

## New Frontiers in Magnolia Hybridization<sup>©</sup>

Dennis Ledvina

2763 Memorial Dr., Green Bay, Wisconsin, 54313, USA

Email: dledvina@new.rr.com

On my visits to the West Coast of the USA, I was always impressed with the early blooming magnolias of subgenus *Yulania* with their gorgeous display of precocious flowers in early spring. These included *M. campbellii*, *M. sargentiana*, *M. sprengeri*, and of course the well-known *M. denudata*. Most of the USA, that has a continental climate, experience freezes that badly damage these early bloomers. Hybridizing the early bloomers in subgenus *Yulania* with some of the later bloomers in the subgenus, such as *M. liliiflora* and *M. acuminata*, can resolve that problem. We are all familiar with *M. × soulangeana*, a cross of *M. liliiflora* × *M. denudata* that was made over 100 years ago. These include noted cultivars such as 'Lennei', 'Brozzonii', 'Alexandrina', and other more recently selected forms.

The Brooklyn Botanic Garden was a pioneer in magnolia hybridizing with their original crosses of *M. acuminata* × *M. denudata* resulting in the well-known cultivar 'Elizabeth', as well as the lesser known *M. × brooklynensis* 'Evamaria', a cross of *M. acuminata* × *M. liliiflora*. Later releases by the Brooklyn Botanic Garden include 'Yellow Bird', 'Lois', 'Judy Zuk', and 'Hattie Carthan'. Joe McDaniel, of the University of Illinois, also crossed *M. acuminata* × *M. liliiflora* which resulted in the well-known 'Woodsman'.

My work in hybridizing began when I meet two great mentors, Phil Savage in Michigan and Augie Kehr in North Carolina. Both Phil and Augie were very helpful in providing me with scions and pollen of many of their primary crosses that provided the genetic groundwork for much of my work. Phil crossed *M. acuminata* × *M. denudata* which resulted in his famous *M.* 'Butterflies'. He also made the primary crosses of *M. acuminata* × *M. campbellii*, *M. acuminata* × *M. sargentiana* var. *robusta*, *M. acuminata* × *M. sprengeri* var. *diva*, and *M. acuminata* × various *M. × soulangeana* cultivars. These crosses provided the genetic material for many of my future crosses. Augie Kehr also made many of these primary crosses as well as his famous 'Daybreak', a cross of 'Woodsman' × 'Tina Durio'. Augie was also involved in doubling the chromosome count of several magnolias including the famous 'Gold Cup', an octoploid with thick tepals that maintain an upright form.

Having this vast genetic pool available to me, I began my work with three primary goals in mind when hybridizing in subgenus *Yulania*:

- 1) Develop later blooming magnolias that will not be harmed by late spring frosts.
- 2) Develop magnolias that will be hardy in a U.S.D.A. Zones 4 and 5 environments.
- 3) Extend the blooming period of magnolias.

Using late blooming *M. acuminata* and *M. liliiflora* in subgenus *Yulania* can achieve the first and second goals, but they also pose disadvantages that need to be overcome. *Magnolia acuminata* has small greenish yellow flowers that tend to be hidden by its leaves and can bring a dull brown color to the resulting hybrids. The deep purple color of *M. liliiflora* can dominate the delicate pink color of some of the species in the subgenus. While crossing the two generally will result in a muddy purple flower like 'Woodsman' or a yellow flower like 'Yellow Bird', both can produce excellent hybrids in the succeeding generation. This is illustrated in 'Daybreak', where 'Woodsman' is the seed parent, and in 'Blushing Belle', where 'Yellow Bird' is the seed parent. Other hybrids that are at least one half *M. acuminata* that have been excellent seed parents are 'Red Baron', 'Black Beauty', and 'Yellow Lantern'. 'Black Beauty' × 'Gorgeous' is producing some attractive looking plants with reddish-bronze new growth.

It may be difficult to develop a magnolia that will bloom the entire summer, but *M. liliiflora* and *M. acuminata*, in addition to adding hardiness, also have an extended blooming period. *Magnolia liliiflora* hybrids such as 'March Till Frost', 'Ann', 'Betty', and 'Jane' can be late summer repeat bloomers if enhanced by sufficient rainfall. These

need to be crossed with 'Yellow Bird', which is another repeat bloomer. Some of the New Zealand hybrids like 'Genie' and 'Cleopatra' also can be repeat bloomers so crossing them with 'Yellow Bird' could produce a long blooming magnolia with a good purple color. While 'Daybreak' and 'Rose Marie' will have a spring bloom of about a month, there generally is no repeat bloom on them. It may be possible to extend their spring bloom for an additional month by crossing them with some of the New Zealand hybrids.

While hardiness is my prime objective, a secondary goal is to develop narrowly fastigate trees that will accommodate a compact landscape. Hybrids with a narrow growth habit include 'March Till Frost', 'Sunsprite', 'Sunspire', 'Black Beauty', and 'Daybreak'. I have made several crosses utilizing these hybrids, but it is too early to determine what the ultimate size of the resulting hybrids will be. Making crosses with some of the smaller-growing New Zealand hybrids like 'Genie' could also accomplish these goals. My most promising narrow growing hybrid thus far is a cross of 'Yellow Bird' × 'Apollo' with burgundy-red flowers. It bloomed as a young seedling, has many lateral flower buds characteristic of 'Yellow Bird', and an extending blooming period.

Another secondary goal is to develop a multi-tepaled magnolia with a good red/pink color. Crosses of *M. × loebneri* 'Leonard Messel' × *M. × loebneri* 'White Rose' have resulted in flowers with up to 24 tepals, but are a soft lavender-pink color. Quite likely there would not be enough pigmentation if the crosses are made within the species. If a cross of a diploid with a large number of tepals like *M. × loebneri* 'White Rose', *M. × loebneri* 'Encore', *M. stellata* × 'Pink Perfection', or *M. × loebneri* 'Wildcat' were made with pollen of a red-colored magnolia like 'Jurmag1' Black Tulip™ magnolia, 'Cleopatra', or 'Genie', the resulting hybrid may have good red/ pink pigmentation, but the dominance of the pollen parent with its higher chromosome count may not substantially increase the number of tepals. Backcrossing the resulting hybrids to the *M. × loebneri* selections may be necessary to increase the number of tepals.

The following are some of the named selections I have introduced:



Fig. 1. *Magnolia* 'Rose Marie'.

*Magnolia* 'Rose Marie', which is a cross of 'Pink Surprise' × 'Daybreak', is  $\frac{1}{4}$  *M. acuminata* and  $\frac{1}{4}$  *M. liliiflora* and is very late blooming (Fig. 1). *Magnolia* 'Rose Marie'

starts blooming 1-2 weeks later than *M. × soulangeana* and can bloom for as long as a month; it and 'Daybreak' are my longest blooming magnolias in subgenus *Yulania*. 'Rose Marie' also has a nice columnar grow habit similar to 'Daybreak', a characteristic that is very desirable to landscapers. *Magnolia* 'Rose Marie' is very seed fertile and has been crossed with some of the New Zealand hybrids such as 'Genie', 'Cleopatra', 'Jurmag2' Felix Jury™ magnolia, and 'Ian's Red' with the goal of developing a hardy magnolia with the color intensity of *M. campbellii* subsp. *mollicomata* 'Lanarth'. Both 'Rose Marie' and 'Daybreak' also have been crossed with 'Gold Cup' with the goal of maintaining their vivid pink color and obtaining the flower form of 'Gold Cup' which has very thick, upright tepals.



Fig. 2. *Magnolia* 'Pink Charm'.

*Magnolia* 'Pink Charm' (Fig. 2) is a sister seedling of 'Rose Marie' with similar color but with a more lily formed flower. The tree is very fastigate and has a long blooming period similar to 'Rose Marie'.



Fig. 3. *Magnolia* 'Blushing Belle'.

*Magnolia* 'Blushing Belle' (Fig. 3) is a cross of 'Yellow Bird' × 'Caerhays Belle' has gorgeous pink flowers similar to 'Caerhays Belle', but with a bit less salmon color than its pollen parent. The deep pink exterior and lighter pink interior shows no traces of yellow. It is much hardier than 'Caerhays Belle' and has bloomed after -30°C. It also blooms later than 'Caerhays Belle' and thus avoids late spring frosts. The flowers are a bit smaller than 'Caerhays Belle', but maintain a better upright form. 'Blushing Belle' is seed sterile, but has good pollen fertility and has been crossed with 'Rose Marie', 'Red Baron' (*M. acuminata* × *M.* 'Big Dude'), and others.



Fig. 4. *Magnolia* 'Crescendo'.

*Magnolia* 'Crescendo' (Fig. 4) is a cross of 'Yellow Lantern' × 'Big Dude' with 'Yellow Lantern' being a cross of *M. acuminata* var. *subcordata* × *M.* × *soulangeana* 'Alexandrina' and 'Big Dude' being a cross of *M. sprengeri* var. *diva* × *M.* × *soulangeana* 'Picture'. Huge pink flowers emerge from tiny flower buds to create a "crescendo" effect. *Magnolia* 'Crescendo' is a very free flowering, long blooming magnolia that was completely hardy at -30°C.



Fig. 5. *Magnolia* 'Roseanne'.

*Magnolia* 'Roseanne' (Fig. 5) is a cross of *M. liliiflora* 'O'Neill' × *M. kobus* 'Norman Gould'. This hybrid has six or seven tepals which are rich lavender pink on the outside and a lighter pink on the inside. The tepals are very broad and retain their upright form. *Magnolia* 'Roseanne' is a fertile tetraploid that is producing some excellent hybrids. The foliage is semi-glossy with a heavy texture.



Fig. 6. *Magnolia* 'Royal Splendor'.

*Magnolia* 'Royal Splendor' (Fig. 6) is a cross of 'Pink Royalty' × 'Daybreak' with 'Pink Royalty' being a cross of *M. acuminata* × *M.* 'Dark Diva'. The exterior of the nine pointed tepals is an intense reddish pink and the interior being a lighter pink. This hybrid bloomed as a 6-ft seedling and continues to be very floriferous with many lateral flower buds which prolong the bloom for as long as a month. This is the most intensely colored magnolia in my collection that glows like a beacon in the distance.



Fig. 7. *Magnolia* 'Sunset Swirl'.

*Magnolia* 'Sunset Swirl' is a cross of Pink Royalty × 'Daybreak'. A pink flowered magnolia that displays the gorgeous colors of a brilliant sunset. While the color of this magnolia is similar to that of 'Daybreak', the advantage of this magnolia is its excellent flower form which matures to a flat, pinwheel form with no floppiness.



Fig. 8. *Magnolia* 'Cotton Candy'.

*Magnolia* 'Cotton Candy' (Fig. 8) is a cross of 'Red Baron' × 'Blushing Belle'. The huge flowers have nine broad tepals that are a medium pink on both the exterior and the interior and show no traces of green or purple. With its genetic background being 7/16 *M. acuminata*, it is a very hardy "campbellii type" magnolia for colder climates.



Fig. 9. *Magnolia* 'Burgundy Spire'.

*Magnolia* 'Burgundy Spire' (Fig. 9) is a cross of 'Yellow Bird' × 'Apollo'. I was impressed with its very narrow growth habit as a young seedling and thrilled to see it bloom with a clear burgundy exterior and a cream interior. The nine tepals remain upright and do not flop as the flowers age. Because of its abundance of lateral flower buds, it remains in bloom for several weeks. This is a very desirable magnolia for limited garden space.

I am also doing extensive hybridizing in subgenus *Magnolia* by crossing *M. grandiflora*, *M. virginiana*, *M. tripetala*, *M. obovata*, and *M. sieboldii* with red/pink flowering magnolias from Section *Manglietia* with the goal of developing red/pink flowers in these species.

In conclusion, much work needs to be done and I am happy to see other magnolia enthusiasts becoming actively involved in magnolia hybridizing. However, we must be aware that crossing two outstanding cultivars will not always result in a hybrid with the best attributes of both parents, and many disappointing hybrids can result.

Currently I have nearly a thousand hybrids planted out for future evaluation and have been sharing seed with friends throughout the world with the hope that many outstanding cultivars will be introduced in the future.