

The Growing Legacy of J.C. Raulston

By Dr. Thomas G. Ranney, JC Raulston Distinguished Professor
Department of Horticultural Science, North Carolina State University

Standing on the shoulders of giants, we in horticulture build on the vision and accomplishments of our predecessors. The late Dr. J.C. Raulston (Figure 1) stands out as a visionary giant who inspired, mentored and helped foster the North Carolina nursery and landscape industries, as well as institutions, businesses and individuals around the world — including me. J.C. was a brilliant plantsman who understood the excitement and appeal of fanciful new plants, while recognizing the pragmatic realities of propagation, production, marketing and mass-market dependability, value, and utility. Although he had a global perspective and network, he was able to bring back plants and insights that were particularly relevant to North Carolina. He was also a trendsetter, kickstarting important plants like Leyland Cypress and Loropetalum. I hung on his every word while I was a young faculty member at NC State. Looking back, it's a testament to his profound insights that many of our current plant-breeding projects and plant introductions still have roots with J.C., despite his untimely death in 1996 (see his biography at jcr.ncsu.edu/about/history/j-c-raulston/index.php). A few such plants that come to mind follow.

Yardline® Viburnum (*Viburnum* 'NCVX5' Yardline® USPPAF)

Yardline is a unique new hybrid with a fascinating history. After coming across a beautiful evergreen viburnum (*Viburnum awabuki*) in a remote schoolyard on Chindo Island in South Korea, J.C. named it 'Chindo' and shared it worldwide. Unfortunately for us, 'Chindo' is not reliably hardy in the mountains of Western North Carolina (USDA Plant Hardiness Zone 6), so it is a plant we generally admire from afar (interestingly, *V. awabuki* is closely related to a much more cold-hardy deciduous species, *V. sieboldii*). Further north, the legendary nurseryman and plantsman Roy Klehm, from Beaver Creek Nursery in Indiana and formerly Klehm's Song Sparrow Farm and Nursery in Wisconsin, selected a particularly cold-hardy form of *V. sieboldii* and named it 'KLMfour' Ironclad™ (USDA Zone 4). In 2008, we crossed 'Chindo' and 'Ironclad' and got hybrids with so much vigor, they grew more than

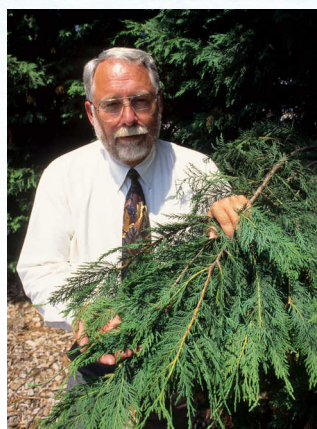


Figure 1. Dr. J.C. Raulston with a branch from Leyland Cypress, 1994. Credit: JC Raulston Arboretum.

3 feet per year; however, they were only semi-evergreen. Completing a backcross, we took our F1 hybrids and bred them back to *V. awabuki*, resulting in fully evergreen hybrids that were then approximately $\frac{3}{4}$ *V. awabuki* and $\frac{1}{4}$ *V. sieboldii*. We eventually selected one individual from that population with a dense, upright habit that was ideal for hedges and screening. With the help and support of Spring Meadow Nursery, this selection was named and marketed as Yardline® (Figure 2). Compared to 'Chindo,' Yardline® is more cold hardy (USDA Zone 6b, and perhaps colder) with a narrow, upright habit and denser branching. Liners are available from Spring Meadow Nursery.



Figure 2. Yardline® Viburnum (*Viburnum* 'NCVX5', USPPAF). Credit: Thomas Ranney.

Funky Flow™ (*Mahonia* 'NCMH1' USPP 34,442) and Groovy Glow™ ('NCMH2' USPP 34,443) *Mahonia*

While attending and speaking at a Southern Region International Plant Propagators meeting in Charleston, SC, in 1995, I had the good fortune of sitting next to J.C. on the tour bus. While peppering him with countless questions, I asked him: "If you were developing a plant-breeding program, what would you work on?" Without hesitation, he said, "Mahonia." Thinking of the not-so-attractive Leatherleaf Mahonia (*M. bealei*), I was a bit skeptical. But J.C. was way ahead of his time on that, too, as he was knowledgeable about the broad diversity of the genus in Asia and the New World. We eventually started breeding Mahonia at the Mountain Crop Improvement Lab, and with the support of NCNLA and Star® Roses and Plants, we recently introduced two new cultivars. These complex hybrids combine the improved cold hardiness and showy flowers of *M. ×media* with the softer texture and smaller stature of *M. eurybracteata*. Funky Flow™ has a compact form, soft-textured foliage and yellow flowers,

and is cold hardy to USDA Zone 6b (Figure 3). In addition to the other mentioned species, Groovy Glow™ also has an introgression of *M. gracilipies* and *M. nitens* to drive red flower color and burgundy new foliage. The end result is a compact shrub with multicolored red/orange/yellow flowers that is cold hardy to USDA Zone 7a (Figure 4).



Figure 3. Funky Flow™ Mahonia (*Mahonia* 'NCMH1', USPP 34,442).
Credit: Thomas Ranney.

tetraploids (four sets of chromosomes). These tetraploids were then hybridized back to various diploids to create triploids. Triploids grow and function normally, except for reproduction, where it is problematic to divide three sets of chromosomes evenly in meiosis, stifling reproduction. Although Kindly™ was intentionally developed to be seedless and noninvasive (we

have yet to find a viable seed on it), it has great landscape traits as well (Figure 5). Kindly™ has an upright oval form with thick, leathery foliage and is particularly cold hardy for a *L. japonicum*. We have some Kindly™ planted on top of a windy knoll here at the Mountain Horticultural Crops Research Station in Mills River, NC, where it shrugs off our mountain winters. Liners of *Ligustrum* Kindly™ are available from Spring Meadow Nursery.

Final Thoughts

Time marches on, but the legacy of J.C. Raulston endures. What he left behind reminds us that horticulture is as much about people as it is about plants. His vision continues to inspire innovations that shape our landscapes and foster connections among generations of horticulturists. Thank you, J.C., for your inspiration, mentorship, humanity and horticultural vision!

For more information on the exciting plants developed at NC State, visit plantbreeding.ncsu.edu/cultivars/.

Thanks go out to our team – Nathan Lynch, Irene Palmer, Andra Nus, John Nix, and the staff at the Mountain Horticultural Crops Research and Extension Center – for making these projects possible.

Figure 4. Groovy Glow™ Mahonia (*Mahonia* 'NCMH2', USPP 34,443).
Credit: Thomas Ranney.

Kindly™ Japanese Privet (*Ligustrum japonicum* 'NCLJ1' PPAF)

J.C. was not an elitist. He did indulge in rare, esoteric plants, but he also recognized the utility of plants like privet (*Ligustrum spp.*). He actually named one 'Green Meatball,' knowing that there was a market for such tough, indestructible green blobs. In his extensive journeys, he stumbled upon one *L. japonicum*, nearby in Davidson, NC, that had unusual cold hardiness (-15F), naming it 'Davidson Hardy.' At that time, we were working on developing seedless forms of plants that were important and valuable crops, but maybe a bit too weedy. *Ligustrum sinense*, and to a lesser extent, *L. japonicum*, fell into that category. One effective method for creating seedless plants is to develop triploids — plants with three sets of chromosomes, like seedless bananas or watermelons. To accomplish this, we took seedlings from the diploid (two sets of chromosomes) 'Davidson Hardy' and treated them with a chemical mitotic inhibitor to induce



Figure 5. Kindly™ Japanese Privet (*Ligustrum japonicum* 'NCLJ1', USPPAF).
Credit: Thomas Ranney.