

Iris Reticulata Hybrids – Six Years Later

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In the 1994 *Year Book* I reported being successful in flowering *Iris sphenensis* x *I. danfordiae* hybrids. Sixteen clones bloomed that year for the first time from four different crosses that had been made in 1989. They ranged in colour from light blue to dark blue, with one being violet. The clone with the most yellow influence, 89-AC-4 was pictured in the *Year Book*, but it was not very striking; in fact somewhat dirty looking. Most of the others had very little yellow influence. The only tell-tale sign of their parentage was very narrow standards, and in most cases, a hint of yellowed-green on the back of their style arms. The most amazing thing was that they were fertile!

Had I written this last year I would have told you about two second generation (F₂) *I. sphenensis* x *I. danfordiae* hybrids. This year I can report on seven, and hint about an eighth¹. In this article I will also tell you about a couple of other particularly interesting crosses, plus of course report on how the F₁ *I. sphenensis* x *I. danfordiae* clones are doing.

Of the eight F₂ hybrids, two were back crosses using *I. danfordiae* pollen. One of these, 96-BN-1, is quite lovely and different from any existing *reticulata* (see photo). Seeing it has me keenly looking forward to seeing other future F₂s. 96-SD-1 on the other hand simply looks more or less like a more spotted *I. danfordiae*; in that sense it is nothing special.

Interestingly, if you carefully compare 96-SD-1 to 96-BN-1 you will probably conclude that the two are identical except for most of the overall yellow colour being turned off in 96-BN-1. Both have a couple of siblings coming along; next Spring is definitely going to be interesting! Unfortunately though, when I replanted 96-SD-1 I found its main bulbs and many of its bulblets had disappeared – just like *I. danfordiae* has a tendency to do. Four bulblets did survive, but that means it will be a couple of years before it blooms again. One of its siblings was completely gone, main bulbs and all. I can only guess that our unusually high rainfall this summer caused this, in conjunction with the fact the bulbs had never been replanted (which meant they were in contact with one another, and thus any disease would likely affect them all).

Surprisingly, four F₂ each from different crosses were a similar cream to pure snow-white overall. Each had a different shade of blue on their style arms, whilst their style lobes were the overall flower colour. They all had

1. The tip was eaten by a bug whilst in bud under straw. This meant that when the flower opened the fall blades and style lobes were missing – the most important parts.

varying amounts of blue veining beside their fall ridges, with the fall blades being the overall flower colour. Clearly there is an underlying set of genes responsible for this pattern. I was particularly happy when I saw 94-HW-1 for the first time last year – it is absolutely gorgeous. It had been the first F₂ to bloom. I could not have asked for a more stunning first F₂ bloom! I had expected and was afraid that *I. sphenensis* veining would be inherently difficult to get rid of. I also wondered if I would get a lot of “dirty” coloured clones, given the way the yellow of *I. danfordiae* mixed with blue in the F₁s.

96-DZ-1 is quite amazing because it is absolutely snow-white. I also like its shade of blue, plus the way the blue veins merge with very pale yellow around the fall ridge.

Of the remaining two F₂ clones, 94-GU-1 is a small pale blue, with a little yellow influence that gives it hints of green, particularly on the fall blade. It bloomed last year and is set to bloom again next year. 95-F-1 was the clone whose bud was eaten. The only fact I can relate is the style arms are completely mauve. The portion of the falls under the style arms has some mauve veins, but you really cannot conclude much from this.

Of the eight my favourites are 94-HW-1 and 96-BN-1, followed by 96-DZ-1.

My attempts to create an F₃ by inter-crossing last year's two F₂s failed. Both flowers set pods but the seeds were not solid. I had been wondering if this meant there might be a problem with the genetics, though I was able to make quite a few successful crosses with both F₂s' pollen. This year I had little trouble creating F₃s; six of the eight F₂ flowers gave a total of 98 seeds. The one successful 94-HW-1 cross produced a number of uncounted seeds that were a rather poor.

My second most promising line involves “Çat” x *I. danfordiae*: 88-AX. Like *I. sphenensis* x *I. danfordiae* these too are fertile. Unfortunately, all three clones from the lone 1988 cross have been slow to increase, so I have not got a whole lot of seed from them. All three are dark red, just like their “Çat” parent, but they have some yellow radiating from their ridge in the area that otherwise would be white. I believe their biggest potential is in inter-crossing with *I. sphenensis* x *I. danfordiae* hybrids, and it is for this reason that I call them my second most promising line.

It will likely be three years before I start to see hybrids between the two. It has only been in the last three years, including this year, that I have successfully made a concerted effort to inter-cross the two. An initial cross in 1995 using three *I. sphenensis* x *I. danfordiae* pollen parents failed. In 1997 one cross onto 89-F-4 worked giving 24 seeds, but a check showed none of these appear to have germinated. Two other crosses onto *I. sphenensis* x *I. danfordiae* did not work that year. In the last three years 44 crosses have given 469 seeds.

I had hopes of seeing a back-cross onto *I. danfordiae* this year, however it turned out to be just pure *I. danfordiae*. An out-cross onto “Talış” did bloom, and it, like 88-AX-1, is small in size. Its colour is a mixture of blue and purple shades with a number of similarly coloured large spots around its orangish ridge. The only sign of *I. danfordiae* parentage is in its very narrow standards. As expected it is sterile.

One interesting hybrid that bloomed for the first time in 1999 was 'Cantab' x *I. winogradowii*: 92-FB-1. It is a soft white with light blue fall blade and a yellow flush around its yellow-orange ridge. As with all *I. winogradowii* hybrids, it is sterile. It produces a reasonable number of bulblets, so it is increasing quite nicely.

There is a bulb being traded among enthusiasts as *I. winogradowii* "Alba". It is actually a hybrid; likely with the *reticulata* "Talish" from the Talish mountains (available from Jānis Rukšāns). I quite like it. I want to stress though that it is a hybrid, and NOT an Alba form of *I. winogradowii*, and it too is sterile.

My crosses with diploid *I. danfordiae*, although seeming to produce good seed, have been very limited in terms of successfully producing blooming plants. I have made hundreds of crosses and produced thousands of seeds. The only cross to successfully bloom other than ones that turned out to be *I. danfordiae* selfs, or the F1 and F2s with *I. sopenensis*, or the lone "Çat" cross, was one onto *I. hyrcana* back in 1989, which produced four clones (out of 41 seeds). They are of interest because two have significant yellow in them. 89-A-2 has yellow that is less intense than that of *I. danfordiae* (the outside of its bud is cream), while 89-A-3 shows a distinct orange cast in a wide area around its fall ridge. The importance of these is they suggest the yellow of *I. danfordiae* is made up of several different carotenes; not just one single yellow. Maybe, one day several generations from now, there will be an orange *reticulata*, and perhaps even a pink one.

It should be noted that the yellow is showing up on the falls, and not the style arms or narrow standards.

In these two, as well as 89-A-4, where the yellow combines with the mauve of *I. hyrcana* the result is a greyed, or perhaps slightly muddied appearance. 89-A-4 is interesting since distinct purple tones show up in addition to blue. 89-A-1 on the other hand looks quite like *I. hyrcana* except that it has a reasonable amount of light yellow just in what otherwise would be the white area around its ridge. Unfortunately these clones are somewhat slow to increase.

My hybridising goal overall is to jumble things up as much as possible, and come up with some tantalisingly beautiful clones that are markedly different from anything currently available. This is more difficult than you realise, since the progeny typically look quite similar to their parents, which is to say, if your parents are all similar to one another, do not expect to produce anything much different. Around 1960 E. B. Anderson created the lovely 'Katharine Hodgkin' by crossing *I. histrioides* and *I. winogradowii*. Unfortunately, this is a dead end in spite of both parents having the same chromosome count – the chromosomes themselves are somewhat different.

Success is a combination of good luck, knowing what you are doing, and a lot of hard work.

For those of you who have not raised your own hybrids it is interesting to realise that if you venture into making crosses you will typically get many good performers, as well as a number of poor ones. Obviously you hope the ones that are of interest are good performers, but there may be some characteristics in the poor performers that you want to work with,

particularly recessive traits, in the hope of pulling them into the progeny along with restoring hybrid vigour. It can easily take two generations before a recessive characteristic is expressed again.

In the 1994 *Year Book* I mentioned that the next step was to build up stock of the best clones. I suggested that as a minimum it would be eight years before a clone could be introduced, and that the exact point would be dependent on the clone's actual rate of increase, as well as which market it is introduced into.

Three years ago I sent Wim de Goede in Holland a number of my hybrids for testing, including some of my F1 *I. sopenensis* x *I. danfordiae* clones. Last year he returned a number of the clones. Consequently I was able to analyse their rate of increase and put together the chart below. The prediction for this year turned out to be off, mainly because a lot fewer bulblets were produced – only 25. I was very much impressed by the sizes of the bulbs Wim returned. The largest were giving two and even three flowers each; though the third was later in the season and much smaller in size.

End of:	Bloom-sized	1 year away	2 years away	3 years away	Total
1999	3	4	5	10	22
2000	7	5	13	76	101
2001	12	13	83	148	256
2002	25	83	160	532	800
2003	108	160	557	1,504	2,329
2004	268	557	1,612	4,372	6,809
2005	825	1,612	4,640	13,048	20,125
2006	2,437	4,640	13,873	38,056	59,006
2007	7,077	13,873	40,493	112,108	173,551
2008	20,950	40,493	119,185	329,572	510,200

94-HW-1 Projected increase if grown in Toronto, Canada.

End of:	Bloom-sized	1 year away	2 years away	3 years away	Total
1999	3	4	5	10	22
2000	15	10	7	76	108
2001	47	76	25	228	376
2002	195	228	123	1,084	1,630
2003	741	1,084	423	3,876	6,124
2004	2,989	3,876	1,825	16,292	24,982
2005	11,679	16,292	6,865	62,220	97,056
2006	46,515	62,220	27,971	251,228	387,934
2007	183,221	251,228	108,735	981,764	1,524,948
2008	726,405	981,764	434,449	3,910,532	6,053,150

94-HW-1 Projected increase if grown in Holland.

This year I had only 306 F1 *I. sopenensis* x *I. danfordiae* blooms. That is down from 340 last year, but I am expecting a tremendous rebound next year. The problem was overcrowding. The solution was a five-fold increase in growing area last autumn. Although I have too many bulbs to count, a sampling suggests there will be at least a three-fold increase in bloom next year.

Up until this year, total bulb counts of one specific *I. sopenensis* x *I. danfordiae* clone, 89-Q-3, matched my predicted values quite well. It had only been the larger bulbs that were not regenerating large enough to bloom. In the

same area of the garden bed there were a few stragglers that had to be planted separately since I did not know which clone they were. Consequently the few bulbs had more space and their large bulbs were a good normal size.

Reticulatas need replanting every two years and they should be thinned out every so often. Roughly half should be moved to a new location, or if you have several plantings give them away to friends.

Since 1994 an additional five *I.sophenensis* x *I.danfordiae* crosses have bloomed from 1991, 1992 and 1994 seed. In total they have yielded in excess of 22 clones. (The original three crosses from 1989 have now themselves produced some 32 clones.) One of these contains the most yellow to date, but it is mixed with a medium blue, which like 89-AC-4 gives a slightly greyed or dirty look. Most of the *I.sophenensis* x *I.danfordiae* hybrids are quite nice, but as Wim de Goede comments, "They are just blues." This of course is in reference to the fact that there are already a number of good blues being produced cheaply in large quantities.

I feel now that a number are particularly vibrant and strong, and consequently should be introduced into commerce. What I need is to find a commercial grower who feels similarly.

At last I am getting the results I had always hoped might be possible. It has been a long road getting there. Remember it takes five years from seed to blooming plant, and many seeds do not ever germinate. To get this far has taken fifteen years. I have been extremely lucky to stumble over the *sophenensis* factor and have the late Frank Kalich to thank for giving me *I.sophenensis*. I hope the "Çat" factor proves to be almost as good, though it is off to a much slower start.

If you are on the Internet for more information visit www.Reticulatas.com.

Iris Reticulata Hybrids from Canada

Photos: Alan McMurtrie.



LEFT: Seedling 96-BN-1.



RIGHT: Seedling 96-SD-1.



LEFT: Seedling 94-HW-1.



RIGHT: Seedling 88-AX.