'Spectrum': A New Hybrid Magnolia Cultivar

by Frank S. Santamour, Jr.

Magnolia 'Spectrum' (NA 28352-1, PI 479705) is a new hybrid magnolia cultivar developed at the U.S.National Arboretum. It was selected from the same hybrid progeny (*M. liliflora* Desrouss. 'Nigra' × *M. sprengeri* Pampan. 'Diva') that gave rise to the cultivar 'Galaxy' (4). This cross was made by William F. Kosar in 1963.

'Spectrum' first flowered in 1973, at 10 years of age from seed. Propagation began in 1973 and stock was distributed to cooperating nurserymen for evaluation in 1975. Inasmuch as early reports indicated that this selection was not as cold-hardy as its sister seedling 'Galaxy,' we did not move this plant through our normal channels of stock increase and release. However, in recent years, we have been advised that 'Spectrum' has proved superior to 'Galaxy' in certain California nurseries. Therefore, we have chosen to name and release this cultivar for landscape use in warmer areas of the United States.

Growth and Habit. When first measured at age 11, the original single-trunked tree was 18.0 feet tall with a diameter at breast height (DBH) of 2.8 inches and a crown spread, after pruning of a few lower branches, of only 5.5 feet. At 21 years of age, the original tree was only 21.5 feet in height with a DBH of 7.0 inches and a crown spread of 20 feet. Repeated flowering on the terminal shoot apparently severely limited height growth and resulted in the production of rather massive recurved lateral branches (Figure 1).

The character of the plants produced from cuttings and outplanted in our clonal "orchard" in 1975 have assumed a different growth habit. The plants are not multi-trunked, but have branched freely all along the trunk starting from near ground level and have formed large, symmetrical oval crowns up to 17.5 feet in height at 11 years of age (Figure 2). The plants have not suckered from the base. Thus, it would appear that 'Spectrum' can grow in a variety of crown shapes, perhaps depending on climate and culture. On the other hand, 'Galaxy' always grows as a straight, single-trunked tree.

Flowers. The flowers of 'Spectrum' are larger and more apically curved than those of 'Galaxy,' with 8 to 12 tepals arranged in whorls of about 4 tepals each. The outer tepals are up to 5.5 inches (14 cm.) long. The tepals are also longer in proportion to width and the difference in length between tepals of the inner and outer whorls is seldom more than 2 cm. The flowers of 'Spectrum' also appear "brighter" than those of 'Galaxy,' with the outer tepals shading from Red Purple 64B (2) at the base to Red Purple 68C at the tip. Flowering time is intermediate between the parents in Washington, D.C. and the flowers escape most late frosts. Whereas the gynoecium of 'Galaxy' usually extends more than 1 cm. above the cluster of anthers in a freshly opened flower, that of 'Spectrum' protrudes less than 0.5 cm. There are about 92 anthers and 100 stigmas in the average flower. 'Spectrum' is a pentaploid with 2n=95 chromosomes and, although partially sterile, may occasionally produce fruit and viable seed.

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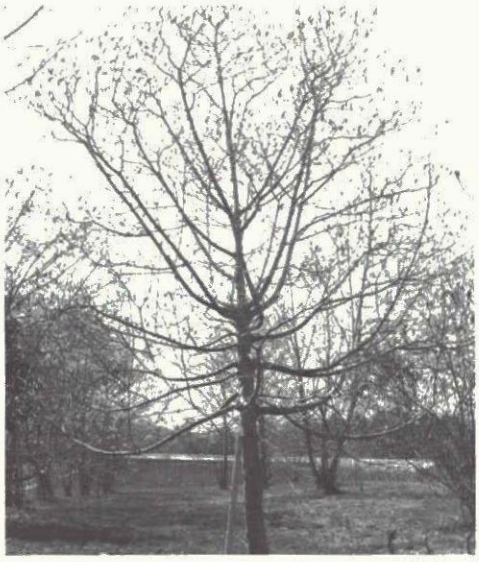

Figure 1: The original tree of 'Spectrum' at 21. Note massive branching on lower crown.

Figure 2: Plants of 'Spectrum' at 11 years of age from cuttings. Pole is 5 feet high.

Cyanogenesis. In 1971, Santamour and Treese (5) reported that the only magnolia that produced hydrocyanic acid (HCN) in the leaves was *M. sprengeri* 'Diva.' Later (3), Santamour studied cyanogenesis in various interspecific hybrids of 'Diva.' In both papers, the rather simple details of the HCN test were presented. Fikenscher and Hegnauer (1), using materials supplied by the National Arboretum, have identified the cyanogenic glycoside as taxiphillin. Leaves of *Liriodendron* species contain both taxiphillin and triglochinin.

Whereas 'Galaxy' gave a negative reaction in the HCN test, 'Spectrum' was positive for HCN. Thus we have a biochemical characteristic that will not only be useful in distinguishing between these 2 cultivars of identical parentage, but also in identifying 'Spectrum' in other situations where it might be misidentified. It should be mentioned that cyanogenesis is common in *Liriodendron*, *Prunus*, clover, and many other plants and does not constitute a health hazard.

Cold Hardiness. 'Spectrum' was not reliably hardy in Allentown, New Jersey, but 'Galaxy' has performed extremely well in this location since 1974. Thus, the hardiness should be rated as Zone 7a (6) at the most.

Propagation. 'Spectrum' roots easily from semi-hardwood cuttings taken just after stem elongation has ceased. Best results have been obtained using a coarse perlite medium and a commercial 0.8 percent IBA powder dip.

LITERATURE CITED

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