tween the 2n = 38 and 2n = 76, of its parents; and the hybrid between *M. virginiana* (2n = 38) and *M. grandiflora* (2n = 114) has the intermediate number of 76 chromosomes. Also in *M.* × *soulangiana* varieties we find chromosome numbers of 2n = 76, 95, 123, 133 and 152, with 2n = 95 being intermediate between the 114 and 76 of the parents, and with the other numbers encountered possibly being accounted for as outlined in earlier paragraphs.

Thus it is apparent that if the genic relationships between two potential parental species are close enough hybrids can be obtained in this genus between species with differing, as well as with similar, chromosome numbers. This adds considerably to the possibilities of securing new hybrid types. The potential seems excellent for producing additional hybrid Magnolias, with perhaps many combining desirable parental characteristics to produce additional exotic varieties.

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Magnolias in Containers

by Edward J. Horder

Why grow plants—particularly trees—in containers? That's about the first question I'm asked by other growers when I tell them that's how I choose to do it. There are the continuing pleasant surprises at how well most plants do in containers when you consider the unnatural root restrictions in their growing environment, but my practical reason is mobility. I've accumulated over 240 species of woody plants over the years and am trying to grow them on a quarter-acre lot already equipped with trees. When plants get big in their containers, I eventually slough them off for planting on the 26 acre site in Mobile reserved for the new South Alabama Botanical and Horticultural Societies Arboretum.

As for the soil mix I use, I went through the stages of sand with peatmoss, topsoil and peatmoss, and four or five other media and watched plant after plant decline and die through soil compaction and poor drainage. It was a kind of desperation that led to my use of milled bark of the slash pine, and I decided to go all out with it. I mix in peatmoss at about 20 percent by volume and dried cow manure at about 10 percent by volume. The manure is clean and analyzes nearly 2-1-1.

The result of all this is a fluffy, moist mixture that lets water percolate down through it quickly, though the mix still does have considerable water retention properties. I don't use anything on the bottom of the containers for added drainage but I do press the mixture firmly in place as a final step when placing a plant in a container. The pH runs pretty strongly acid—5.1 to 5.3—and this could be partly the reason for the poor performance of such trees as *Sophora japonica* and *Phellodendron amurense* among the colder temperate trees I test in containers here. Some others perform poorly but probably because our winters are too warm or summers too hot. One reason I am making these tests is that no one seems to have ever been interested in conducting provenance studies on woody plants for selecting them for heat tolerance or low bud chilling tolerance, so that applicable species and cultivars can be moved southward instead of always northward to find their climatic niche.

Asian magnolias are comparatively recent additions to my containerized tree collection, beginning in 1974 with *M. campbellii* and *M. campbellii* var. *mollicomata* and followed in 1975 with *M. dawsoniana* and *M. sprengeri* 'Diva'. Natives I've had for ten or more years are *M. pyramidata*, *M. macrophylla*, *M. tripetala*, and seedling *M. grandifloras* and *M. virginiana australis*. They've thrived in the soil mix I use from the beginning if they were able to escape other problems such as scale and shot-hole borers. The *Yulania* section magnolias have really taken off vigorously and I now have them in large galvanized cans.

Because of lack of space I have no ground-planted controls so I can't really say they wouldn't have done better in the ground. I think I could get more spectacular growth on all species if I put them on an annual program of chemical fertilization of an appropriate analysis, but I haven't taken this step yet.