, but is really a micro-propagation technique more correctly called “bud culture”. This method uses the same buds that might otherwise be used for grafting except here the buds are sterilized and cultured in test tubes. Once a culture has been successfully started, multiplication of tiny plantlets can be extremely rapid. Thus, in a relatively short time, a single bud can yield many thousands of tiny plantlets that are all identical to the original plant (i.e., true clones). After transfer and acclimation to soil, growth of the little plants is remarkably fast and vigorous. A unique advantage of this technique is that buds can be “started” in either early spring or fall with about equal success. Buds started in the fall, however, must first undergo a forced winter dormancy period (i.e., cold storage) before the cultured buds will begin to grow, much the same as with peony seeds germinated indoors.

During the last few years some significant and exciting progress has been made concerning micro-propagation of intersectional hybrids. First, a number of Anderson’s intersectional hybrids have been successfully propagated by bud culture and some of these micro-propagated plants are already available for sale to the public. Beginning in the fall of 2003 and then again in the spring and fall of 2004, I cut several hundred stems from nearly 2 dozen of my best intersectional varieties in order to begin bud culture propagation of my hybrids. To date, these micro-propagation trials have proved very successful and, at present, there are at least 3 healthy cultures of each variety growing in the laboratory. Most of these cultures are now in the multiplication phase. With continued success, it is my hope that we can cut several years off of the time it normally takes to bring new intersectional hybrids to market. In addition, the very high production rates achievable through micro-propagation hold the promise to dramatically reduce the price of intersectional hybrids in a few more years when sufficiently large numbers of these plants finally reach the market. This, of course, should be good news for those who love peonies and have wanted to try some of the intersectionals but have thus far been deterred by the rather large investment required to purchase one.

In summary, there are now at least three reliable methods for propagating intersectional hybrids. This flexibility is unique to the intersectionals, giving this group a real advantage over other types of peonies when it comes to propagation. Furthermore, there is no need to choose between these various methods. Many of my hybrids are currently being propagated by all three methods. Two of these methods use (surplus) stems that would otherwise end-up in the compost heap since the buds on these stems seldom if ever survive the winters here in New England. Taking these stems in late summer to early fall has no effect on the growth or flowering of the plants. In addition, the buds required to “start” the cultures for micro-propagation need only be collected once, since after the cultures reach the multiplication phase they are essentially self-sustaining and continue to produce tiny new plantlets for several years or more. As a breeder, I am delighted with the amount of progress that has been made in the propagation of intersectional hybrids over the last few years. These advances in propagation should make it much faster and easier for me and other intersectional breeders to get our new hybrids to the marketplace.