

## Plant Breeding and Introduction: The Necessity for Sustained, Energetic, and Visionary Programs<sup>©</sup>

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The plant introduction merry-go-round is spinning out of control. The herbaceous world is moving faster than the woody world simply because flowering cycles are shorter. I think back to the late great Dr. Don Egolf who initiated the viburnum breeding program while a graduate student at Cornell and carried the work and progeny through his entire career; to think that I have possibly his best viburnum, NA 69852, which was a cross between *V. macrocephalum* f. *keteleeri* and *V. utile*, almost 15 years after he made his initial crosses. For example, 'Mohawk' resulted from a backcross of *V. ×burkwoodii* × *V. carlesii* made in 1953.

### CHANGES IN THE WORLD OF ORNAMENTAL PLANT BREEDING

Dr. Harold Pellett, University of Minnesota, is retiring. Dr. Elwin Orton, Rutgers University, who bred the *Cornus × rutgersiensis* Stellar Series is close to retirement. In recent years, our profession lost Dr. John Pair, Kansas State University, and Dr. J.C. Raulston. A tremendous void exists on the visionary side of horticulture. To its credit, North Carolina State University has a formidable team in Mr. Dick Bir, and Drs. Tom Ranney, Dennis Werner, and Bob Lyons. Dr. Paul Cappiello, Bernheim Arboretum, has the most energetic, real world woody program that exists at any major arboretum. I am hopeful that the University of Georgia will continue to support the Armitage and Dirr efforts. Our Georgia nursery industry has been terrific in its support.

Last week I attended a seminar by Dr. Scott Merkle, School of Forestry, University of Georgia, who presented fascinating information on somatic embryogenesis and interspecific hybrids of *Liquidambar styraciflua* × *L. formosana*. The hybrid plants looked terrific and I asked Scott whether they would be evaluated for phenotypic expression of quality attributes over time. Scott's academic advancement is based on research paper production. These are easily accumulated in the initial stages of the "pure" science. The actual long-term field evaluation of the progeny pays limited dividends to the researcher.

### HOPE FOR THE FUTURE

I do not have answers, but based on my Georgia experiences, believe our best allies are the nursery industries in our respective states who can grow progenies to maturity. Many of the plants introduced through the Georgia program resulted from the feedback provided by nurserymen who grew and evaluated the plants in *actual* production settings.

I walked Dr. Egolf's test plots at the U.S. National Arboretum and observed acres of *Pyracantha* seedlings. Will any institution commit the necessary resources to such a program? Possibly most critical to the success are the needed human capital with the vision, persistence and savvy. I am hopeful.

## GEORGIA WOODY PLANT BREEDING

A Few Georgia Breeding Projects that may pay woody dividends are:

**Abelia Breeding.** Over 7000 controlled crosses have been made. Hundreds of seedlings are containerized or in the field. This is the Ph.D project of Michelle Scheiber who is assessing compatibility of species and cultivars, pollen viability, and inheritance characteristics.

**Hydrangea Breeding.** Perpetual flowering is the goal! I have accumulated over 30 taxa purported to be have profuse flowering; most do not to any degree. Perpetual rebloomers include: 'Endless Summer', 'Penny-Mac', 'David Ramsey', and 'Decatur Blue'. 'Oak Hill' was recently given to me by Post Properties and is reported to be a rebloomer.

My graduate student, Jeff Adkins, is assessing the above trait as well as cold hardiness. We developed a system to flower *H. macrophylla* from seed in roughly 16 months. Our early seedlings of 'Dooley' displayed remarkable variation. Currently we have about 3000 seedlings of 15 maternal *H. macrophylla* parents.

**Hypericum Breeding.** Sara Crockett, a botany Master of Science graduate student, worked on the taxonomy of southeastern species. Although difficult to differentiate, she collected cuttings of 15 taxa from the wild which are now under evaluation. Foliage is evergreen on some with 1.3 cm (½ inch) diameter yellow flowers all summer. Several species grow in swamps while others are in sandy soil. There is great potential to hybridize these with Asiatic species. To date, *H. densiflorum*, *H. fasciculatum*, *H. reductum*, *H. nitidum* (see *H. fasciculatum*), and *H. brachyphyllum* are promising.

**Lagerstroemia Breeding.** Started in 1997 by collecting seeds from Dr. Egolf's original dwarf material. Now have 3rd generation seedlings — exciting group with bronze-purple new growth, waxy leaves, excellent fall color, compact habits, range of flower colors, etc. If customers take to 'Pocomoke' and 'Chickasaw', then these have the potential to broaden this species palette of attributes.

## POSTSCRIPT

I talked with Dr. Margaret Pooler, US National Arboretum, about *Viburnum* NA 69852. She said the crosses were made in the 1980s. The plant, now 15 years old, is 2.4 m (8 ft) high, 1.5 m (5 ft) wide, densely branched and foliated, evergreen, and smothered with white fragrant flowers. The remarkable aspect is the plant is just now in the evaluation process: so expect 3 to 5 years before it is released (if worthy) by the U.S. National Arboretum. The time table is 18 to 20 years to possibly release the plant, which is more than half a research scientist's career.

Margaret mentioned to me that her program includes the research geneticist position (hers), one field technician, one support scientist, full-time general maintenance worker, and summer interns. I doubt seriously if most Universities would provide this level of support *unless* outside soft monies (grants) could be generated.