IN SEARCH OF SIBERIANS – A GUIDE FOR HYBRIDIZERS

(Originally published in The Siberian Iris (Spring 2014 to Spring 2016))

1. I Can't Wait For Spring – Making Siberian Crosses

by Marty Schafer

Already the excitement is building. I look at the first shoots of Siberian seedlings emerging from the ground and it sets me to dreaming of what new flowers will bloom this year. I always anticipate the coming of spring, but there is nothing like the thrill of seeing my own creations for the first time ever. It makes me wonder why more Siberian people don't make a few crosses. You don't need to grow hundreds of seedlings in great rows in a field. My first Siberian seedlings were planted in a small garden, in a small bed – about 20 seedlings. Last year's winner of the Best Siberian Seedling at the Michigan Siberian and Species Convention came from a cross of just three seedlings made by Brian Wendel. Nonetheless. I can't promise hybridizing won't become an obsession…..

So what's involved in hybridizing Siberian irises? First, you need to learn how to make a cross. From there you need to choose two irises to cross, that is, how to select the parents. Third, you have to collect the mature seed pods, sow the seeds, and plant out the seedlings. (There's a bit of paperwork and record keeping needed here.) And finally you need to enjoy your seedlings, evaluate them and possibly make selections.

Making a cross – a pollination: You take pollen from one flower (the father or pollen parent) and put it on the stigma of another (the mother or pod parent). You have to learn where to get the pollen and where to put it. Luckily irises are straightforward and the parts are pretty large, but you do have to find your way around a small world, at least compared to the one we usually live in. While standards and falls are the showiest parts of the flower, the important part for pollinating is the style arm. It does not matter if the flower is simple or ornate. In Figure 1, the style arms are the 3 gleaming white structures held horizontally in the middle of the flower. In Figure 2 the style arms are the 3 contrastingly light

Fig. 1 Stylearms - white

Fig. 2 Stylearms - blue

bluish structures in the middle of the flower. (Most style arms are the same color as the rest of the flower.) Once you have located the style arms you need to find the anther. The anther holds the pollen. It is located under the style arm, pretty much parallel to the style arm and held up against it. See Figure 3. The anther is about half an inch long and about an eighth of an inch wide. On close examination, it looks a little like two top-split hotdog rolls lying side by side. There are four little chambers running along the length of the anther, two in each

Fig. 3. An anther

"roll." The anther is on a post and you can pluck it out of the flower. The tool I use to do this is a cross action tweezer, the kind whose tips are touching when it is at rest and open when you squeeze it. I gently remove the anther with my tweezer and put it between my left thumb and forefinger (I'm right handed). I slide the points of my tweezer along one of the chambers until I get a little mass of pollen. See Figure 4. Then I put the pollen on the stigma of the female or pod parent.

The stigma is located on the underside of the style arm near the outer end. It is like a shelf or a lip. Figure 5 shows a flower where the stigma is bright white against a purple style arm. Most stigmas are not so cooperative as to have this contrast in color, but this one is very good for

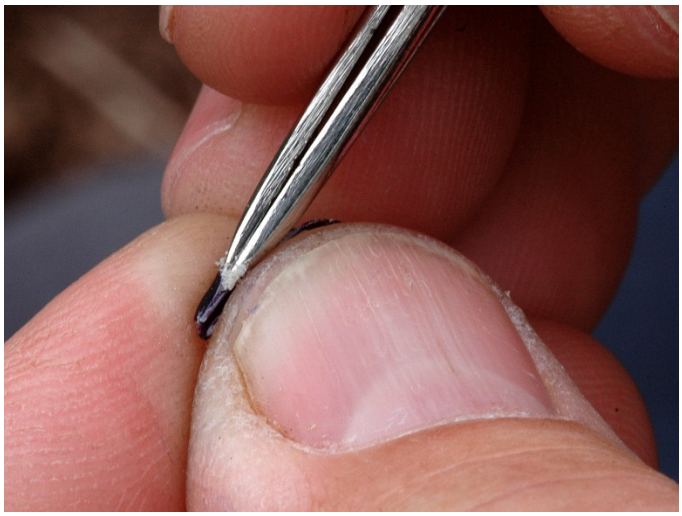

Fig. 4. Teasing out the pollen

demonstration. The underside of the style arm and the haft of the fall (where the fall attaches to the rest of the flower) form a tunnel into the center of the flower. When insects, especially bees, visit a flower they go down this tunnel looking for pollen and nectar. Sometimes they leave the flower with pollen grains stuck to their fuzzy backs. When they visit the next flower they may brush their backs against the stigma and deposit some of the pollen. This is what you want to do with the pollen on your tweezer!

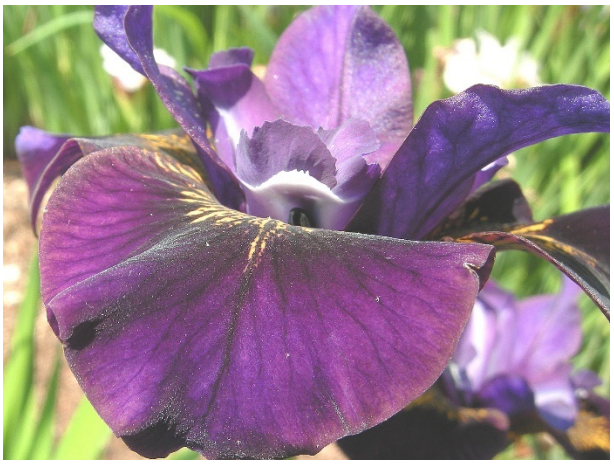

Fig. 5. The stigmatic lip

OK, so there is only one complication in this process of depositing pollen on the shelf or stigma. TIMING IS EVERYTHING. You want to deposit your pollen on the stigma of another flower before anyone or any insect has had a chance to get to it.

Different hybridizers have different methods of achieving this very important goal. I will tell you my method and in later articles you will hear from other hybridizers how they do it. My method is
based on an understanding of iris flower behavior that shows just how clever nature can be. As an iris flower opens, the anther looks just like in Figure 3. In the hours after it opens the anther "matures", the four chambers in the anther split open and the pollen fluffs out. This makes it

available to the bees when they travel down the tunnel. But the stigma – the shelf seen in Figure 5 – spends the first day flat up against the style crest as we saw in Figure 5. In this position it is out of reach of bees carrying pollen. The bees go by and no pollen is left on the shelf. On the second day the flower is open, the anther from yesterday is all dried up and the pollen has fallen or been carried away. The stigma, however, has done something very dramatic. It has curled down like an airplane tray table. I wish I had a photo of the same flower

Fig. 6. Stigma (arrow)

from Figure 5 showing the shelf in the curled down position, but I don't. So we will have to make do with Figure 6. Can you see the
cream structure under the style arm with the very shiny surface (arrow). That is the stigma curled down. This flower is ready to receive pollen from any bee that comes along looking for nectar. At this point fertilization can take place and in eight weeks the seeds will mature and be ready to collect.

Why do iris flowers do this first day fluffy-pollen, second day curled-down-stigma routine? It is a strategy for producing the best offspring. Plants do a lot of things to minimize self-pollination. This is one of them.

Fig. 7. Making the cross

So I do an end-run around the bees. I take pollen from a newly opening flower, before the anther splits and gets fluffy, as shown in Figure 4). I put it on the stigma of a flower that hasn't curled down yet as in Figure 7. That way, my pollen is there before the bees have access to the stigma. I have a tweezer and the bees don't. So I can put my pollen on that stigma while it is still flat against the style arm. Once the stigma curls down on the next day, the pollination has already taken place and the bees are out of the process.

Fig. 8. Tagging the cross

The next steps are just for record keeping, but very important. You'll want to put a tag on the flower that you pollinated showing the cross that you made – that is, what parents you used. First, list the name or seedling number of the flower whose stigma you put the pollen on – the Pod Parent – followed by an X and then the Pollen Parent. Examples might be Swans in Flight X Riverdance or Careless Sally X S09-46-10. I also write the date the cross was made, and sometimes the time of day and weather conditions, but that's extra information. I write all this on light-weight weather-proof plastic tags in pencil. I make sure I attach the tag to the little stem that belongs to the one flower I pollinated. See Figure 8. This not a frivolous concern since there can be several flowers in a bud placement or socket and you want to be sure to put your tag on the very one that you pollinated. I use a little plastic twist tie (with a metal wire inside). Again you will find different hybridizers using different things to label their crosses.

Not all pollinations are successful. They are affected by all kinds of conditions - temperature and humidity are high on the list. Crosses often don't "take" when it is too hot. Also, it isn't good if the pollen gets wet after it goes on the stigma. And then there is caprice – sometimes it just doesn't work, and some irises are more reluctant parents than others. In fact, some are good at being pod parents but not good at being pollen parents and vice versa. I make many extra crosses because you never know how many you will end up with.

When successful, you will soon see the ovary swelling where the flower was – a pod will begin to grow. In about 8 weeks you should have a nice fat seed pod and when it is ready to harvest, it will begin to turn brown and split at the tip. See Figure 9
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Fig. 9. A seed pod from a successful cross

Before it splits down the sides of the pod, you want to collect the pod with its label, bring it inside, open it, remove the seeds, and put them somewhere to dry for a while – paper plates or mesh bags work well

How to start seeds. Again there are many methods for starting seeds, some involve starting them indoors to get your seedlings growing earlier and hopefully blooming earlier. And this will be covered in later articles, however, a basic method is to plant the seeds in shallow trays, pots, or pans (with drainage holes); in potting soil or soilless peat mix. They should be planted about ¼ to ½ inch deep. If you have more than one cross, put each cross in its own pan. Then they go outside for the winter, in a place that is protected from winter sun and nest-building robins. In the spring, I move them out into the sun and keep them watered, and in May they begin to sprout like beautiful blades of grass. Before next spring comes, we will tell you more about planting them out in the ground.

How to choose parents. This can be intimidating but it shouldn't be. I remember when I first started making crosses, people were always asking me "What's your breeding plan?" I had no idea. And you don't need to. I recommend you start out choosing parents by selecting two irises you like very much, that have good qualities, and see what you get. Once you see your own seedlings the ideas will come. You don't need to always cross two named irises, once you have your own seedlings you can cross with them, either with another seedling or with a named iris. There will be more discussion of this in later articles, however, your end goals are always to produce irises with good qualities with something special that makes them different or better than anything else out there. Observation is one fabulous tool in hybridizing – look at your seedlings

and their parents and see what you got. A second tool is to talk to other people making crosses and get their observations and advice.

In future articles we will write more about how to select seedlings for introduction and selecting seedlings for future crosses. Siberian irises are wide open for hybridizing. We are just beginning to explore the potential of these wonderful flowers in size, color, patterns, and form. The many plant habits allow for a wide range of interests in terms of height and branching and placement of blooms. How lucky we are to have a Society that embraces all of this diversity – nothing could show this more clearly than the two winners from last year's convention in Michigan – **Judy, Judy, Judy** and **Simply Delightfu'**.

Judy, Judy, Judy (Hollingworth, 2010)

Simply Delightful (Wendel, 2014)

2. Growing Siberians from Seed

by Jan Sacks

Last spring when Marty wrote "there are many methods for starting seeds", we had no idea just how true this statement was. I sent out a call to hybridizers for their seed starting methods and expected a few variations on our method to encourage earlier germination. Well, there are a lot of variations – and a lot of clever ideas.

Let's start at the beginning (where we left off last spring). You've collected the seed pods in July, August or September. Keeping your crosses separate, you have emptied the pods and set them to dry.

Siberian iris seeds, like most other iris seeds, are not ready to sprout at this point. They have a natural germination inhibitor. This is more "survival of the fittest" stuff. If they fell on the ground and germinated at this time of year they might well not be big enough when winter came to survive the cold, so they have a strategy to wait for spring to germinate. The cold of the winter, the freeze and thaw, the precipitation whether rain or snow or melting snow - all these things help to break the dormancy created by the germination inhibitor. After a winter of this, the seeds will sprout when spring warmth comes. When man gets involved in this process of breaking the dormancy, it is called stratification or vernalization.

So the simplest method of stratification is to sow the seeds and put them outside for the winter. I suppose you could sow the seeds outside in the ground in the fall, carefully marking each cross, like different varieties of carrots. But most people sow the seeds in some kind of container. Dana Borglum uses 2 ½ gallon pots. We used to put ours in penpaks – those little rectangular pots about 3 inches tall that annuals came in. One cross in each one.

Now we plant in plug trays. These are 10" by 20" trays with 144 little cells and we put one seed in each cell. We use a soilless planting medium like Pro-Mix or Fafard #2 which is a mix of peat, perlite and vermiculite. It has decent drainage and no weed seeds. Some people use a soilless "germination mix" which is essentially the same thing but in a finer grade with smaller particles of everything. We plant our seeds ¼ inch deep (it would be hard to plant them deeper since each cell is so small).

Some people plant as much as ½ inch deep in pots. After moistening, the pots/trays go outside for the winter. We try to put ours in a somewhat protected spot – a place where they won't bake in the sun when we have no snow cover. Further considerations are various critters which can cause havoc. Dana puts his pots under hardware cloth to protect them from voles. We stack our trays in piles of 5 and put an open plastic 10 x 20 carrying tray over them. We have voles too, but are more concerned with cats scratching during winter and robins looking for mud in the spring. When the warm weather comes in May the seeds germinate. We get between 50% and 80% germination. Often it depends on the quality of the seeds. We often sow questionable seeds if they are from an especially promising cross.

Brian Wendell has the simplest variation on this method. He puts his seed pots in the basement. "Then I wait for them to germinate and then place the seedlings under fluorescent lights for about twelve hours daily in the basement. I get decent germination with this method and can usually see the plant bloom in two years this way instead of waiting for the third year." Brian says the temperature in his basement is 50 to 60 degrees.

A common theme among hybridizers is the desire to get seedlings into bloom as soon as possible. In addition to the excitement and anticipation there are also time and space considerations that become more and more important as you grow more and more seedlings. This was the reason we switched from penpaks for starting seedlings to plugs. When we planted our seedlings from the penpaks out in the ground, they would undergo a period of transplant shock, having had the roots teased apart from the others in the penpak. With the plugs there is almost no transplant shock. We plant our plugs out in late June or early July and then water and fertilize them regularly to get them bulked up for their first winter. The following year we get about 40% bloom and wait for the rest to bloom the next year. It would be preferable to have them all bloom their second year so pre-starting the seedlings under light would be great, but we start too many seeds for this to work for us.

From here on the germination methods get more and more interesting and sometimes complex. I just love the ingenuity.

From Jim and Jill Copeland: We shell the seeds and place them on a damp towel in a petri dish. The dish is labeled and put in a zipper bag and refrigerated for 3 months. In January or so the seeds are brought to room temperature in their wrapping where they germinate. After they get a green shoot and a root, they are planted in deep plugs in soilless medium and grown under lights until spring. In late May or early June (sometimes later), a hole is drilled and each seedling is planted outside. Over 90% will bloom the next year.

From Bob Hollingworth: Everything I do is focused on getting a quick start for the seedlings before they are planted out in order to save a year before they flower. The idea is to go from cross to flower in 2 years.

1. After harvest and drying, the seeds from each cross are placed in small synthetic mesh (tulle) bags.
2. They are then soaked in water for 10-14 days with daily water changes to remove germination inhibitors (I also tried the old trick of hanging them in the toilet tank for regular water changes, but that's more amusing than helpful).
3. The seeds are then transferred to diluted Clorox (about 1:7 dilution) for an hour or so to surface sterilize them, rinsed quickly twice with boiled water, drained and put in a sealed container in the refrigerator for 3 months (October through December).
4. After this vernalization, they are transferred to sterile closed jars (e.g. Mason jars) in the light and at room temperature (often with some bottom warmth to 80-85ºF if they prove a bit reluctant to germinate). There is no growth medium in the jars – just the seeds and a minimal amount of moisture. Despite (or maybe because of) this semi-sterile technique, fungus attacks happen once in a while. A quick soak in Cleary 3336 fungicide and rewash generally clear this up and has no negative effects on the seeds/seedlings.

5. Germination usually begins within a week or two (tetraploids often take longer).
6. As the seedlings grow to 1-3 inches tall they are transferred to flats (9" x 14") with 67 deep individual growth chambers ("multipots", used for tree seedlings) and grown under lights until ready to plant out in June/July by which time they are substantial plants 12-15" tall with strong root systems.
7. If all goes well, as many as 50% will bloom the following year.

This method involves some extra fussing but, other than basketball, what else is a northern winter for? And you can pre-plan the seedling rows because you do know exactly how many seedlings from which crosses will be transferred there. Also if you do seedling treatments, such as colchicine to produce tetraploids, the newly germinated seedlings can be observed and taken from the jars at just the right time. I have used this method primarily with Siberians but it works well with other beardless irises such as *I. setosa*, Japanese and "pseudatas" It also works with hostas and who knows what else? (Thanks to Currier McEwen and Bob Bauer/John Coble for ideas that helped to develop the system).

From John Coble: [John has a few variations on Bob Hollingworth's method. While Bob uses tulle, John uses panty-hose, tying each cross into its own section. He soaks as in points

First year seedlings, three months after planting out. The upper left row shows seedlings at the end of their second year of growth. *(Photo: Bob Hollingworth)*

2. and 3. above.] Place the drained but damp string of seed packets in their nylon pockets in a Tupperware bowl or large zip lock bag into the frig. Refrigerate for 12 weeks.

Move to room temperature and germination should start in 3-6 days and continue for a couple weeks (keep them damp). There are various methods to handle them until they are potted up. We

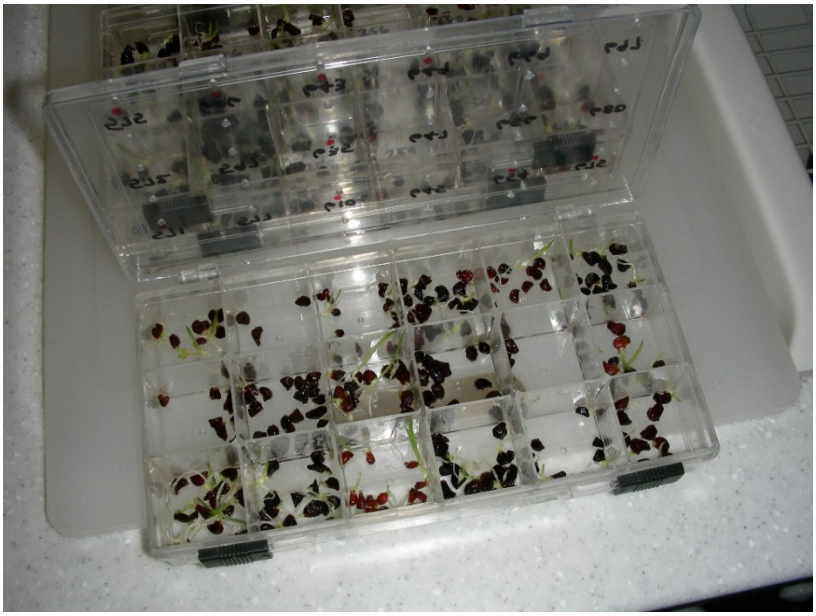
like to place the germinated seedling on top of wet sand in a cup (labeled) near a window (light, not the view) and keep adding as more germinate until we have enough to "pot up a bunch". The idea is (we learn from experience) not to leave them in the "nylon" bag until lots have germinated and become a tangled root mass with many growing through the nylon material!

Pot up in soil-less seedling mix and place them under regular fluorescent lights, (cool white shop lights) as close as you can, and leave the lights on 24 -7. Move the lights UP as they grow or move the bench DOWN, until the plants are about 10" tall; then mow off the seedlings as needed. Grow them under lights for two months before planting outside after danger of frost. We usually get 99% bloom the next spring. The record for a Siberian was 11 bloom stalks on a one-year plant. (ugly as sin).

Add up the days and weeks above to determine WHEN you should start the process, so as to have the plants at about the right stage for planting in YOUR area. (You can extend the refrigeration time with no problem). Starting them too early may have them under the lights longer, which will require more work... if all is well, they will be growing 1-2 inches per day and up into the lights!!!...which means you will need to mow them off every two days!!... which means pulling the trays out from under the lights, holding the tray at an angle and getting a blister on your finger from clipping the top 2" off with scissors! WE LEARN FROM EXPERIENCE.
This will happen at the same time the lawn outside needs mowing but there is still some frost in the air.

Are you ready to have fun yet ? !

From Jeff Dunlop: For starting Siberian iris seeds, I use modified bead storage trays which may be found at some craft supply stores. The size I prefer is 4 ¼" wide x 8 ¼ " long x 1 3/16" deep overall. They have a hinged top with 2 black plastic sliding locks on the front edge. The trays have 18 separate compartments, each 1 ¼" x 1 ¼" x 1" deep. The bottom of each cell is drilled in each corner and the center (5 holes) with a 5/64" or (3/32" maximum) drill bit for water drainage.

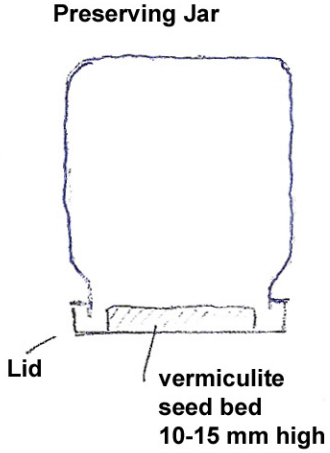


Above each cell 2 more holes are drilled in the top for air vents. Each cell is labeled on the top cover using a black sharpie marker with the cross number or an abbreviation of it. Up to 20 seeds are placed in each compartment around the end of February and the trays are opened and sprayed once each day, with a light sprinkling from the kitchen sink sprayer using luke-warm water. A squirt bottle sprayer would work fine too. After spraying, allow the standing water to drain away by holding the trays at an angle. Many of the seeds seem to shed water at first due to their waxy coating. In a few days the seeds will take water more uniformly. Germination may be observed starting in about 7 to 10 days to 3 weeks, up to as long as 4 to 5 weeks which is rare. When the sprouts are about ½" tall they are transplanted into waiting seedling trays which have been prepared in advance. Maintain the identification for each cross as the sprouts are set out to grow on in the trays. For starting seeds indoors during March, this seems to be a good workable method. Tried and true.

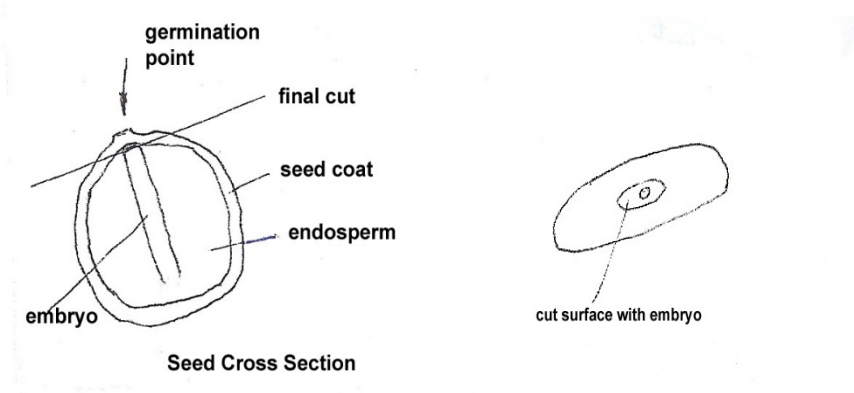
From Tomas Tamberg – The Seed Cutting Method::
[This method, which is more technical, is especially useful when germinating seeds of interspecies crosses which may be very difficult to germinate. Tomas Tamberg says he uses it to start ALL of his seeds. Many of us have never tried this method, but it is well worth documenting for the day any of us are ready to give it a try. As Tomas suggests, practice would be very useful. Marty and I have already tried making a few slices.]

1. Soak the seeds in tap water for 7 days. Replace the water at least each second day. Remove seeds which show signs of rotting and mold. Seeds should not float at the surface. If they do so, they can normally be pushed down the third day. It is not necessary for siberians, but the seed shells of I. setosa, laevigata, versicolor, virginica and louisiana should be removed from the dry seeds prior to soaking. It may be helpful to add a small quantity of a fungicide to the seeds, leave it for 30 minutes and wash it away carefully.

2. Miniature greenhouses are prepared from preserving jars [mason jars], used upside down. The lids are filled with sterile vermiculite (3-6mm grain size). The vermiculite should be washed with tap water using a sieve before a little heap is placed in the lid of the jar. Then the jar is screwed onto the lid and the whole thing is heated in the stove for 1 hour at 200C [400F]. After cooling down, some tap water is added to the vermiculite and little circular seed bed is formed from the wet material with the help of a spoon.



3. The seeds are now carefully cut to remove (and discard) a thin slice at the point where the embryo would emerge during normal germination using a standard razor blade. This is normally very near the point where the seed was attached to the center of the seed capsule. In the case of iris seeds it may be necessary to remove several thin slices of seed coat before the endosperm and the embryo are reached. Make sure that only a thin slice of the endosperm and the very tip of the embryo are removed by the last cut.



For small seeds it is necessary to use a pair of strong glasses and to work under intense light. Normally, one should do some training with unimportant seeds, before the really rare ones are treated. For training it may be helpful to cut some seeds fully lengthwise, in order to make the embryo and its position visible. Some seeds (e.g. Tetra-Calsibes) often have a very irregular seed shape, so that the cutting point is difficult to find. The seed coat is then removed with the fingernails and the seed is rubbed softly on tissue paper until the details of the seed are clearly visible.

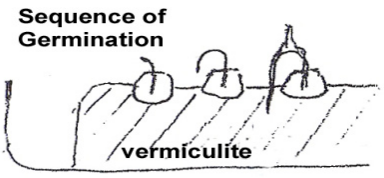
4. After cutting, the seeds are taken with a pair of forceps and pressed into the vermiculite with the cut surface upward. Avoid contact of the cut surface with the wet vermiculite and also contact of a seed with other seeds. If more than one type of seed is in the jar, label the lid at the proper points, taking care for a little distance between the different types, since seeds may travel a bit during germination.

The jar should then be stored in a dark and warm place, e.g. on top of the kitchen cupboard.

5. After having filled a jar with cut seeds, check the jar daily for signs of rot and mold. A droplet of slimy liquid forming on the cut surface is a first sign of rot. Such seeds were already dead when cut, and they should immediately be removed. Sometimes a seed can exude a clear droplet of water at the cut surface. This is harmless; the droplet may be removed with the help of a tip of clean tissue paper. Seeds with mold should be removed, too. However, in the case of very rare seeds, when mold develops at the seed coat of an otherwise healthy looking seed (good embryo development), mold can sometimes be controlled by repeatedly applying a fine spray of clear water until the mold breaks down. Seeds, where the embryo is pushed out in its full length immediately after cutting, have to be removed, too.

6. Germination of the seeds normally starts immediately after cutting. Depending on the type of seed, it may take 10 to 14 days until the seedlings are ready to be potted. In some cases a batch

of seeds may refuse to do more than an embryo growth of 0.5 – 1 mm (some spurias, some TBs, some Calsibes). If the seeds still look healthy, the jar is stored in the fridge for 6 weeks at a temperature as near as possible above freezing point. When it is taken back to the warm place, the seeds normally germinate at a very high rate.



7. This method has the advantage of giving a quick result at all times of the year. It is nearly a must for seedlings which are to be treated with colchicine [for tetraploidy], since it is very important to do this in the right moment.

I'm sure as more and more of us grow Siberians from seed – there will be that many more variations on the process.
I hope many took the opportunity this past summer to make a few crosses and collect the seeds and will have success in starting them this winter and spring. Marty and I would love to hear about your experiences and field any questions. In the spring we will write about evaluating seedlings, rogueing (yikes!), selecting seedlings for introduction and using your own seedlings for future crosses.

3. Choosing Parents

by Jan Sacks

We've talked about how to make pollinations and how to start the seeds you get from those pollinations. An old saying goes "You can't choose your parents." True for humans, but not with irises. Choosing parents is one of the most fun and interesting parts of the process!

When you start out you will be choosing pairs of named irises to cross. You may select these pairs for many reasons – your favorite color, an interesting plant habit, flower shape, markings, signal pattern….. If you have an inkling about how two flowers might combine, give them a try. You can cross two similar irises or two very different irises and everything in between. It doesn't really matter what you choose to start out, the important part happens once these first crosses bloom. Observe, ask questions and learn. These crosses may set you on a path for the rest of your hybridizing journey or you might have new ideas about what would make better combinations. You may find a seedling in these early crosses that is good enough to introduce, though it is likely that you will select some to take to the next generation, and start crossing with your own seedlings.

When your seedlings bloom, what do you see? In the first year of bloom all you can evaluate is the flower, and that is just preliminary. The characteristics of plant habit, bloom stalk, and bud count have not developed in the first year. Even flower shape and color/pattern may not yet be typical. Most flowers fill out more the second year of bloom. (Unfortunately a few go backwards in the second year.) Nevertheless, start observing, what do you see? You can start by seeing how your seedlings compare to their parents. Is one parent more evident than the other? Or do they each contribute equally to the progeny (the whole group of children)? Is there anything new that doesn't seem to come from either parent? Are there any new shades of color anywhere? This could be on the standards or falls but also on the shoulders, at the rim, on the signals, the style arms, or even on the buds. These changes can be slight and yet be useful. What about changes in the physical structure of the flower – in the size, ruffling, open standards, upright standards, the position of the style arms, the shape of the style arms? In the next year, as your seedlings develop into clumps, look at the carriage of the foliage, height of foliage compared to height of stalks, display style – how the bloom stalks are held in the clump - what is the bud count, what type of branching, what is the succession of blooms? The variation to look for is endless. What about substance? What about scent? (Most Siberians lack scent). Does your seedling bloom early, or late, or repeat? Hybridizing is finding subtle changes and trying to tease them into the future, enhancing and improving as you go.

So you've looked your seedlings over, and there is one that has an especially interesting signal, for example, it's a different shape than you have seen before and the veining is particularly nice. What to do next to explore and expand on that feature? Option A: You might cross it with another attractive signal – perhaps as similar as you can find. Option B: You might cross your chosen signal with something that has a better plant habit, is more vigorous, or with better branching, etc. Option C: You might like to see that signal on an iris with a different color and choose the second parent that way. Or you might try all three of these options and have an idea for an Option D, E, or F. For each of these options you can choose to cross this seedling with another seedling from the same cross, a seedling from another cross, or a named iris (more about this later).

So now what? When your new crosses bloom, more observation and more questions. Which crosses bring you closer to your goal? Which crosses produced the best overall plants? Did you get something else new and exciting to pursue? What else do you see? You may have some of each result in each cross. All this observation helps you decide what crosses to make next.

What if you don't get anything in your crosses that resemble the feature you were looking for? You might conclude you've reached a dead end, and toss your seedlings on the compost heap. Don't! There is still a possibility that your feature is in there somewhere, and it just needs you to make the next cross to bring it back out. And one of the best strategies to make this happen is to make crosses between the children of Option A, B, and C (or D, E, F…). What is this all about? A new feature that appears in an iris (like the signal that got you started) is probably caused by a gene that is "recessive." The more typical signals are caused by a gene that is "dominant." For a recessive feature to show (not be covered or dominated) you need to put two copies of that gene into your new seedlings. How do you do that? Since your original seedling has two copies of the recessive gene that gave you the special signal, it gives each of its children one copy of it. That means that you can cross any seedling of Option A, B or C with a seedling from another Option and know that somewhere in the results you will get one or more irises with two copies of that

special signal gene. This will allow the feature to show, and it might even be more accentuated than the hint of change that got you started! The important principle is that when you have a new feature worth pursuing….don't give up until you make at least one of these crosses that allow the effects of recessive genes to reappear in the second generation.

The process described in the previous paragraph is called "Recovering Recessives in the Next Generation" or "Lining Up Recessives". It is a very useful idea in hybridizing. There are many such tools, strategies, and options that are useful for choosing parents and achieving your goals. This can get into the science of genetics, but most of our best hybridizers are not geneticists, so don't be put off. If these ideas are helpful, that is great. If not, just keep crossing, observing, and crossing.

Here are some other helpful terms. [Some of these can be confusing with Siberians because the abbreviation for Siberians is SIB and one of the terms commonly used in breeding is "sibling" which is abbreviated "sib". Just remember that if it is all lower case letters, sib stands for sibling.]

self: A cross of an iris onto itself, that is, a cross of one iris' pollen onto its own stigma.
sib cross: a cross between two seedlings in the same cross.
back cross: a cross between a seedling and one of its parents.
half-sib cross: this is the cross described above with Options A, B, and C, that is, crossing a seedling from the Option A cross with a seedling from the Option B cross. Each seedling in the new cross has one parent in common.
out cross: a cross between two unrelated irises.

If some of this sounds like incest, it is. In hybridizing plants it is called "Inbreeding" or "Line breeding". Inbreeding usually has a negative connotation, that it will produce weak plants with deformities, disease problems, or with reduced fertility. Line breeding, on the other hand, is considered by many to be a very useful tool. Hybridizing involves a fine balancing act of utilizing the positive aspects of line breeding and avoiding the negative aspects of inbreeding. Remember, at any point you can abandon a line if you begin to see these negatives appear. Some hybridizers believe that the negatives can be dealt with "later" by outcrossing once the initial goal is achieved. Some are more wary of these negatives and prefer to go with half-sib crosses or even "cousin" crosses and to throw in regular doses of outcrossing. Selfing is the most extreme type of line breeding. Many of the early Siberian hybridizers made self crosses. That tool is not seen in many parentages today. Early hybridizers had many fewer irises to choose their parents from. Today we have much more diversity in Siberians. It would be great in future articles to hear directly from our hybridizers, what they think of these various strategies and what other tools they have used.

Whatever route you choose, whatever tools you employ, whatever crosses you make, remember that hybridizing is a creative endeavor and not necessarily a scientific one. As hard as you try, you cannot predict the exact results. Don't be surprised if you find wonderful irises along the way that have nothing to do with your initial goals. The journey is worthwhile and it is a huge amount of fun.

Next time: Evaluating and Selecting Irises for Introduction.

Comments from Marty Schafer:
Having read Jan's article I have a few quick comments. Half-sib crossing and cousin crossing are my favorite ways to go. I prefer these to backcrossing because they feel more progressive – always keeping me and the irises moving forward. It takes a few years to build up a breeding population so there are half-sibs and cousins to cross, but it is worth it.

In addition to keeping these seedling relationships in mind, I have some general strategies when I'm out making crosses. First, I am likely to search for extremes – the bluest flower, the smoothest blending of colors, the most upright styles, the fanciest styles, etc. So when I'm working on color, I often look to make a cross of like by like. If I see a really blue seedling, I look for the next bluest and cross them together, though I usually avoid full siblings. I also take that bluest (or reddest, or pinkest) seedling and cross it to a good deep yellow or something I know has a strong yellow in it. This use of yellow may intensify whatever color I'm working on as well as stabilize it, or bring out new colors. It is also done to continually develop a collection of warmer, deeper yellows. Yellow is critical to the new colors in Siberians as well as to making lovely yellow signals on colored flowers. Similarly, when working on features like styles arms or signals or ruffles, I try crossing like by like to strengthen the feature. If a flower has a feature that is great on its own, I think about crossing it with a seedling with better branching or some other good plant habit. And I always make some crosses just on a whim. After all these years, the chances are good that any two of my seedlings will be related in some way. If the relationship is close, then I feel good about concentrating the recessives. If the relationship is distant or non-existent, I feel good about adding diversity.

As I mentioned, I almost never make sib crosses – but I have done it two or three times (in 30 years) and it has been productive. I think it is a great tool to use once in a while. I have also had very good success outcrossing now and then. This is usually because another hybridizer has come up with something exciting and I want to see what it can do for my seedlings. Sometimes, while in another hybridizer's garden, I have seen a seedling with a feature that complements one I am working on. These hybridizers have very generously shared their pollen with me. Often hybridizers will send seedlings to each other if they think they will add to the other's program. This is one of the things I love about iris hybridizers.

Over the years I have spent wintertime looking at photos and parentages and listing "crosses to make". This probably has some impact on my breeding, but by the time bloom season comes, I forget about the lists. Out in the seedlings, I look at what is blooming and find some good parents to cross.

Comments by Bob Hollingworth:
Do you actually need to make crosses at all? Lots of seeds are created by the bees. Why not let them do the work? The most influential Siberian of all time, **White Swirl**, came from a bee pod, as did our first introduction, **Forrest McCord**, which got an HM and has a good record as a parent. A few decades ago most of the Siberians introduced were “x bee” without a known pollen parent, and some still are. Using bee seeds can be a good way to learn how to grow and flower new seedlings, but it is quite inefficient if you have specific breeding goals. It’s also less satisfying to

the hybridizer who likes to think he or she is in control of the breeding process and that the new irises are their creations.

Do you need to set specific goals? No again. Crossing any two good modern Siberians could give you some nice seedlings and maybe a winner – but again a good part of the enjoyment of hybridizing lies in envisioning a goal and finding ways to get there, not just taking whatever shows up.

Do you need to understand plant genetics to be successful? Again no … if by this we mean a detailed understanding of modern genetic theory. The genetics of most traits of interest in Siberians is not known, and often may be complex involving multiple genes. But, some understanding of the inheritance of such things as color and form can be helpful in designing the best crosses. You can learn this by trial and error and become your own geneticist, but the fun of hybridizing is by no means dependent on knowing all this when you get started – don't let this get in the way of your first cross.

Examples of using genetics to your advantage include:

- Crosses (such as back, sister or cousin crosses) to recover recessive traits – see Jan's section. But keep in mind that this approach is more difficult with tetraploids than diploids ... if you only need two recessive gene copies together for a trait to show up in diploids, you need all four copies of the gene to be recessive in a tetraploid, so it is significantly more difficult to recover a recessive trait if you recombine it with a dominant one. Also if you want to combine several recessive traits and use a back-cross approach with dominant traits even in diploids, only a very occasional one of the back-cross progeny will show all these recessive traits together – you can do the math quite easily – and it can be discouraging!
- White x red can give either reds or blues in the next generation depending on the nature of the mutation(s) causing the loss of the anthocyanin pigments in the white parent. Knowing which whites are which is obviously important if you care about the color of the seedlings.

Here's an example. The Veins of Gold sib was crossed with Mesa Pearl and gave See Ya Later which has no obvious indicator that it has genes for yellow although there is a change in the quality of the red color that gives some hints of yellow underneath on closer observation. To strengthen the red and yellow combination, See Ya Later was crossed with the deep yellow Smiley Face which I knew was one that in combination with yellow gave red shades and not blues (If I had used Hello Yellow for example instead, there would be no red progeny just blue (and yellow)).

Now we see several things in the next generation. First of all, half of the progeny are yellow – the recessive yellow trait in See Ya Later has been recovered. Also new red shades are there due to the stronger red/yellow combination – some near-chestnut, others a deeper, redder red. Of these, Gem Quality was chosen for introduction based on growth and clump characteristics. Others, like 03E2A15, were used for further breeding and are in the background of many current seedlings.

Sib to Veins of Gold X  Mesa Pearl

See Ya Later X  Smiley Face

03E2A15  03E1A9  03E2A24  Gem Quality

Here's a similar current example of planning crosses. It would be very nice to develop tetraploids with these newer red and yellow combinations giving oranges, browns, pinks etc. To do so efficiently you will need a yellow parent that, combined with red-violets, gives red shades and not blues. The number of good yellow tetraploids is very limited and most that I know are of the yellow x red gives blue type and won't give what you want. So to get to this new goal it will probably be most efficient to use colchicine to convert diploid seedlings with a yellow parent chosen from the yellow x red gives red group, as in the example above. But this leads to a further limitation. Generally converting diploids to tetraploidy gives shorter flower stems that may not rise above the foliage. So both the diploid starting parents should have tall stalks so that some shortening by the conversion can be tolerated. There are not many tall yellow diploids in this genetic group. After this analysis you know pretty well which few parents meet these requirements and you can get started on the journey with some hope of success.

Other simple genetic considerations include:

- Normal 3-fall types x multipetal (pollen parent). The multipetal and 3-fall traits are co-dominant (neither is dominant over the other). You will get 50% multis from this kind of cross and they will all vary in structure somewhat as the two versions of the gene fight it out to control the form of the flower. If you can find a pod-fertile multi to accept the pollen from

another multi, things would be more perfect, but I haven't found one yet (you can see the Fall 2009 TSI for a fuller description of why this is if you're interested).
- The six-fall trait seems highly recessive, so if you get a good one, you shouldn't rush to cross it with a three-fall one, because it may take several generations to recover the 6-fall types.

Desirable characteristics such as earliness or lateness of bloom, repeat bloom, height, branching, bud count, and overall vigor all have genetic components and should also be in the hybridizer's mind when choosing parents. "Like begets like" is certainly genetics at work and applies to these more complex traits, but it is also just common sense.

Overall for me hybridizing is a fascinating mix of art and science. Planning crosses ahead of time is intriguing and often helpful, but many crosses during the season are based on the inspiration of the moment when you see two parents that look to be made for each other and prior planning be damned. It's just like Marty said.

4. Evaluating And Selecting Siberians For Introduction

by Jan Sacks

This is the last article in this series on hybridizing Siberians. We are focusing on the standards and mechanics of evaluating seedlings for introduction. Last time we discussed selecting Siberians as parents for breeding, including selecting your own seedlings for further breeding. Here our topic is choosing Siberians for introduction. The standards are not the same. In selecting parents for hybridizing, you are interested in how two irises will combine. Neither one may be of introduction quality. For introduction the number one requirement is that a seedling makes a superior garden plant.

The AIS Judges' Handbook is a very useful place to start, even if you are not an AIS judge. It lists all the characteristics you might want to consider in evaluating a seedling for introduction – plant vigor, disease resistance, branching, bud count, length of bloom, and quality and durability of foliage. All of that is before looking at the flower. Then there is form of flower, proportion, substance, colors, patterns, textures and durability. In addition the Handbook points out the importance of the "essential whole" – the presentation of the entire plant, both from a distance and close up.

This advice comes from Bob Hollingworth: "It's very hard to get a combination of excellence in all these features in one plant, so almost always it's a matter of balancing positives and neutral or negatives in the list of desired characteristics. This is perhaps the most difficult task and the key to whether a hybridizer receives a positive response to their introductions. Any serious defect in the primary characteristics list should rule out introduction and all of these need to be at least satisfactory, but which to weigh more than another? Increasingly I have come to value vigor, reliability and clump effect over novelty if I have to choose. Although a flashy flower always garners the most immediate attention, having that flower on a weak plant or one with only two buds will inevitably lead to disappointment for everyone."

Furthermore, you need to consider distinctiveness. What Siberians may already be introduced which are similar to yours? Could you recognize it without a label? It is very easy to be charmed by a good looking iris that you created, but to be introduction quality it should be something new to the iris world, not just new to you. It helps to be familiar with many of the Siberians that have been introduced, both recently and in the past. You can grow them yourself, visit nearby gardens where Siberians are grown, and attend conventions where Siberians are presented. Familiarizing yourself with other introduced Siberians is extremely helpful. It should be noted that not all previously introduced Siberians are "superior garden plants" today. If one of your seedlings grows and/or blooms better than one already named, you can consider introducing it.

A seedling rejected as not distinctive enough. (Editor's Note: I would have a hard time passing this one up!)

Now, let's back up a bit. It is not like you make the decision to introduce all at once. It is a process over time and it is fun and can be agonizing – mostly because you will have to toss some really pretty Siberians that are just not good enough. Marty and I have a lot of visitors who can't believe we are going to dig out 95% or more of our seedlings. Nevertheless it is necessary. (Just remember, that all rejects don't have to land on the compost heap right away, some are saved for breeding.) So much of this process is trial and error and there is a lot of variation in methods. Important factors include how much time you have and how much space you have. I have asked for input from other hybridizers and will add their thoughts as we go along. Luckily in the iris world, our hybridizers are very willing to help, so always feel free to ask questions of other hybridizers.

You have planted a cross of seedlings, grown them on, and this year some or all are going to bloom. What's next? Marty and I walk through the seedlings every day to see what is blooming. In this first year of bloom your plants will not give you a full viewing. You will see a flower, but the bud count, branching and height may not be typical yet. Even the form of the flower may change from the first year to the next. Nevertheless, we take this opportunity to make the first "cut". Some seedlings are rejected after this initial viewing, usually over a several days of bloom. We use colored flags to mark these rejects and either dig them out in the next few days or later in the summer. These may be rejected because they are weak plants, because they look just like something else, or just because they don't have a flower that appeals to us. Other seedlings are

selected and given a tag (on a stake) with a number, description, and bud count. These are photographed (see photography notes below). They will remain in place for next year. The rest are neither rejected nor numbered and will remain in place for another year along with any seedlings which do not bloom. It was interesting to me that some hybridizers do not number seedlings (i.e. make any selections) in this first year at all. Some also do not reject any the first year. Some even wait until they have three year old clumps before any selection or rejection occurs. On the one hand, this allows the individual seedlings to develop their full characteristics before making any decisions. However, it also means that you will need more space for your hybridizing **and** that you will be digging out a lot of three-year clumps. While this is may be a good plan for some hybridizers, especially bearded hybridizers, those three-year Siberian clumps are tough to dig out, and how many you have to dig is significant. Decide on an approach that suits you.

In our second year with a cross we go through the process again. Some seedlings will be blooming for the first time and are either rejected, numbered and described, or put in the "no-decision" category. This "no-decision" group requires a positive decision to keep even though it is not numbered. It must be flagged to save in year two rather than flagged to toss (we use different colored flags for keeping and tossing). The seedlings that are being viewed for the second time (the ones numbered last year) are given a more rigorous evaluation. The standards become tougher. The description from last year is updated and expanded. Have any characteristics gotten better or worse? Does it still seem like a possible introduction? "Possible" is all you can decide at this point. You will still not make a final decision to introduce for several years.

This seedling looked good in year 1, but was never as good again after lining out the seedlings. Result - discarded.

By our third year with an iris we are getting close to a decision. It can go from "possible intro" to the "likely intro" category. There are always some that are still in the "maybe" category, but hopefully only a few. Some hybridizers hold on to seedlings for many years before making final

decisions. Sometimes Marty and I feel we may have made the decision to toss too quickly and lost valuable plants, but space is always a limiting factor for us.

Once in the likely introduction category, a seedling is lined out, that is, it is divided and replanted to see if it continues to show good vigor. Some seedlings are fantastic in their "birth clump", but as soon as they are divided, they just never grow well again. Heart breaking as this can be, you don't want to introduce an iris that won't grow as soon as it is in someone else's garden. Many hybridizers grow these divisions into full size clumps again, to be sure that all the good qualities are still there. You also want to know if your iris can grow under different conditions. You can plant them in different

A lovely seedling in year 2. But ……

It grew into an “ugly duckling” in years 3 and 4 -- shown here as the flowers ages and the form changes

spots in your own garden or ask others to guest them. You can also send them as formal guests to AIS conventions or regional conventions. This is also a wonderful way to get your irises seen by a larger group of people.

It is helpful to ask for advice and opinions from other irisarians, especially judges and other hybridizers. There are varying opinions among our Siberian hybridizers about the helpfulness of judges in making decisions to introduce. Some hybridizers are simply too remote to have any

judges visit. Some find it extremely helpful. Some don't. For me I always like to hear the opinions of judges and all visitors, keeping in mind that the judges only see your seedlings for a short time on one day. Some judges only point out the prettiest or most unusual flowers, when I need advice about faults they may see that I don't. (After all, it is hard to be unbiased about your own seedlings.) It is good for judges to encourage hybridizers, but they should also be honest about their opinions. Last spring I was at the National Convention in the Aitken's garden and Barbara Aitken asked me about one of my seedlings. It was a fantastic new color, but the form of the flower was sometimes twisted. She did a wonderful job of telling me what she thought, that the fault was quite serious, and yet in a gentle and helpful way. I was so grateful.

This idea comes from Bob Hollingworth: "Every year we give visitors three or four colored flags to mark irises they like. I think I got this idea from Currier McEwen. After they have left, you can walk round and find out which seedlings garnered the most positive attention. You also learn something about people – first, they tend to use up their flags in the first half of the seedling patch so that later irises have a disadvantage, and people are influenced by the choice of others and one flag often seems to attracts a second and then, even more likely, a third. Even so, there are several occasions where the recommendations of visitors have led me to introduce a seedling I might have otherwise undervalued."

Sometimes I am asked how many Siberians we introduce from each cross. Most often the answer is none. Many crosses do not produce anything worthy of introduction, even though they may produce good breeders, though they may not even do that. Occasionally we have introduced 3 irises from one cross, though that is very rare. This is true whether crosses have 10 individuals or 200. Your evaluation of whether an iris should be introduced remains the same.

We have outlined the standards involved in deciding when a seedling is good enough to introduce and a bit about the selection process. There are also some tools or mechanics that might be useful as well. Fair warning - there is a lot of detail here and it is not necessarily scintillating reading.

Flagging. Not all hybridizers use flags to mark keepers or rejects. You can also invent your own "flags" to mark different disposition decisions or simply keep records of your decisions in a notebook. Marty and I find flags to be very helpful and time saving. We have a flag color for TOSS, a flag color for SAVE, a color for BREEDER, a color for TAKE NOTES ON ME, and a color for TAKE MY PICTURE. You do have to be careful with flags that you choose ones that hold their color for a period of time in the sun. John Coble told us of a time when their flags started the year different colors and by the end of the year were all indistinguishably faded. We have found that the flag colors called "fluorescent" are quite good at holding their color compared to the others.

Numbering and Labelling. There might not be as many numbering systems for seeds and seedlings as there are hybridizers, but almost. Way back when your first cross was made you put the pod parent followed by a big X and the pollen parent. At some point you will give each cross a designation – a number or a letter. Most hybridizers include a year in the cross number. Some use the year in which the cross was made, and some use the year in which the seeds germinate. Some hybridizers include in the seedling number the location in the garden where the seedling is planted out. Some use letters to indicate the pod and pollen parent in the number. This can become

cumbersome and confusing after the first few generations. Often there is a designation for the type or class of iris. For example: Sib, SIB, or S for Siberians; J or JI or Japanese; TB, etc. Then as each seedling is given its own individual designation, that may be a number or a letter as well, sometimes upper case and sometimes lower case. Also, breeders may include an indication that a seedling/cross is tetraploid rather than diploid. This might be a T or a TT or Tet. In our system we use an S for Siberian followed by the year of the cross, a dash, the number of the cross in that year, another dash, and finally the individual seedling in that cross. So it might look like S14-25-1. Terry Aitken's number looks like 14sib1-a. Jeff Dunlop's number looks like 14376-3T. This is the 3rd seedling in 2014 cross #376 which is a tetraploid plant. For some of us, who began hybridizing before the computer age, our numbering systems needed to be adapted to the various alphabetizing programs of computers. You might also wonder how to number your crosses in a given year. I forgot to ask the other hybridizers about this. We put our crosses in order by named pod parents first, then numbered pod parents next, oldest to newest. Regardless of your numbering system, whether you have two crosses or a hundred, always keep a list of the cross number and the parentage in a safe place in the house. We will take this up under Stud Book below.

I think labelling is a topic for an entire article, whether you are labelling plants in the garden or seedlings in seedling beds. What to use for stakes to put your labels on – that too is a long topic. We use 3' galvanized poles and 5" plastic labels with holes punched in each end to attach them. We use several different types of labels including recycled mini blinds cut to down to size. The Copelands use narrow PVC pipes to hold a metal cross label. Terry Aitken uses metal labels with enamel paint. What you use to write on your labels is important. Many so called "permanent" markers are not permanent under outdoor conditions. We have the best success with a soft pencil (horticultural pencil or carpenter's pencil) and with "paint pens". These paint pens are made by several manufacturers, but always have a ball inside which makes a noise when you shake it.

Photography. Photos can be invaluable aid in hybridizing, and in this age of digital photography, are easy to do. The days of having to keep a hand written record of the number of each photo/slide and the seedling number to go with it are over. Today we can just photograph the label and then photograph the iris. I'm sure that new hybridizers will find ways to use even newer technology to streamline the process. I start photographing right away when the seedlings bloom. Sometimes I even take photos of all the seedlings in a cross so we can go back in the winter and see what each two parents produced. This can help you evaluate your choice of parents and what to do in the future. We photograph to create a visual record of our selected seedlings but also for winter planning and just enjoyment. It is important when you are photographing to be sure the colors that you get in your photos are as true as possible to what you see in the garden. It is also important to take photos of your seedlings on different days, first day bloom, second day bloom, when it has been very hot, or very cool. And don't just take the most flattering looks. When you think about these seedlings out of bloom, you want to see it from all angles. AND never make decisions to introduce just from your photographs, these decisions should be made in the garden!

Record Keeping. Some hybridizers keep something called a Stud Book, basically a notebook with information about your crosses and seedlings. At the least, this is a list of all crosses made in a given year. A Stud Book can be simple or detailed depending on your time and interest. You may add all kinds of notes to this including, general notes on each cross, all seedlings that are numbered in a cross, notes on those numbered seedlings. We tend to keep this information in several different

notebooks. Talk to hybridizers about their record systems, then experiment and choose one that suits you.

Hollingworth seedling 06T10B2. A gorgeous bright flower - excitement!

And it has good vigor and floriferousness …. but overall an ugly plant with the flowers too low in the foliage which itself tends to be untidy. Conclusion – discard it or use it as a parent and hope for improvement in the next generation.
Photos by Bob Hollingworth

Details to Record (somewhere). At a minimum you need to have the information required for registration and introduction of a seedling. This includes seedling number and parentage, height of stalk, bloom season (early, mid, or late), whether there is any fragrance, and descriptions of the color of the standards, falls, signals and style arms. You can also include "other features". You are not required to describe the form of the flower, whether it has ruffles or whether the falls are flaring or pendant. You are not required to list bud count or branch count. This last information is so important to the decision to introduce, however, that you should keep records on this as well. We have developed a short hand for buds and branches. If a seedlings stalk has a terminal (the top bud placement) with 3 buds, and a branch with 2 buds then we write that as 3-2. If it has two buds in the terminal with two branches that each have two buds we write that as 2-2-2. If there are no branches and 3 buds in the terminal we simply write 3.

Regarding color descriptions there is a tool you might want to use. It is the RHS color chart. It is published by the Royal Horticulture Society in Great Britain. This chart has pages that look like paint chips with 4 shades of many different colors, each with a number. There are no color descriptions with these numbers other than very general "Yellow" or "Yellow-Orange". But it does allow you to match the colors in your flowers with the chart and write down a number for future reference, especially when the flower is no longer in bloom. For many years we have used this tool as a way to communicate color to other irisarians reading registration descriptions. The RHS color chart is becoming less and less useful to us as many of the colors of today's Siberians are simply not represented in the RHS chart. I imagine used RHS color charts are available on sites like EBay. You can also order one from England, though the current price seems high compared to when we bought ours. All that said, some of our hybridizers use the RHS color chart in their descriptions and some do not. It is not required.

We also find it very helpful to use an Evaluation Sheet. It helps us remember all the different things we want to keep records on for our selected seedlings and likely introductions. It is a single sheet with list of notes to take and space to write them. We also list some of the possible answers so we can just circle them rather than writing long hand descriptions. We keep much more information than is required, but it helps us focus on both the plant and the flower. If anyone is interested in seeing this evaluation sheet you are welcome to it. It can be sent by e-mail (jpwflowers@aol.com). You might choose to make something similar for yourself with the details you want to keep track of.

We have focused here on evaluating seedlings for introduction. However once you make the decision to introduce you have to start by registering your iris. Registration and Introduction are not the same thing and can be confused. Registration requires selecting an approved name, paying a fee (currently $15) and filing a form. AIS is the international registrar for all irises (except bulbous). The process is detailed on the AIS website (irises.org. Look under "About Irises"…"Iris Registration"). Once an iris is registered, it can be offered for sale at any time you choose. Once it has been offered for sale, it is considered Introduced. You register your own seedling, but you do not have to offer it for sale. That can be done by someone
else that you choose. Each event is recorded by the AIS Registrar in the year it happens. It can be the same year or different years. The year of introduction will enter your iris in the AIS Awards System.

Final thoughts. This information is just intended to get you started. Never hesitate to ask for advice and always follow your own counsel and dreams.

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