

## *Hybridizing Algebra:*

### **The Parentage Mystery of What Crossed with What, When**

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Photo Don Dean

Seven different hostas were involved in creating *Hosta* ‘Country Melody’:

***H.* ‘Country Melody’ = [((*H.* ‘Liberty Bell’ × (*H.* ‘Urajiro Hachijō’ × *H. pycnophylla*)) × *H.* ‘Ebony Spires’) × (((*H.* ‘Sun Power’ × OP) × *H.* ‘Golden Sculpture’) × *H.* ‘Sea Frolic’)].**

Before dissecting this Hybridizing Algebra, it may be helpful to some readers if I explained a few elementary, plant breeding terms. First is *cross*, the transfer of pollen from one plant onto the stigma of another plant. It is represented by the mathematical ×

symbol, though the alphabet letter  $x$  is often used because of keyboard expediency. A cross is written:

maternal (pod) parent  $\times$  paternal (pollen) parent.

If the cross is successful, the result is progeny, i.e., hybrids, also called seedlings (sdlg). F1 is the first filial generation of progeny in a controlled series of crosses, starting with two specific parents. Subsequent offspring generations are designated by progressing numbers: F2, F3, etc.

*Backcross* is pollination of a F1 with either parent that generated it. *Open pollinated*, abbreviated *OP*, is pollination without human assistance, i.e., by bees, insects or wind. Pod parent might be known but pollen parent usually is not.

You'll note the equation for 'Country Melody' in the registration has two principal components, both with crosses enclosed in parentheses. Each ( ) is a *set*, a term I'm borrowing from elementary algebra. Further note: The number of parentheses facing right (called open parentheses) is the same number of left-facing parentheses (called closed parentheses).

The two multi-set components have  $\times$  between them, indicating they were crossed. The first starts at 'Liberty Bell' and continues through 'Ebony Spires'. The second begins at ('Sun Power'  $\times$  OP) and includes 'Sea Frolic'. The brackets [ ] are bookends marking the beginning and end of the hybridizing equation.

For the first multi-set component, *H.* 'Urajiro Hachijō' and species *H. pycnophylla* were crossed, producing a seedling I'll label A. Pod parent was 'Urajiro Hachijō'. Seedling A, as pollen parent, was then crossed with 'Liberty Bell', creating a seedling B. Then seedling B, as pod parent, was crossed with pollen of 'Ebony Spires', resulting in a seedling C.

For the other multi-set component, *H.* 'Sun Power' was open pollinated, producing a seedling D. Pollen parent is unknown. Seedling D, as pod parent, was crossed with *H.* 'Golden Sculpture', resulting in a seedling E. Then seedling E, as pod parent, was crossed with *H.* 'Sea Frolic', producing a seedling F.

Finally, the two multi-set components were crossed: seedling C, as pod parent, was crossed with seedling F, creating a hybrid that Don named and registered *H.* 'Country Melody'.

Correctly, 'Urajiro Hachijō' should be 'Urajiro Amagi Iwa', registered in 2009. It is the white-backed (urajiro) form of *H. longipes* var. *latifolia* having glossy, broad rippled-edged leaves. *H. pycnophylla* (setouchi gibōshi) is noted for leaves having powdery white backing. *H.* 'Liberty Bell', registered by the late Ralph "Herb" Benedict in 1985, has green leaves irregularly variegated with yellowish-white streaks.

*H.* 'Liberty Bell' crossed with ('Urajiro Hachijō'  $\times$  *H. pycnophylla*) is a favorite pod parent of Don's. He used it to produce *H.* 'Celtic Bouquet' and *H.* 'Peek-a-boo Purple', both registered in 2011, and *H.* 'Ebony Towers' and *H.* 'Garnet Spires', in 2005. (Special Note: Parentages of 'Garnet Spires' and 'Peek-a-boo Purple' were corrected in *Registrations 2013 THJ.*)

The open-pollinated 'Sun Power' seedling has also been used by Don in creating other hybrids, e.g., *H.* 'Passionate Pink' (2011). Likely this OP hybrid has prominent 'Sun Power' characteristics.

*H.* 'Golden Sculpture', registered by the late Ken Anderson in 1982, is one of the best, large yellow-leaved hostas. It makes a majestic showcase specimen. Bob Olson, *The*

*Hosta Journal* editor, features it in his Minnesota garden; I showcased it in our Delaware garden.

Lastly, 'Sea Frolic', a 2004 registration of the late Mildred Seaver, has green leaves that are strongly piecrusted, with glaucous bloom on top and underside.

What many people probably don't appreciate is how many years were required to hybridize some hostas. Seedlings have to be grown on for evaluation and for flowers to produce pollen needed for subsequent crosses. And, not all crosses are successful.

Don's 'Sun Power' OP seedling dates back to 1992. The cross of ('Urajiro Hachijō' × *H. pycnophylla*) with ('Sun Power' OP × 'Golden Sculpture') was made in 1994. And the final cross creating the 'Country Melody' seedling was in 2007. Don grew the original seedling on for 6 years before registering it last year. So the descriptive information of 'Country Melody' in the registration is from a truly mature clump – which hosta aficionados know is not the case for all registrations.

*Postscript:* Hybridizing Algebra should be thorough and unambiguous. Each set of crosses should be enclosed in parentheses and listed sequentially with × symbol in the hybridizing process. Further, the equation should be "balanced," that is, the number of open and closed parentheses in the equation is the same. The parentage equation for 'Country Melody' in the registration meets these requirements.