

¡Viva dealbata!

It is quite astonishing that *Magnolia dealbata*, described and figured by HERNANDEZ in 1651, and thus the earliest recorded *Magnolia*, should only have been brought into the United States, alive, in late October 1975! It is perhaps a shade early to use the phrase, "brought into cultivation," since (1) even with the expertise of Tom Dodd and Joe McDaniel, the buds and cuttings later mentioned may not survive, and (2) it is, of course, possible that flower-loving Mexicans have cultivated the tree, perhaps for centuries, in gardens and church yards in its native range.

All of us, in the *Magnolia* Society, are indebted to Mr. George Pfaffman for a job splendidly done; to our alert friend and member Harold Hopkins (himself a plant hunter of no small repute) for his valuable liaison with Mr. Pfaffman, and to old Mexico hand, Joe McDaniel, to whom any bud can be safely entrusted. Members should re-read "Magnolias From Middle America" in Newsletter Vol 5, No. 1 for an account of Joe and Mary Nell McDaniel *magnolia* hunting in Mexico and Guatemala. It will explain the catchy title Joe suggested for the conglomerate article. For background information, here are excerpts from key letters. (Ed.)

Instituto Politecnico Nacional
Escuela Nacional de Ciencias Biologicas
Mexico 17 D.F.
Laboratorio de Botanica Fanerogamica
Mr. Harold C. Hopkins
Dear Mr. Hopkins:

I refer to your kind letter of June 1 concerning *Magnolia dealbata* and I can advise you that I have collected specimens of this species at two localities:

HIDALGO: 3 km NNE of Chapulhuacan

OAXACA: surroundings of Huautla

Chapulhuacan is a town situated just southwest of Tamazunchale on the Mexico-Laredo highway, and Huautla can be found near the junction of the Oaxaca-Puebla-Veracruz border. It is not a common tree and its distribution is sporadic. Like many other members of the cloud forest in Mexico it seems to be in serious danger of extinction.

I can promise you that if I ever again find this plant I will try to get seeds and send them to you. The shipment of scions abroad by mail or by express is very difficult in this country, because special permission is required, which is not easy to obtain.

Sincerely yours,
J. Rzedowski

'Diva' was also crossed with hexaploid species or hybrids. All of the 'Diva' X *M. denudata* Desr. progeny were verified as hybrids by flowering behavior, but only 50% gave a positive HCN reaction. It should be mentioned that although this combination promised to give some outstanding progeny, all of our plants had inferior form and flower characteristics. Six of ten sexually immature hybrids between the hybrid *M. X veitchii* Bean X *denudata* and 'Diva' gave a positive cyanide reaction.

The tests have, at least, established that some of the hybrids between 'Diva' and other species, at three different ploidy levels, do inherit the HCN-positive character from 'Diva'.

Thus, the cross of the hexaploid *M. grandiflora* L. 'Madison' X 'Diva' is of special interest. This cross was made by W.F. Kosar in 1968 and the plants have not yet flowered. Since both parents have the same chromosome number, a progeny with intermediate characters might be expected - but all seedlings were virtually indistinguishable from *M. grandiflora*. However, some of our recent work on *grandiflora* X deciduous species (unpublished) has demonstrated different degrees of dominance of the evergreen character, depending on the *grandiflora* parent. The negative HCN reaction given by all the putative 'Madison' X 'Diva' hybrids does suggest a non-hybrid, apomictic origin for these seedlings.

Unfortunately, these extended analyses have not brought us any closer to understanding the inheritance of cyanide production. We did find that some of the *kobus* X 'Diva' and *liliflora* X 'Diva' hybrids produced more HCN than did 'Diva' itself. These results suggest that 'Diva' is heterozygous for the gene(s) controlling HCN production, and the quantity of cyanide may be controlled by a dosage effect. None of the hybrids of 'Diva' with hexaploid species or hybrids showed increased HCN production.

So, we are left with a character that may be of use as a genetic marker to verify hybrids, that can and will be used to identify cultivars, and that defied any rational interpretation based on the restricted germplasm currently available to us.

Table 1. Results of cyanide tests on interspecific hybrids involving *Magnolia sprengeri* 'Diva'.

Hybrid Combination*	Plants Tested Number	HCN Reaction	
		positive Number	negative Number
<i>Buergeria</i> X 'Diva'	3	2	1
<i>liliflora</i> X 'Diva'	19	11	8
<i>acuminata</i> X 'Diva'	10	2	8
'Diva' X <i>denudata</i>	6	3	3
(X <i>veitchii</i> X <i>denudata</i>) X 'Diva'	10	6	4
<i>grandiflora</i> X 'Diva'	8	0	8

*Female parent listed first in hybrid formulae.

of-way that the previous owner had sold for a natural gas pipeline, and soon was removed in pipeline construction, along with many other plants that the Gladneys would have preferred to keep.

When I was at the Gloster Arboretum in late May, 1972, I took wood from a large *M. macrophylla* tree still in bloom there, which was pointed out to me as regularly blooming over a longer season than other seedlings. It originated in Zone 8b, but grafts have been hardy through two winters in a yard at Urbana, Illinois, in Zone 6a. With her permission, I am now registering this white flowered clone as 'Sara Gladney'.

A seedling at Urbana (original seed source unknown) has the largest flowers (to 18 inches across when opened flat) and the most tepals (up to nine) I have seen on *M. macrophylla* flowers, and all tepals (not just the inner ones) are purple spotted to some degree. This clone, which bore two flowers in 1973 and a half dozen in 1974, also is hardy in the 6a climate, where it gets some wind shelter in the northeast ell of a house. I have chip budded and patch budded it successfully on branches of another *macrophylla* tree, using dormant buds about the first of June. This clone also is being registered as 'Whopper', a name befitting its outsize dimensions.

These are the second and third cultivars to be registered in *M. macrophylla*. The late D. Todd Gresham registered 'Holy Grail' (purple spotted), but it appears not to have entered commercial propagation. In these cultivars the flowers as well as the big leaves are spectacular in season.

A word on *M. macrophylla* propagation: Seeds of this self-compatible species germinate readily if taken fresh and given moist refrigeration over winter, with or without first removing the thin outer integument of the seeds. Usual tree grafting methods are not as feasible on this species and *M. ashei* as with most other magnolias, on account of their thick pith and rather thin wood. I prefer a thin chip bud on stocks of half-inch or larger diameter, and buds taken from last year's well-developed stems, if budding is to be done in spring. For August - early September work, buds may be taken from current year's stems. In either case, overwrap the inserted bud with polyethylene plastic film for about three weeks. After that, the spring set buds may be forced into growth the same season. Patch budding, as practiced with walnut and pecan trees, is also feasible at times when the bark peels freely on large stocks and on your bud sticks, but chip buds do not have this limitation. They can be used from May to September.

Other species are possible stocks. I have a bud of *macrophylla* growing now for two years on a basal sucker of an old *acuminata* tree, but it seems somewhat lacking in vigor. So far, buds of *macrophylla* that I set on both *M. tripetala* and *M. hypoleuca* have failed to grow, though both of these stocks support good growth of *M. X thompsoniana* and *M. X watsonii*. Budding as outlined above, on well established *macrophylla* seedling, seems the surest method for clonal propagation of *M. macrophylla* cultivars.

Dr. Oliver Diller, Wooster, Ohio, knows the location of the northernmost native *M. macrophylla* trees in Jackson County, Ohio. He and a greenhouse man in Athens, Ohio, will try to get seed from them next summer. ***