

Dogwoods, the Next Generation[®]

Paul Cappiello

Yew Dell Gardens, Crestwood, Kentucky 40014 U.S.A.

Email: paulc@yewdellgardens.org

This presentation was originally to cover a reasonably comprehensive list of all the new dogwoods that have hit the market in recent years. The goal was to make sure that all those out there producing dogwoods would be current in their knowledge of the genus and all its new introductions have to offer the nursery and garden world. Unfortunately, even a comprehensive list of all the new *Cornus* introductions of the last 6 months would take more time than is allotted here. As an example of the tremendous pace of new dogwood introduction, in the 5 months between when Don Shadow and I submitted the manuscript for the dogwood book, until I saw the first printed advance copy, I amassed a list of some 75 new *C. kousa* introductions; not forms we missed, but new forms listed in just that time interval.

So if complete coverage of the new forms is not realistic here, the next, and in my opinion even better option, is to talk about the opportunities that exist for future work. I will cite several of the newer forms and what they have brought to the table and then discuss where we might go from here.

***Cornus canadensis*.** While this is a plant that frustrates many gardeners and producers alike, most miss the primary reasons for their failure. An examination of the circumpolar distribution of the species immediately indicates a requirement for cool growing seasons. Even those portions of the species' range that drop to the lower latitudes, do so only at high elevations. As summer night temperatures rise, plants cease to flower reliably and then lose vigor and eventual fail. Still, the species does exist in a range of environments and this range can be exploited to expand the potential landscape utility of commercially produced plants.

Initial research conducted with my team while at the University of Maine revealed that most of the *C. canadensis* material in the nursery industry had originated from mountainous Pacific Northwest seed sources. This germplasm seems to require the reliable snow cover of that region and when it finds itself growing in open New England winters, it shows drastically reduced survival rates. Selections of populations from coastal Maine, where plants grow in deep, gravely, and sandy soils in full sun have shown much better survival rates in landscape situations throughout the Northeast. There is even more potential for selections from further south in the species' range. While elevated summer night temperatures apparently are the main controllers in limiting the species range further south, there is still ample opportunity for selection to improve the range over what is offered in the industry today.

Once selections are made, we have found that the best propagation results from softwood cuttings treated with 1000–3000 ppm K-IBA in fog. Overhead mist results in stressed plants, poorer rooting success and much slower production.

***Cornus mas*.** Cornelian cherry dogwood seems to be a plant that those of us in the industry seem to like much more than do our customers. Still the species has the appeal of excellent cultural adaptability and early flowering when few other plants compete for attention in the garden. There are numerous selections on the market

but few have shown themselves to be truly distinct from the species. One standout exception is *C. mas* 'Variegata'. This slow-growing, somewhat shrubby selection is a dependable performer that deserves greater attention.

The future of this section of the genus seems to be in the hands of *C. officinalis*. The Japanese cornel dogwood offers an overall cleaner specimen in the landscape, stronger branching, and showier flowering and adds a complement of attractive, cherry-like bark. The most outstanding selection available in the U.S.A. is 'Kintoki', a strong-growing form with excellent bark characteristics, heavy flower production, and unusually good fall foliage color. Unfortunately, there may be more than one form in the U.S.A. under this cultivar name. Other large-flowered forms include 'Sun Sphere' and 'Lemon Zest' which may be hybrids with *C. mas*. There is still considerable room for selection of even better forms given the cultural adaptability and multi-season interest of the species.

All of the *C. mas* and *C. officinalis* selections are easily propagated from summer cuttings treated with 5000 ppm IBA under mist. *Cornus mas* 'Variegata' is much slower to root and tends to root better in fog systems.

***Cornus alternifolia*.** The pagoda dogwood, has remained for many years, a staple plant for the upper Midwest and, to a lesser extent, New England and the mid-Atlantic coast. Intolerance of extreme heat seems to limit the species' range in the South, but the primary ailment of the species in the landscape is a stem canker that can be difficult to control.

Selection in *C. alternifolia* has concentrated on unique foliage forms. *Cornus alternifolia* 'Argentea' is a form with irregular variegated margins of white. It is smaller than and a more reliable grower than *C. controversa* 'Variegata' that is often damaged by late spring frosts. Recent introductions include the yellow-variegated *C. alternifolia* 'William Stackman' Golden Shadows™ pagoda dogwood and the all-yellow 'Bachone' Gold Bullion™ pagoda dogwood. The latter is extremely vigorous and seems to be a better overall grower than the former. Neither of these two introductions has been in the trade long enough for thorough evaluation of their susceptibility to stem canker. All are easily propagated by summer stem cuttings treated with between 1000 and 7000 ppm IBA depending on condition of the cutting material.

***Cornus florida*.** The range of offerings in this species is truly amazing and represents a wide range in bloom colors and sizes, plant stature, foliage types, and even stem color. However the largest challenge for those looking for improved forms is disease resistance. Dogwood anthracnose (*Discula destructiva*) has been the ailment that has received the greatest attention in recent years, however in certain portions of the country; powdery mildew has been a far more destructive disease problem. There is such a wide range of available cultivars today, that all future introductions should be screened for susceptibility/resistance prior to release. The current trend of seemingly naming, patenting, and introducing every chance variant that arises, will only serve to confuse consumers and gradually erode market interest in this highly profitable crop.

Some relatively recent *C. florida* introductions worth watching include:

- 'Red Pygmy'. This introduction of Dr. Elwin Orton of Rutgers University, is the most prolific and precocious bloomer of any of the red/pink-bracted forms. With *C. florida* 'Pygmy' as one of its par-

ents, the selection is a small, compact grower. It shows the most intense red bract pigment of any form presently on the market. Its anthracnose and mildew susceptibility are currently undocumented, however in evaluations at Yew Dell Gardens, we have found it to be free from mildew over the last 4 years.

- ‘Appalachian Spring’. This is the only commercially available selection that was specifically introduced as an anthracnose-resistant cultivar. It has typical *C. florida* features and although it showed resistance in controlled tests, has not been in the trade long enough for a thorough susceptibility evaluation.
- ‘Appalachian Blush’, ‘Appalachian Mist’, ‘Appalachian Snow’. This trio was introduced as a group of mildew-resistant cultivars. Of the three, ‘Appalachian Snow’ is the most attractive form, with broad, clear white bracts. It has shown the least mildew (although not free from the ailment) of the three while the others have shown symptoms inconsistently. All three will require additional time for real-world testing.

In variegated *C. florida* selections, there is considerable room for new, disease-resistant forms. The variegated cultivars seem to be among the most susceptible to anthracnose, mildew, and spot-anthracnose, with ‘First Lady’ still remaining one of the best.

Cornus kousa. While this species generally shows superior cultural adaptability and less pest susceptibility than the previous species, it is by no means a panacea for the dogwood world. The kousa dogwood has shown some limited susceptibility to powdery mildew and rare instances of anthracnose, so future selection/breeding efforts should take this into account. Given the wide range of performance across the species, the wise plant breeder/selector should look to *C. kousa* var. *chinensis* due to its broadly superior vigor and overall landscape performance. In a recent broad cultivar evaluation study, we found that best selections to include:

- ‘Greensleeves’. a selection with excellent vigor, deep-green glossy leaves and large, freely formed white bract displays.
- ‘Moonbeam’. Very similar to ‘Greensleeves’.
- ‘Blue Shadow’. A Poly Hill selection named in honor of Don Shadow; with excellent quality blue-green foliage and good vigor.
- ‘Propzam’ (Prophet™ kousa dogwood); excellent quality, thick green leaves with deeply impressed veins. This selection holds up very well late in the season, even in full sun situations. It also has the best tasting fruit of the more than 100 cultivars evaluated.
- ‘Wolf Eyes’. Certainly the most popular of the white-variegated forms. It holds up well in full sun or shade in Kentucky but is less free growing than most. All seedlings grown from fruit have been albinos. It produces occasional green reversions that must be removed from the plant.
- ‘Samzam’ (Samaritan™ kousa dogwood); this white-variegated form has shown the adaptability of ‘Wolf Eyes’ but in a more tree-like form.

While the above are all excellent selections, there is still considerable room for improvement and/or variation and many more selections are being introduced every year. There are yellow-fruited forms that can be incorporated into breeding and the existing pink-bracted forms can be drastically improved for both flower production, vigor, and disease resistance.

Hybrids. The original *C. kousa* × *C. florida* hybrids originally introduced by Dr. Orton were a major first step in dogwood hybridization. With the exception of the plant sold under the name of *C. ×rutgersensis* 'Rutfan, Stardust® hybrid dogwood (does not graft successfully), the others have shown excellent vigor, good market penetration, and reasonably good resistance to pest problems. The major market limitation of these selections has been that they do not bloom well as young plants. A newer introduction from the same cross recently released under the name *C. ×rutgerensis* KF1-1, Saturn™ dogwood has shown excellent vigor and flowering as an older plant and warrants further evaluation in the landscape.

Dr. Orton's second-generation hybrids of *C. kousa* and *C. nuttallii* have opened a new door on dogwoods. They show the vigor, large and multi-bract characteristics (more multi-bracted blooms in *C. KN4-43*, Starlight® hybrid dogwood) of the Pacific parent and the cultural adaptability of the Asian parent. Pest susceptibility of *C. KN30-8*, Venus® hybrid dogwood and Starlight® hybrid dogwood are as yet unknown, however the original plants of both are some 20 years old and have remained free of mildew and anthracnose. Venus® hybrid dogwood has the largest bloom and is likely to be reliable in Zone 6 at least. Starlight® is likely a bit less cold tolerant.

Finally, the potential introduction of the evergreen characteristics of *C. elliptica* (syns. *C. angustata* and *C. kousa* var. *angustata*) creates additional possibilities.