

## New Releases From The U.S. National Arboretum

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Throughout its 70-year history, the U.S. National Arboretum has played a key role in the origination and dissemination of new and unique plant material through genetic research and through participation in various plant explorations. Over the past several years, the introduction of some especially exciting and noteworthy cultivars has taken place.

### *Ulmus americana*

I'd like to begin my talk with a discussion of a classic, elegant tree from America's past, the American elm (*Ulmus americana*). Unfortunately, this species has all but disappeared from the landscape due to the ravages of Dutch elm disease. However, I am happy to report that there is hope for the American elm. After 20 years of research, two new cultivars of American elm have been released by the National Arboretum: 'Valley Forge' and 'New Harmony'. Although not immune to Dutch elm disease, 'Valley Forge' and 'New Harmony' have unusually high levels of disease tolerance and have demonstrated superior field resistance. Both cultivars are seedling selections made in Delaware, Ohio, by Dr. Denny Townsend and Dr. Larry Schreiber, who screened thousands of American elms for resistance by inoculation with both aggressive and non-aggressive strains of the Dutch elm disease fungus (*Ophiostoma ulmi*). Compared with the thousands of American elm selections and seedlings in the trials, 'Valley Forge' and 'New Harmony' showed significantly lower foliar symptoms and crown dieback after intensive inoculation with the fungus. The inoculation tests were rigorous: the elm bark beetle, the insect vector for Dutch elm disease, may introduce 10 to 100 spores of the deadly fungus, while the trees in the test were injected with at least a million spores. 'Valley Forge' was found to be the most tolerant with 'New Harmony' a close runner-up. As an interesting sidelight, an outbreak of elm yellows occurred in the Delaware, Ohio site while the new American elms were being tested. None of the 'Valley Forge' and 'New Harmony' trees came down with the disease while about 15% of the other American elms acquired it. Further testing is being carried out to determine if these two cultivars are also resistant or tolerant to elm yellows.

Both cultivars have the classic American elm shape, rapid growth rate, and the tolerance to air pollution, drought, and poor soil conditions of the species. 'New Harmony' has a broadly V-shaped crown with the main trunk dividing nearly 30 ft from the ground into several erect limbs that are strongly arched and terminate in numerous, slender, often drooping branches. The parent tree is 68 ft tall with an average crown spread of 72 ft. 'New Harmony' is reliably hardy in U.S.D.A. Zones 5 to 7 and possibly into Zone 4.

'Valley Forge' has an upright, arching, broadly V-shaped branching structure with a full, dense canopy of leaves. After 12 growing seasons in Ohio, cuttings from the parent tree are 26 ft tall with an average crown spread of 30 ft. It, too, is hardy in U.S.D.A. Zones 5 to 7.

Both cultivars root from softwood cuttings under mist, using 3000 to 8000 ppm IBA, in 3 to 6 weeks. Rooted cuttings that break bud will transplant successfully in the current year. Protection must be provided over winter the first year.

### ***Acer rubrum***

Another native American tree with much to offer in landscape potential is *Acer rubrum*, the red maple. The invasion of Norway maple seedlings into our native woodlands has led to the need to identify suitable alternatives for landscape plantings that will enhance the beauty of both the natural landscape and the designed garden.

Three new red maple cultivars, selected for their insect tolerance and the presence of several unique and desirable horticultural attributes, have been recently released by the National Arboretum. The three cultivars, 'Sun Valley', 'Somerset', and 'Brandywine', resulted from controlled crosses made in 1982 by Dr. Denny Townsend between several red maple cultivars and selections. These new cultivars produce only male flowers; no fruit are produced. Each one also has a significant level of tolerance to the potato leafhopper, an insect that can cause shortened internodes, bunching and distortion of new growth, and a general decline in vigor of the plant.

'Sun Valley' is a cross between 'Red Sunset' and 'Autumn Flame'. It has a symmetrical, ovate crown with leaves that show a brilliant red color in the autumn. In Washington, D.C., peak coloration usually occurs around mid-October. The original selection has reached a height of 21 ft with a crown spread of 10 ft after 12 growing seasons. It is adaptable for use in U.S.D.A. Hardiness Zones 4 to 7.

'Somerset' resulted from a cross of 'October Glory' with 'Autumn Flame'. Autumn coloration begins a little later than 'Sun Valley', late October in the Washington, D.C. area. 'Somerset' has outstanding red autumn color combined with an unusually broad range of adaptability. The crown shape is moderately ovate. At 12 years, it has attained a height of 23 ft with a crown spread of 11 ft. It is hardy in U.S.D.A. Zones 4 to 8.

'Brandywine' has the same parentage as 'Somerset'. Flamboyant in autumn, the vibrant red leaf color gradually turns to a brilliant purple red as the days grow shorter, thus providing 14 days or more of effective peak red autumn color. The crown is moderately columnar in form, and at 12 years 'Brandywine' can be expected to attain a height of 25 ft with a spread of 12 ft. It also is hardy in U.S.D.A. Zones 4 to 8.

'Sun Valley', 'Somerset', and 'Brandywine' are easy to propagate from softwood cuttings under mist, using 3000 to 6000 ppm IBA, with rooting generally occurring in less than 4 weeks. Cuttings should be left in place to overwinter.

### ***Lagerstroemia***

*Lagerstroemia fauriei* 'Kiowa' was officially released in 1994, but has not received the promotion and publicity it deserves. A unique source of *L. fauriei* germplasm arrived in the U.S. in 1968, sent to Dr. Donald Egolf at the U.S. National Arboretum by Dr. Y. Tachibana of the Botanical Garden of Osaka, Japan. After many years of evaluation of this germplasm, 'Kiowa' was selected as a superior representative of the species. 'Kiowa' has excellent vigor, fairly large flowers for a *L. fauriei*, and brilliant exfoliating, cinnamon brown bark. The winter beauty of these sinuous cinnamon trunks is a delight to behold. It has attained a height of 25 ft and makes an excellent single to multitrunked small flowering tree. It is reliably hardy to U.S.D.A. Zone 7. A test planting was recently established at a Zone 6 site in Kearneysville, West Virginia, so that the actual hardiness range of 'Kiowa' can be tested in the field under variable winter conditions.



Propagation of 'Kiowa' is not as easy as with other crapemyrtle cultivars. Rooted cuttings may be obtained from juvenile material with varying degrees of success. However, it has rooted very well using micropropagation techniques, and we now feel confident that significant numbers of 'Kiowa' can be made available to the retail trade.

The year 1997 has been a milestone year for the National Arboretum's crapemyrtle program with the introduction of 'Chickasaw', the first in a series of miniature hybrid crapemyrtles bred by Dr. Donald Egolf. This small, densely branched, compact plant is the answer to a gardener's dream. Clusters of lavender to pinkish-lavender flowers adorn the plant in mid-summer. The clusters of glossy, dark red flower buds provide several weeks of pre-season interest. New leaves have a dark reddish tinge and mature to a glossy dark green. Field resistance to powdery mildew is another plus. 'Chickasaw' grows as a compact mound and has reached a height of 2 ft with a width of 2½ ft after 7 years of container culture. The exciting news is that this particular type of crapemyrtle lends itself to a variety of new uses for which the larger cultivars are unsuited. Reliably top-hardy in U.S.D.A. Zone 7B, the roots are hardy in U.S.D.A. Zone 6. The plant's unique habit may provide opportunities for growing and marketing the miniature 'Chickasaw' in areas of the country that do not currently grow crapemyrtle. For example, as a perennial plant, as an annual bedding plant, and definitely for use as a container plant or in the container garden, 'Chickasaw' could provide a "new look" for summer flower beds. Although slowgrowing, 'Chickasaw' roots easily from softwood to semihardwood cuttings taken before flowering. Rooting occurs in 2 to 3 weeks using 1000 ppm IBA, under mist.

### ***Hemerocallis***

*Hemerocallis* 'Chesapeake Belle' was named and released for propagation in 1996. This is a selection from the cross of 'Elfin Stella' with 'Shorty' made in 1989 by Dr. Robert Griesbach. 'Chesapeake Belle' is distinguished by its continuous flowering and dwarf habit. Most continuous flowering daylily cultivars produce small flowers on tall stems whereas 'Chesapeake Belle' produces its flowers on short stems. The plant is 8 to 10 inches tall and 10 to 12 inches wide, producing flowers 3 inches in diameter. A bright yellow-gold in color with a greenish gold throat, the flowers bring sunshine to the garden all summer long. This lovely small daylily will produce 4 to 6 inflorescences from May to October. It is suitable both as a container plant or in the garden as a border or rock garden plant.

With the expansion of the Floral and Nursery Plants Research Unit at the National Arboretum, the scope of plant material being investigated has widened considerably.

### ***Future Releases***

As an enticement to look to the future, I would like to mention three new proposed releases which have just been sent to our cooperators for stock increase this fall. As soon as their numbers are increased enough to make them commercially available, these plants will also join the elite roster of U.S. National Arboretum cultivars.

### ***Lagerstroemia***

*Lagerstroemia* hybrid (NA 62918) is the second in our series of miniature crapemyrtles. It will be released within the next 2 to 3 years. The foliage is an excellent dark green with a high tolerance to powdery mildew. The plant is a compact mound which has

reached about the same overall size as 'Chickasaw'. Flower color is a deep rose pink. Like 'Chickasaw' propagation is extremely easy using 1000 ppm IBA, under mist. Semihardwood cuttings will root in 3 to 4 weeks.

### ***Syringa***

*Syringa* hybrid (NA 62973) will be the first lilac hybrid to be released by the Shrub Genetics Research Program at the National Arboretum. It is a floriferous, white-flowered, rounded shrub with high field tolerance to powdery mildew. The habit of the plant is compact and rounded, without the legginess associated with so many of the *S. vulgaris*-type lilacs. It has reached a height of approximately 6 ft in 15 years. Well suited for gardens as far south as U.S.D.A. Zone 8, this selection requires very little cold treatment to break flower bud dormancy. It has performed exceedingly well in the pollution, heat, humidity, and hotbed of powdery mildew in Washington D.C. Propagation by semihardwood cuttings is easily accomplished with 89% rooting in 4 to 5 weeks using 3000 ppm IBA, under mist. Unrooted cuttings were restuck after 5 weeks and the ultimate rooting percentage after 7 weeks was 95%.

### ***Cercis chinensis***

*Cercis chinensis* (NA 63877) is a selection much like the species except for the fact that it does not set fruit. Therefore, there are no unsightly pods hanging on during the winter. In addition, the plant has an excellent, compact growth habit and roots quite easily. One cooperator has reported rooting at 100% from semihardwood cuttings. Much the same results have been produced at the National Arboretum using semihardwood cuttings treated with 3000 ppm IBA, under mist.

The U.S. National Arboretum takes seriously its mission to conduct research, provide education, and conserve and display trees, shrubs, flowers, and other plants to enhance the environment. Committed to excellence, this institution will continue to develop superior plant material well into the next century and beyond.