Photo: Greg McCullough

THE MORGAN-WOOD MEDAL - SIB
'Banish Misfortune' (Marty Schafer/Jan Sacks)

Photo: Terry Aitken

THE WILLIAMSON-WHITE MEDAL - MTB
'Dividing Line' (Charles Bunnell)

Photo: John Coble

THE FOUNDERS OF SIGNA MEDAL - SPEC
'Seakrill' (Jill Copeland)

Not Just Green:

Hybridizing Experiments for Purple Foliage

BY THOMAS SILVERS, MARYLAND

For as long as irises have been grown and studied, many cultivars have sported purple-based foliage (PBF)—a prominent, identifying characteristic. Although this anthocyanin pigment varies with environmental conditions, there are still cultivars that reliably express it throughout the seasons and wherever they are grown. I'm sure I'm not the first and only gardener to ever appreciate those purple bases as an attractive feature. However, I might just be one of the more fanatical hybridizers to breed with that trait as a primary focus. My strategy (really still just in its infancy) is to work at both the diploid and tetraploid levels (24- and 48-chromosome) combining lines that strongly express PBF with other lines that have various other pigmented plant parts, such as flower stalks, leaf margins, and bracts.

I started first with diploids because I figured progress might be faster at that level. My diploid material is heavily derived from two especially well-pigmented (PBF) seedlings that came from *Iris pallida* 'Kupari' (Tankesley-Clarke, R. 1994) pollinated by the MTB 'Rosemary's Dream' (Dunderman, 1982). I use these two nearly identical seedlings interchangeably in crosses calling them both "PBF plicata." They've proven to be very fertile and pass on PBF to many of their offspring.

Another useful line has derived from 'Kupari' from pollen of *Iris suaveolens* var. *rubromarginata*. One seedling was the best of this cross for expressing the red-purple leaf margins of its pollen parent. I've called this one "Best Red Margin." By intercrossing these two lines ("PBF plicata" and "Best Red Margin"), I was able to combine in one seedling, the red-purple leaf margins and the purple bases. This particular seedling is garden named "PBF/RM". I've used this seedling extensively in crosses. Recently, I crossed this seedling with *I. purpureobractea*, to try to add in the beautiful purple bracts of this species. The difficulty is that these three traits seem to be inherited independently. Some seedlings had the red margins, some had the PBF, and some had the purple bracts, but none so far have had all three traits together.

I started with tetraploids a little later. My tetraploid material has been built mostly on the TB 'Honky Tonk Blues' (Schreiner's, 1988), which has nicely pigmented leaf bases, combined with various clones of *I. aphylla*, which often have some pigment on their leaf bases, stalks and/or bracts. I've also recently succeeded in getting

seeds from the TB 'American Sweetheart' (Sexton, 1983), which has dark PBF.

Ultimately, my hope is to produce a bearded iris with completely purple foliage, stalks and bracts. I've got a long way to go, but it's been encouraging how far I've gotten with just a few generations of crosses, and so far these have mostly been crosses with just one parent having each pigment trait. When I start intercrossing two parents that both have strongly expressed PBF for instance, how much stronger might the expression be as major genes and modifiers start accruing? ✤

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Diploids

1 Seedling garden named "PBF/RM", combining PBF and red margins.

2 'Astra Girl' X PBF/RM shows how well the purple pigment is passed on even when combined with a totally green parent.

3 *I. purpureobractea* X PBF/RM showing nice purple bracts

Tetraploids

4 *Iris aphylla* 'Balascuta' X 'Honky Tonk Blues' showing great summertime pigmentation in spite of heat and lack of rain. This seedling hasn't flowered yet so I don't know whether it will have pigmented stalks or bracts.

5 Black Stemmed. Unfortunately I don't have a good picture of this one in bloom, but it has flower stalks that are pigmented. It's also from Balascuta X 'Honky Tonk Blues'

6 Poor-quality picture of the pigmented stalks of #5 above (last year).

7 Tennessee Gentleman X Balascuta. Although the flower stalks are green, it has nicely pigmented bracts.