

THE REBLOOMING IRIS RECORDER

Fall/Winter 2011

Journal of the Reblooming Iris Society

Volume 78



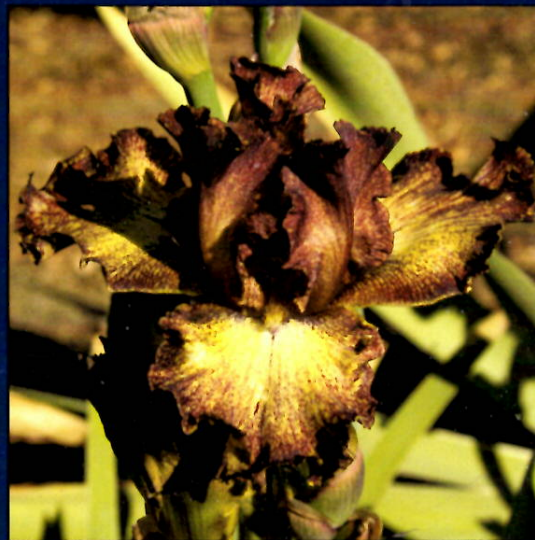
Soft Side TB (*M. Sutton 2010*)



Radiant Bliss TB (*B. Wilkerson 2005*)



Fruit Stripe BB (*M. Sutton 2009*)



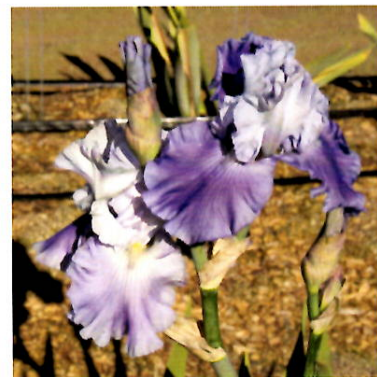
Double Dare BB (*M. Lockatell 2009*)



Autumn Rain TB (*M. Sutton 2008*)



Serenity Returns TB
(*B. Wilkerson 2006*)



Ann Marie Adams TB
(*M. Grumbine 2009*)



Orange Juice TB (*M. Sutton 2010*)



**Soda Fountain
Shuffle TB**
(*M. Lockatell 2009*)



Doohicky IB (*G. Sutton 2009*)

Photo Credits:

Autumn Rain, *C. Buchheim*
Serenity Returns, *C. Buchheim*
Ann Marie Adams, *C. Buchheim*
Orange Juice, *C. Buchheim*
Doohicky, *C. Buchheim*
Echo Location, *C. Buchheim*

Echo Location TB
(*B. Wilkerson 2007*)



Note: The above irises are 2012 AIS National Convention guest irises reblooming at Mystic Lake Gardens.

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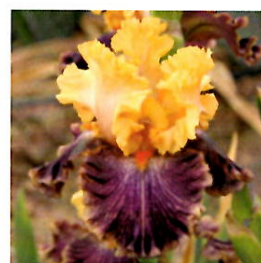
Front Cover Photos:



Soft Side TB RE
(M. Sutton 2010)



Radiant Bliss TB RE
(B. Wilkerson 2005)



Fruit Stripe BB RE
(M. Sutton 2009)



Double Dare BB RE
(M. Lockatell 2009)

Note: The above irises are 2012 AIS National Convention guest irises reblooming in the fall and winter in southern California.

Photo Credits:

Soft Side, C. Buchheim
Radiant Bliss, C. Buchheim
Fruit Stripe, C. Buchheim
Double Dare, C. Buchheim

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Please Note: Returned copies of the Recorder will be remailed at an additional charge.

Please make sure your address is up to date. Renew membership by date posted on address label.

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Dana Brown

President's Message By Dana Brown

I think for a large part of our country this has been a really drastic year. Here in Texas, we are in the midst of the worst drought in the history of record keeping. The current record of lowest rainfall for a year was in 1917 with 8.73 inches. In 2011 we have received 4.89 inches, a shortfall of 3.84 inches. Additionally, we are also on track for the hottest average temperature for a year.

The reason I mention this is to point out what an impact temperature and moisture has had on rebloom. We usually have nice rebloom in this area. We are warm enough and late enough into the year to give us time for nice fall rebloom. However, the second factor that is every bit as important has not been present this year. Moisture! We have watered and watered and watered some more and we have proven, at least to ourselves, that there is no substitute for

rain. There is something in rain that no amount of watering can replace.

For me, rain is like our members. They nourish our society. Without ample rain our iris don't flourish and without working members the Reblooming Iris Society won't flourish. We need members who are working to promote rebloom in their gardens. We need members who will report their rebloom to their Regional Directors. We need members who are hybridizing for rebloom and bringing us the next generation of beautiful flowers to share with the world. And we need members willing to shoulder the burden of being officers and directors for our wonderful group.

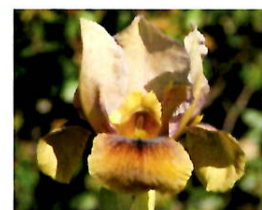
So thank you, if you are part of the rain for the Reblooming Iris Society! If you are not yet a part of this perfect storm, remember that a great first step is to plant a few more rebloomers and then notify your Regional Director of the results.

—Dana Brown

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Chain Reaction AB
(R. Tasco 2007)



Master Of Illusion AB
(S. McAllister 2009)



Lady Emma MTB
(F. Jones 1986)

NOTE: The above three irises were rebloomers this fall in Dana's Malevil Iris Garden in Lubbock, TX. See *Southern Report*, p. 14.

Rebloomer Wins BEST IN SHOW at The Susquehanna Iris Society

It was once thought that a reblooming iris was a second class iris. Thanks to advances made by a number of hybridizers that myth has finally been destroyed. There are many rebloomers currently being introduced that exceed in color and form some new "oncens" now being placed in commerce.

The Susquehanna Iris Society held their Spring Show in York, PA in May, 2011. The Best in Show was entered by George Weaver, an active member, with 'Repeat Performance' TB (*Joan Roberts 2008*). This was a 37" seedling 2059-2RE: (Twilight Fancies X Snowed In). Unfortunately, I wasn't there for the judging and do not have a photo of it then. The attached photo is from the hybridizer's collection by Ken Roberts.



Repeat Performance TB (*Joan Roberts 2008*)

Photo Credits page 3:
 Dana Brown, *Provided*
 Chain Reaction, *A. Stanton*
 Master Of Illusion, *D. Brown*
 Lady Emma, *C. Chapman*
 Repeat Performance, *K. Roberts*

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Carole Buchheim

Photo Credits page 4:
C. Buchheim, P. Buchheim
Autumn Tryst, R. Probst
Dr. John Weiler, S. Trio



Autumn Tryst TB
(J. Weiler 1993)

Editor's Note *By Carole Buchheim*

There is a lot of reblooming iris information and data packed into the following pages. Take time to read

through the Director's Reports and see what is blooming in different USDA zones across the nation. Of particular interest are Riley Probst's Top 50 Rebloomers. The irises listed are showing rebloom from 40 to over 140 days! If they will give that much bloom in zone 9, they should be excellent rebloomers in other areas across the nation as well.

I was sorry to hear of Dr. John Weiler's passing. He has introduced many wonderful reblooming iris cultivars, taken leadership roles in local, regional, and AIS affiliate organizations and added to our knowledge and understanding of the world of irises.

I would like to give you a personal invitation to sign up for the 2012 AIS National Iris Convention in Ontario, CA. My husband and I have nearly a 1000 guest irises awaiting your

observation as well as many others at our Mystic Lake Gardens Ranch. Come, join us for a fun-filled and well-planned convention.

A winning name has been selected for our iris "FUNraiser" contest. Full information will be given in the 2012 RIS Recorder. Currently, several very healthy bud stalks are beginning to show color in my garden in spite of some nighttime temperatures down to freezing.

We have two hybridizing articles in this issue of the *Recorder*. There's good advice and years of experience packed into them. How about making some plans to get out in your iris garden this coming spring and do a little experimenting. Get your kids or grand kids involved and have some iris hybridizing fun!

I am delighted that more of you voted in our 2011 RIS Iris Symposium. The more of us that participate the better our knowledge and data will be on what performs best in rebloom across the nation. Take a look at the results on pages 18 and 19. Maybe it will give you some ideas for your 2012 iris "wish list".

Dr. John H. Weiler, Professor of Botany and Hybridizer of Reblooming Irises

It is always sad to announce that an iris personality has passed away. I recently learned that Dr. John H. Weiler (1925-2011) passed away on September 19, 2011 at the age of 86. He was a long time resident of Fresno, CA. He was a retired Fresno State University Professor of Botany, Ornamental Horticulture, Plant Science and Landscape Design.

Dr. Weiler was a well known iris hybridizer, especially for reblooming irises. Even today, some of the SDB irises he hybridized are among the most reliable SDB rebloomers. Another of his irises, 'Autumn Tryst' (Weiler 1993) is a reliable TB rebloomer throughout most of the country.

Dr. Weiler founded the Fresno Iris Society in 1967 and served two terms as president. He was Region 14 RVP during 1980-1982. He served two

terms as President of the Reblooming Iris Society. He wrote a chapter on "Diseases of Irises" in the AIS *The World of Irises*. He had 88 iris introductions between 1976 and 2000. He received the American Iris Society Hybridizer's Medal in 2005. His wife of many years, Fran, passed away several years ago. One of his last public speaking engagements was at the Region 14 Fall Meeting in Fresno, CA on October 23, 2010; he spoke on what else? Reblooming Irises!



Dr. John H. Weiler
1925-2011

—Riley Probst

RIS Board Meeting Minutes, May 30, 2011, 6 pm - 8 pm

IN ATTENDANCE

Barbara Aitken (R-13)	Sandy Ives (R-2)
Terry Aitken (R-13)	Rose Kinnard (R-18)
Loreli Bouffard (R-11)	Jim Landers (R-17)
Kate Brewitt (R-2)	Maureen Mark (R-2)
Carole Buchheim (R-15)	Riley Probst (R-14)
Paul Buchheim (R-15)	Dave Silverberg (R-13)
Susan Grigg (R-4)	Shirley Trio (R-14)
Char Holte (R-8)	Phyllis Welburn (R-14)
Mary Ann Horton (R-14)	

MOTION TO ACCEPT THE MINUTES PRINTED IN FALL/WINTER 2010 *REBLOOMING IRIS* RECORDER.

MOVED by Dave Silverberg; SECONDED by Riley Probst. Motion carried.

TREASURER'S REPORT – Char Holte

- As of December 2010 – Total assets approx. \$10,900 of which approx. \$7,000 is savings.
- A copy of the Treasurer's Report is to be emailed to all Board Members. Subject to Board review.
- A copy will also be sent to Carole Buchheim (RIR Editor) for publication.

MOTION TO ACCEPT REPORT AS PRESENTED.

MOVED by Rose Kinnard, SECONDED by Dave Silverberg. Motion carried.

MEMBERSHIP REPORT – Rose Kinnard

- There are currently 332 memberships including 51 Life Memberships. (NOTE: all numbers are memberships and not individual members.)

	2010	2011
New Memberships	41	10
Renewals	64	48
Drops	74	89

- Reminder emails/post cards are sent to members whose membership is expiring. Last August 75 post cards were sent at \$0.23/card. One third, or 24/75 (33% renewal rate), resulted in renewals. Seventy (70) emails were sent of which 40 resulted in a membership renewal (57% renewal rate).
- Need to update email addresses as many are not valid.
- Barbara Aitken asked that memberships be charted by type of membership e.g. Complimentary; Life; Dual Annual; Dual Triennial; Single Triennial; Single Annual.

INVITATION TO JOIN (ITJ) – Char Holte

- Two hundred (200) were printed for this convention. When it was realized there was a printing error, they were 'pulled'. Char Holte will investigate with the Printer.
- In order to determine how effective these are Rose Kinnard was asked to keep a record of how many memberships are submitted using this brochure.

- It was recommended the ITJ be put on the website. Char Holte volunteered to do this.

CHECKLIST – Barbara Aitken Reported For

Robin Shadlow

- The first printing of the 2008 RIS Checklist (100 – 120 copies) is sold out. Robin Shadlow recommends an updated reprint of 200 copies to be sold for \$25 + postage. **MOTION: REPRINT 200 COPIES OF THE 2008 VERSION OF THE RIS CHECKLIST WITH UP GRADES AT A RETAIL PRICE OF \$25/COPY.** MOVED by Dave Silverberg; SECONDED by Riley Probst. Motion carried.
- Barbara Aitken asked Dave Silverberg to assist Robin Shadlow with the ongoing process of updating the RIS Checklist.
- Of the 100 CDs made of the 2008 RIS Checklist 12 remain unsold.

AREA DIRECTORS' REPORTS

- **Southern: Jim Landers** – Report will appear in the next *Reblooming Iris Recorder*.
- **Southwestern: Riley Probst** – Suggested Directors put together a list of people they regularly contact for rebloom reports as a way to help them get their reports in to the Editor on time. Riley has started a RIS Facebook page. There are 200 'friends' already. Will talk to Web master about getting a link on the RIS website.
- **Northwestern: Dave Silverberg** – Made a plea to members to send reports to their Area Directors.
- **Midwestern: Tim Stanek** – No report.
- **Eastern: Joan Roberts** – No report.
- It was suggested a formatted chart be developed for RIS Area Directors to standardize the way they report to Carole Buchheim (RIR Editor). Char Holte volunteered to develop one. This chart should be coordinated with Robin Shadlow and Carole Buchheim to ensure the information they need is captured.

DIGITAL PROGRAMS REPORT – Alex Stanton

- No report other than two requests for programs received in the last two years.

EDITOR – Carole Buchheim

- Spring edition of the *Reblooming Iris Recorder* went to print on May 20.
- Cost to print the Spring edition in color was \$2,950. More than \$1,500 was obtained through ads and donations to cover the difference between printing in colour and B&W.

PUBLICITY – Shirley Trio

- Riley and Shirley have donated an iris-themed lamp and wall hanging for sale at this convention. Tickets are \$1 each or 6 for \$5.
- Response to the RIS "FUNraiser" was disappointing.

(Cont. on p. 6)

Winner will be announced in the 4th of July *Rebloom News*, an on-line RIS Newsletter.

- Reminder to complete your Symposium Ballot which came out in the Spring 2011 *Reblooming Iris Recorder* and is due **October 1, 2011**.

STANDING RULES – Sandy Ives

- No update available at this time. Riley Probst was asked to assist Sandy in updating the Standing Rules. This should be coordinated with the incoming Board.

WEBSITE – Dave Silverberg

- Dave Silverberg will discuss with Dana Brown (new President) outstanding minor changes that need to be added to the RIS website.
- Dave Silverberg will also send iris photos to Riley Probst to add to the RIS Facebook page.

NEW BUSINESS

NOMINATING COMMITTEE – Barbara Aitken

- The nominations for Officers and Directors to be elected at the RIS General Meeting are as follows:
President: Dana Brown
Vice President: Kate Brewitt
Secretary: Elladan McLeester
Eastern Director – Susan Grigg
Southern Director – Jim Landers

MOTION: BOARD APPROVAL TO ACCEPT THE REPORT AS IT APPEARED IN THE FALL/WINTER 2010 ‘REBLOOMING IRIS RECORDER’
MOVED by Dave Silverberg, SECONDED by Rose Kinnard. Motion carried.

PARLIAMENTARIAN REPORT – Riley Probst

- Article IV of the RIS Bylaws has been interpreted by Riley Probst to say that the RIS Membership Chair, the RIS Publicity Chair and the RIR Editor have a vote as members of the RIS Board. Therefore it is appropriate for RIS to proceed in this manner despite previous precedence setting actions. No change to the Bylaws will be made.

BUDGET FOR 2011/2012 – Char Holte

- No budget for 2011/2012 was presented. Char Holte was asked to use 2010/2011 spending as a basis for estimating a 2011/2012 budget. Barbara Aitken will supply Char Holte with the website figures.

ADJOURNMENT

- MOTION TO ADJORN by Dave Silverberg,

Respectfully submitted by
Kate Brewitt, Acting Secretary, RIS VP
June 30, 2011

RIS General Meeting Minutes, May 31, 2011, 8 am

Past President Barbara Aitken called the meeting to order at 8:05 am, bidding us all ‘Good Morning’.

Past President Aitken introduced attending RIS Directors and Officers.

NOMINATING COMMITTEE

Past President Aitken reported that the Board had approved the slate of nominations for Officers and Directors as it appeared in the Fall/Winter 2010 *Reblooming Iris Recorder*:

President: Dana Brown
Vice President: Kate Brewitt
Secretary: Elladan McLeester
Eastern Director – Susan Grigg
Southern Director – Jim Landers

The Board recommended approval of this slate of Officers and Directors and asked for a motion.

MOTION: Dave Silverberg, SECONDED by Sandy Ives.
Motion Carried.

NEW CHECKLIST

Past President Aitken advised the membership that a new updated RIS Checklist would be available later this year or at next year’s convention. Details will be provided in the 4th of July *Rebloom News*. In the meantime, an updated CD is available.

2010 GENERAL MEETING MINUTES

MOTION WAS MADE TO ACCEPT THE MINUTES FROM THE 2010 GENERAL MEETING, AS

PRINTED IN FALL/WINTER/2010 *REBLOOMING IRIS RECORDER*.

MOTION: Terry Laurin, SECONDED by Dave Silverberg.
Motion carried.

TREASURER’S REPORT

It was reported to the membership that RIS has approx. \$10,900 in combined savings and checking accounts. Part of this money was allocated to the payment of the Spring 2011 *Reblooming Iris Recorder*.

MEMBERSHIPS

These would be made available after the meeting. If anyone took out a 3-year membership today they would receive a new introduction as a bonus.

RIS GENERAL MEETING SPEAKER

Hybridizer Chuck Chapman was introduced and proceeded with his presentation on ‘REBLOOMERS – WHEN, WHERE AND HOW’.

PUBLICITY

Shirley Trio reported on the draw for the iris-themed lamp and wall hanging. Tickets available at the RIS booth: \$1 each or 6 for \$5. She also advised the membership that the iris donated by George and Margaret Sutton for the name the iris RIS “FUNraiser” would be on sale to the membership.

Meeting was adjourned at 8:55 am.



Susan Grigg

Eastern Report *By Director, Susan Grigg*

In late summer I finally completed a long-awaited plan – to move all my reblooming irises into one bed of their own. For the last 25 years I had just mixed the rebloomers in with the once bloomers in beds so that every bearded plant got about the same cultural conditions. Now I can provide a little extra water and fertilizer to the rebloomers when needed and not fear that the neighboring once bloomers may not need the extra attention.

For lack of time and energy I left one clump of **'Immortality'** TB (L. Zurbrigg 1982) and one of **'Rosalie Figge'** TB (J. McKnew 1993) in their spots among the once bloomers, and **'Immortality'** seemed to sulk and failed to rebloom this fall. By contrast **'Rosalie Figge'**, sitting in her same old location, put up her usual three or four bloom stalks.

Since our North Carolina Zone 7 fall has been mild this year, some of the cultivars that were moved into the new reblooming bed have been encouraged to bloom, even some of the first year plants that I planted late. Several of Don Spoon's 2011 SDBs have delighted me: **'Eric Simpson'**, a medium garnet red with a darker spot; **'Anne Lowe'**, yellow orange with reddish maroon spot and red-orange beards; **'Ray Jones'**, intense yellow bitone with yellow orange beards; and **'Pom'**, cranberry red with cream haft marks and white beards that are tipped with tangerine.

The rebloom report sent by June and John Rosini from their garden and nine other Virginia gardens in Zone 7 listed three irises that rebloomed in three of the gardens: **'Autumn Circus'** TB (B. Hager 1990), **'Clarence'** TB (L. Zurbrigg 1991), and **'Perfume Counter'** TB (L. Zurbrigg 1972). There were eight irises that rebloomed in at least two of the gardens: **'Blatant'** TB (M. Byers 1990), **'Bountiful Harvest'** TB (B. Hager 1991), **'Golden Encore'** TB (F.

Jones 1973), **'I Bless'** IB (L. Zurbrigg 1985), **'Liquid Amber'** TB (G. Spoon 2003), **'Low Ho Silver'** IB (M. Byers 1989), **'Rosalie Figge'** TB (J. McKnew 1993), and **'Starring Encore'** TB (D. Spoon 2008).

In the rebloom reports given to me this fall the earliest rebloom winner was **'Red Hot Chili'** IB (M. Sutton 2008), which rebloomed in a Zone 7 garden in June. Next came **'Cantina'** TB (M. Byers 1989), which bloomed in a Zone 7 Virginia garden. As I write this, it's early December and I have blooms on **'Matrix'** TB (E. Hall 1991), and **'I Bless'** IB (L. Zurbrigg 1985), which is putting up a second flush of bloom.



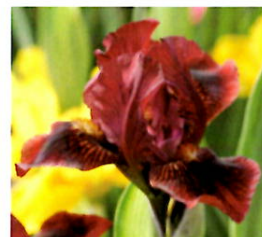
Red Hot Chili IB (M. Sutton 2008)

The report from coastal Connecticut, Zone 6, lists rebloom on a good number of cultivars, including **'Feed Back'** TB (B. Hager 1983), **'Lo Ho Silver'** IB (M. Byers 1989), **'Constant Companion'** IB (C. Marsh 1995), **'Blessed Again'** IB (F. Jones 1976), **'Forever Blue'** SDB (C. Chapman 1997), and **'Doozey'** MDB (B. Hager 1994).

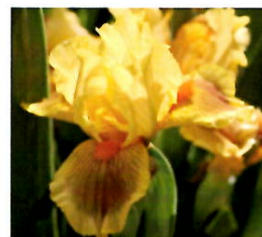
If your garden is in AIS Regions 1, 2, 3, 4, 7, or the eastern part of Canada, I need the rebloom data from you to include in my reports. That's the states of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, Delaware, New Jersey, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, Tennessee, and Kentucky. Please jot down the name of the cultivar, type, hybridizer, year of introduction, date of rebloom, your USDA Zone, and send it to me at irismom@nc.rr.com or 105 Trotters Ridge Drive, Raleigh, NC 27614. The more information we have on rebloom over the country, the better our choices will be when we purchase rebloomers. Hybridizers for rebloom are able to use this information in your report to improve the class for us. I thank you in advance.

Regions 1, 2, 3, 4, 7
Parts of Canada

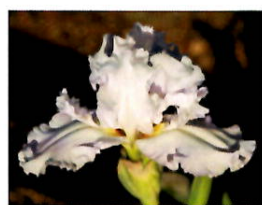
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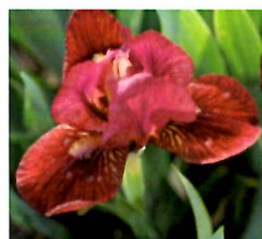
Eric Simpson SDB
(D. Spoon 2011)



Anne Lowe SDB
(D. Spoon 2011)



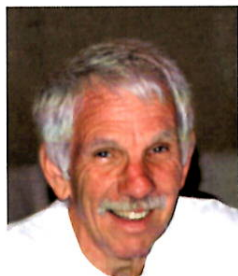
Ray Jones SDB
(D. Spoon 2011)



Pom SDB
(D. Spoon 2011)

Photo Credits page 7:
Susan Grigg, *Provided*
Red Hot Chili, C. Buchheim
Eric Simpson, G. Spoon
Anne Lowe, G. Spoon
Ray Jones, G. Spoon
Pom, G. Spoon

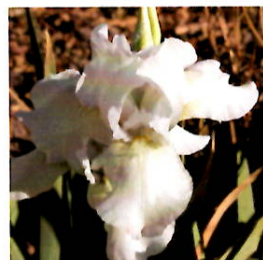
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Riley Probst



Over And Over TB
(S. Innerst 2001)



Low Ho Silver IB
(M. Byers 1989)



Autumn Tryst TB
(J. Weiler 1993)



Immortality TB
(L. Zurbrigg 1982)

Photo Credits page 8:

Riley Probst, C. Buchheim
Echo Location, R. Probst
Over And Over, C. Buchheim
Low Ho Silver, C. Buchheim
Autumn Tryst, C. Buchheim
Immortality, C. Buchheim

Southwestern Report *By Director Riley Probst*

My report last fall talked about concentrating your rebloomers together so you can give them better treatment, specifically water. I

thought we had great rebloom in 2010 when we had 47 different varieties rebloom for more than 22 days here at Fleur De Lis Garden in Modesto, CA. This year we had 73 different varieties rebloom for 22 or more days.

One may wonder why I make the distinction about 22 or more days. In order for an iris to have rebloom for 22 or more days it either must have more than seven buds per stalk, the flowers must stay open more than three days and/or the iris must put up more than one rebloom stalk. Any of those three traits are outstanding attributes for rebloomers. Keep in mind these are 22 or more rebloom days not counting the bloom days that occurred during regular spring bloom. The ultimate goal is for irises to create color in the garden from spring to fall and possibly winter in some climates.

The best rebloomer in our garden this year was 'Echo Location' TB (Betty Wilkerson 2007). It rebloomed here for 146 days between July and November! That is out of a total of 153 days during those months. I will admit we do have it growing in two different reblooming areas in our garden. This is a recommendation of another way to get more rebloom. Pick some of your irises that you think may rebloom the best for you, divide your clumps and plant them in two or more locations in your garden. The table following this article lists what rebloomed for us this year and when they rebloomed.

In our garden we had 118 different cultivars rebloom this summer and fall. Of those, 73 different cultivars rebloomed for at least 22 days. Fifty different cultivars rebloomed for at least 40 days. Twenty three different cultivars rebloomed for at least 60 days and eight different cultivars rebloomed for at least 100 days. The leader, as mentioned above, was 'Echo Location' at 146 days. We had a slightly longer

rebloom season this year. Last year we had a hard frost the morning of November 25th which wiped everything out. This year we have still not had a frost as of the beginning of December with the coldest thus far being 36 degrees.

This was a busy rebloom year in the southwest. In addition to all of the rebloom in the

various gardens there were several specific rebloom activities. First, there was an AIS sanctioned reblooming iris show at the AIS Region 14 Fall Meeting which took place at the Red Lion Inn in Redding, CA on October 15th. There were about a dozen stalks of rebloomers entered in the show by several exhibitors: Jim Cummins, Carol Dahout, Riley Probst and Brenda Wood. Jim Cummins of Scott's Valley,

CA, near Santa Cruz, a member of the Monterey Bay Iris Society won Best In Show with Fred Kerr's 2009 TB introduction, 'Spring Bliss'.

The next event was actually four separate rebloom activities. They all took place in conjunction with the AIS Region 15 Fall Meeting held in Ontario, CA. The theme for the meeting was "The Miracle of Rebloom". First, on Friday evening November 11th, I gave a one-and-a-half-hour Reblooming Iris Judges Training to about 30 attendees. Secondly, there was a bus trip from the hotel to Carole and Paul Buchheim's Mystic Lake Gardens in Nuevo, CA on Saturday morning, November 12th. We all got to see the hundreds of stalks of rebloomers that were in bloom including many of the guest irises for the 2012 AIS Convention. Carole and Paul's garden will be on tour again next spring for those of you who were unable to attend this trek. While everyone was at the garden, Chuck Chapman, from Chapman Iris Garden in Guelph, Ontario Canada (the other Ontario) gave a two-hour Reblooming Iris Garden Judges Training. Then the fourth and final reblooming event of the weekend took place on Saturday afternoon when Chuck Chapman gave a very informative slide presentation on how to grow rebloomers better. This was a wonderful weekend for rebloom enthusiasts. (Cont. p.11)

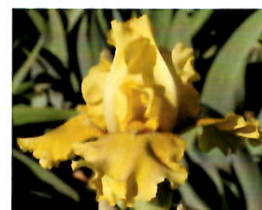


Echo Location TB, (B. Wilkerson 2007)

Top 50 Rebloomers from May 22 to November 30, 2011				Number of Days in Rebloom									
Variety	Class	Hybridizer	Intro.	Days	Begin RE	Ma	Jn	Jl	Au	Se	Oc	No	Last RE
Echo Location	TB	B. Wilkerson	2007	146	Jul 3	-	-	29	31	30	25	30	Nov 30
Over And Over	TB	S. Innerst	2001	125	Jun 17	-	14	19	15	23	24	30	Nov 30
Low Ho Silver	IB	M. Byers	1989	121	Jul 3	-	-	29	28	20	28	16	Nov 30
Autumn Tryst	TB	J. Weiler	1993	112	Jul 21	-	-	11	31	9	31	30	Nov 30
Immortality	TB	L. Zurbrigg	1982	111	Jul 9	-	-	23	12	28	27	20	Nov 20
Anxious	TB	B. Hager	1992	108	Jun 26	-	5	31	21	2	24	25	Nov 30
Angelic Wings	TB	B. Miller	1991	105	Aug 7	-	-	-	25	28	23	29	Nov 30
October	TB	M. Byers	1989	102	Jul 28	-	-	4	15	25	31	26	Nov 30
Mariposa Wizard	IB	R. Tasco	2004	94	May 25	2	-	10	-	23	29	30	Nov 30
Lunar Whitewash	TB	S. Innerst	2001	90	Aug 30	-	-	-	2	29	29	30	Nov 30
Istanbul	TB	M. Byers	1990	84	Jun 26	-	5	11	-	18	19	30	Nov 30
Feed Back	TB	B. Hager	1983	82	Jun 15	-	16	1	11	30	10	14	Nov 30
Corn Dance	TB	Don Spoon	2008	81	Aug 24	-	-	-	8	15	31	27	Nov 27
Innocent Star	TB	G. Sutton	1999	81	Jun 24	-	7	20	6	7	24	17	Nov 17
Iceland	TB	M. Byers	1991	80	Jul 28	-	-	4	19	3	29	27	Nov 18
Violet Returns	TB	E. Hall	1988	79	Sep 13	-	-	-	-	18	31	30	Nov 30
Fall Rerun	TB	B. Hager	2001	77	Jul 20	-	-	12	23	-	12	30	Nov 30
Autumn Wine	BB	V. Christopherson	2003	73	Jun 29	-	2	26	17	16	10	2	Nov 2
St. Petersburg	TB	M. Byers	1989	70	Sep 22	-	-	-	-	9	31	30	Nov 30
Sugar Maple	SDB	G. Sutton	2003	69	Jul 22	-	-	2	2	4	31	30	Nov 30
Summer Holidays	TB	L. Zurbrigg	1979	66	Jun 16	-	10	7	-	8	11	30	Nov 30
Mariposa Autumn	TB	R. Tasco	1999	64	Sep 28	-	-	-	-	3	31	30	Nov 30
Again And Again	TB	S. Innerst	1999	60	May 23	5	-	-	-	3	23	28	Nov 28
Belvi Cloud	TB	K. Jensen	1988	59	Jun 12	-	5	-	7	9	20	18	Nov 18
Gladiatrix	TB	L. Zurbrigg	2003	59	Jun 16	-	15	16	8	1	19	-	Oct 20
Raspberry Frost	TB	G. Sutton	2001	58	Aug 6	-	-	-	11	7	31	9	Nov 9
Jennifer Rebecca	TB	L. Zurbrigg	1985	57	Jul 21	-	-	11	8	10	14	14	Nov 19
Plum Quirky	MTB	R. Probst	2005	57	May 23	4	19	26	8	-	-	-	Aug 8
Lichen	TB	M. Byers	1989	55	Aug 22	-	18	-	-	15	5	-	Nov 25
Daughter Of Stars	TB	D. Spoon	2001	54	Sep 28	-	-	-	-	3	24	27	Nov 30
Pause	SDB	B. Blyth	2002	53	Oct 5	-	-	-	-	-	24	29	Nov 29
Wizard's Return	SDB	R. Tasco	1999	53	May 23	1	16	-	-	-	7	30	Nov 30
Lest We Forget	TB	G. Sutton	2008	52	Sep 27	-	-	-	-	4	17	30	Nov 30
Forever Yours	TB	B. Hager	1993	51	Jul 31	-	-	1	13	13	14	10	Nov 29
Autumn Thunder	TB	G. Sutton	2000	50	Oct 6	-	-	-	-	-	20	30	Nov 30
Zurich	TB	M. Byers	1990	49	Sep 26	-	-	-	-	5	25	19	Nov 30
Constant Companion	IB	C. Marsh	1995	48	Jun 12	-	5	-	-	-	17	26	Nov 30
Just Call Me	TB	B. Wilkerson	2008	47	Sep 11	-	-	-	-	13	17	17	Nov 25
Christiane Elizabeth	TB	C. Mahan	2001	46	Oct 11	-	-	-	-	-	17	29	Nov 29
Blatant	TB	M. Byers	1989	45	Oct 17	-	-	-	-	-	15	30	Nov 30
I Repeat	TB	J. Roberts	1998	45	Oct 17	-	-	-	-	-	15	30	Nov 30
Rosalie Figge	TB	J. McKnew	1993	45	Sep 11	-	-	-	-	13	6	26	Nov 30
Sugar Blues	TB	L. Zurbrigg	1985	45	Sep 29	-	-	-	-	2	13	30	Nov 30
Fast Forward	IB	J.T. Aitken	2002	44	May 22	6	7	-	12	-	-	19	Nov 30
Violet Turner	TB	L. Lauer	1999	44	Oct 18	-	-	-	-	-	14	30	Nov 30
Red Hot Chili	IB	M. Sutton	2008	43	Oct 7	-	-	-	-	-	19	24	Nov 30
Golden Violet	SDB	J. Weiler	1994	42	Jul 25	-	-	2	2	-	9	29	Nov 29
All Revved Up	TB	B. Wilkerson	2006	41	Jul 31	-	-	1	13	-	18	9	Nov 9
My Generation	TB	L. Lauer	2009	41	Oct 20	-	-	-	-	-	12	29	Nov 29
Decker	TB	M. Jameson	2001	40	Oct 22	-	-	-	-	-	10	30	Nov 30



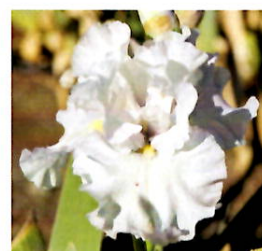
Anxious TB
(B. Hager 1992)



October TB
(M. Byers 1989)



Mariposa Wizard IB
(R. Tasco 2004)



Lunar Whitewash TB
(S. Innerst 2001)



Istanbul TB
(M. Byers 1990)

Photo Credits page 9:
Anxious, C. Buchheim
October, R. Probst
Mariposa Wizard, C. Buchheim
Lunar Whitewash, C. Buchheim
Istanbul, C. Buchheim

Photos of most RE irises listed above are on the RIS Facebook page.
The top 50 reblooming irises are sequentially listed based on the number days in rebloom.



Traffic TB (*L. Lauer 2004*)



Plum Wine SDB
(*J. Weiler 1986*)



Two Different Worlds TB
(*W. Moores 2002*)

Other Irises That Rebloomed Between 22 and 39 Days				Number of Days in Rebloom									
Variety	Class	Hybridizer	Intro.	Days	Begin RE	Ma	Jn	Jl	Au	Se	Oc	No	Last RE
Traffic	TB	L. Lauer	2004	39	Sep 9	-	-	-	-	9	17	13	Nov 30
Lilting	TB	M. Byers	1991	38	Jun 26	-	5	16	9	8	-	-	Sep 8
Stanza	BB	M. Byers	1991	37	Jun 11	-	2	-	-	-	5	30	Nov 30
Harvest Of Memories	TB	L. Zurbrigg	1985	36	Oct 26	-	-	-	-	-	6	30	Nov 30
Two Different Worlds	TB	W. Moores	2002	36	Oct 26	-	-	-	-	-	6	30	Nov 30
Purple Magic	TB	D. Spoon	1995	35	Oct 21	-	-	-	-	-	11	24	Nov 24
Starring Encore	TB	D. Spoon	2008	35	Oct 27	-	-	-	-	-	5	30	Nov 30
What Again	SDB	A. Ensminger	1991	35	May 18	9	-	-	-	2	4	20	Nov 26
Mountain Sunrise	TB	M. Sutton	2007	34	Oct 28	-	-	-	-	-	4	30	Nov 30
Plum Wine	SDB	J. Weiler	2086	34	Oct 28	-	-	-	-	-	4	30	Nov 30
Then Again	TB	M. Byers	1989	33	Oct 29	-	-	-	-	-	3	30	Nov 30
Another Bridge	TB	B. Wilkerson	2005	32	Jul 22	-	-	10	1	-	10	11	Nov 30
Star Gate	TB	B. Wilkerson	2005	30	Oct 26	-	-	-	-	-	6	24	Nov 24
Theme Master	TB	B. Wilkerson	2004	30	Oct 18	-	-	-	-	-	14	16	Nov 30
Double Shot	TB	G. Sutton	2000	29	Sep 28	-	-	-	-	2	11	16	Nov 28
Double Overtime	IB	R. Tasco	2005	28	May 22	2	-	-	-	-	-	26	Nov 30
Double Up	BB	B. Hager	1984	28	Oct 30	-	-	-	-	-	2	26	Nov 30
October Splendor	BB	G. Sides	1997	27	Nov 3	-	-	-	-	-	-	27	Nov 29
Olympic Return	TB	G. Sutton	2002	27	Nov 4	-	-	-	-	-	-	27	Nov 30
Total Recall	TB	B. Hager	1992	27	Oct 22	-	-	-	-	-	10	17	Nov 20
His Royal Highness	TB	M. Byers	1989	25	Jul 29	-	-	3	8	-	14	-	Oct 14
Returning Rose	TB	W. Maryott	1998	25	Oct 31	-	-	-	-	-	1	24	Nov 24
Bridge In Time	TB	B. Wilkerson	1995	22	Nov 6	-	-	-	-	-	-	22	Nov 27

Irises that Rebloomed for Less Than 22 Days as of 12-3-2011											
Variety	Class	Hybridizer	Intro.	M	J	J	A	S	O	N	
Ahwahnee Princess	SDB	G. Sutton	2004	-	-	-	-	-	-	x	
All American	TB	M. Byers	1992	-	-	-	x	-	-	-	
Amber Ambiance	TB	B. Wilkerson	2008	-	-	-	-	-	-	x	
Autumn Circus	TB	B. Hager	1990	-	-	-	-	-	x	x	
Autumn Rain	TB	M. Sutton	2008	-	-	x	-	-	-	-	
Baby Blessed	SDB	L. Zurbrigg	1979	-	-	-	-	-	-	x	
City Lights	TB	M. Dunn	1991	-	-	-	-	-	-	x	
Clarence	TB	L. Zurbrigg	1991	-	-	-	-	-	-	x	
Doe Z Doe	IB	B. Kasperek	2005	-	-	-	-	-	-	x	
Double Byte	SDB	G. Sutton	1996	x	x	-	-	-	-	-	
Flower Shower	SDB	J. Weiler	1990	x	-	-	-	-	-	-	
Fruit Stripe	BB	M. Sutton	2009	-	-	-	-	-	-	x	
Garden Club Delight	TB	L. Zurbrigg	1997	-	-	-	-	-	-	x	
Haunting	TB	J.G. Crump	2006	-	-	-	-	-	x	x	
Holiday In Mexico	MTB	R. Probst	2012	-	x	-	-	-	-	-	
It's All Right	BB	L. Lauer	2008	-	x	x	-	-	-	-	
Lake Reprise	TB	W. Moores	1990	-	-	x	-	-	-	-	
Lemon Duet	TB	R. G. Smith	1978	-	-	-	-	-	-	x	
Little Blackfoot	SDB	M. Reinhardt	1967	x	-	-	-	-	-	-	
Mesmerizer	TB	M. Byers	1991	-	x	-	-	-	-	-	
Orange Portal	TB	F. Kerr	2007	-	-	-	-	-	-	x	
Orchid Dove	TB	D. Spoon	2007	-	x	x	-	-	-	-	
Pink Attraction	TB	E. Hall	1988	-	-	-	-	-	-	x	

Irises that Rebloomed for Less Than 22 Days as of 12-3-2011 (Cont.)											
Variety	Class	Hybridizer	Intro.	M	J	J	A	S	O	N	
Pokemon	SDB	G. Sutton	2003	-	-	-	-	-	-	x	x
Pretty Reward	MTB	R. Probst	2002	-	x	-	-	-	-	-	
Puppet Baby	SDB	C.H. Boswell	1981	-	-	-	-	-	-	-	x
Rainlike	SDB	G. Sutton	2010	-	x	-	-	-	-	-	
Remember Spring	TB	B. Hager	1985	-	-	-	-	-	-	x	x
Renascent	TB	B. Hager	2005	-	-	-	-	-	-	-	x
Renown	TB	L. Zurbrigg	1992	-	-	-	-	-	-	-	x
Repeat Performance	TB	J. Roberts	2008	-	-	-	-	-	-	-	x
Re-Treat	TB	R.G. Smith	1978	-	-	-	-	-	-	-	x
Round Trip	SDB	L. Lauer	2007	-	-	-	-	-	-	-	x
Royal Sterling	TB	K. Keppel	2005	-	x	-	-	-	-	-	
Say Okay	TB	T. Burseen	1991	-	-	-	-	-	-	-	x
Sea Double	TB	R.G. Smith	1971	-	-	-	-	-	-	-	x
Secondhand Rose	TB	G. Spoon	2004	x	-	-	-	-	-	-	
Silver Dividend	TB	L. Zurbrigg	1991	x	-	-	-	-	-	-	
Sole Survivor	BB	M. Greenfield	2008	x	-	-	-	-	-	-	
Somewhat Quirky	MTB	R. Probst	2001	x	-	-	-	-	-	-	
Sunny Disposition	TB	L. Zurbrigg	1991	-	-	-	-	-	-	-	x
Tara's Choice	TB	B. Wilkerson	2004	-	-	-	-	-	-	-	x
Thrice Blessed	SDB	J. Weiler	1982	x	-	-	-	-	-	-	
Winesap	TB	M. Byers	1989	-	-	-	-	-	-	x	x
Winterland	TB	M. Byers	1990	-	-	-	-	-	-	-	x

The final reblooming event of the fall, may have been a first in AIS, a Reblooming Iris Garden Judges Training in DECEMBER IN THE GARDEN! I gave two hours of Reblooming Iris Garden Judges Training at our Fleur De Lis Garden in Modesto, CA on December 1st. We had about sixty different varieties in bloom, many with multiple stalks. We had SDB's, IB's, MTB's, BB's and TB's reblooming. The weather cooperated as we had a sunny day in the mid-60's. We had not yet had a frost. Five of the attendees drove at least 90 miles one way in three different cars in order to attend from Fremont, Fresno and Walnut Creek, CA.

Just a reminder, photos of most of the irises listed in the reports can be viewed on the Reblooming Iris Society Facebook page. There are now 617 photos of rebloomers on the Facebook page. We now have 129 members on Facebook as compared to 77 this time last year. Join the Facebook group, it is free, and look at the pictures, read the comments and maybe post some of your own. Just click on to Facebook.com and search for Reblooming Iris Society.

CA Rebloom Reports

Nancy Burstein - Irvine, CA

Autumn Circus (B. Hager 1990).....	TB
Blatant (M. Byers 1989).....	TB
Breakers (Schreiner 1986).....	TB
Fall Rerun (B. Hager 2001).....	TB
Feed Back (B. Hager 1983).....	TB
Halloween Halo (J. Weiler 1991).....	TB
Harvest Of Memories (L. Zurbrigg 1985).....	TB
Hemstitched (B. Hager 1990).....	TB
Immortality (L. Zurbrigg 1982).....	TB
Millennium Falon (B. Kasperek 2000).....	TB
Mother Earth (B. Hager 1988).....	TB
Paprika Fono's (I. Nelson 1987).....	TB
Rosalie Figge (J. McKnew 1993).....	TB
Scented Bubbles (M. Byers 1988).....	TB
Splashacata (R. Tasco 1998).....	TB
Total Recall (B. Hager 1992).....	TB
Winter Waltz (Schreiner 2009).....	TB

Dan Cereghino - Madera, CA

Autumn Circus (B. Hager 1990).....	TB
Cameo Blush (J. Weiler 1998).....	TB
Double Shot (G. Sutton 2000).....	TB
Lest We Forget (G. Sutton 2008).....	TB
Low Ho Silver (M. Byers 1989).....	IB
Rosalie Figge (J. McKnew 1993).....	TB
Skyhopper (G. Sutton 2003).....	TB
Winesap (M. Byers 1989).....	TB

Renee Fraser - Simi Valley, CA

Beverly Sills (B. Hager 1979).....	TB
Frequent Flyer (R. Gibson 1994).....	TB
Jennifer Rebecca (L. Zurbrigg 1985).....	TB
Lady Friend (J. Ghio 1981).....	TB
Maid Of Orange (J.T. Aitken 1989).....	BB
Mariposa Autumn (R. Tasco 1999).....	TB
New Leaf (J. Ghio 1997).....	TB
Recurring Dream (B. Hager 1993).....	TB
Rosalie Figge (J. McKnew 1993).....	TB

Rose Teall (H. Holk 1995).....	TB
Tennison Ridge (J. Begley 1989).....	TB
Total Recall (B. Hager 1992).....	TB
Violet Turner (L. Lauer 1999).....	TB
Winesap (M. Byers 1989).....	TB

Mary Ann Horton - Loomis, CA

Pure As Gold (W. Maryott 1993).....	TB
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Jim & Irene Cummins - Scott's Valley, CA

Aaron's Dream TB (G. Sutton 1994).....	Aug
American Master TB (F. Kerr 2006).....	Aug
Autumn Circus TB (B. Hager 1990).....	Sep, Oct, Nov
Autumn Wine BB (V. Christopherson 2003).....	Aug
Betty Cunningham TB (D. Spoon 2008).....	Jun
Bewitching Hour TB (C. Helsley 2005).....	Oct, Nov
Bonus Mama TB (B. Hager 1990).....	Jul, Aug
Bountiful Harvest TB (B. Hager 1991).....	Oct
Candy Club TB (L. Painter 2006).....	Jun
Casual Elegance TB (J.T. Aitken 2004).....	Jun, July, Aug
Champagne Encore IB (J.T. Aitken 1997).....	Nov
Christine Suchy TB (T. Burseen 2006).....	Jul
Cutting Edge TB (J. Ghio 1994).....	Aug, Sep
Daughter Of Stars TB (D. Spoon 2001).....	Nov
Double Dribble TB (J. Ghio 2000).....	Aug
Double Platinum TB (J. Ghio 2012).....	Sep, Oct, Nov
Double Shot TB (G. Sutton 2000).....	Sep, Oct
Double Vision TB (J. Ghio 1999).....	Oct, Nov
Dusky Challenger TB (Schreiner 1986).....	Jul
Fall Fiesta TB (Schreiner 1992).....	Jun
Golden Immortal TB (G. Sutton 1997).....	Oct, Nov
Here In Silence TB (F. Kerr 2010).....	Jun
Kathy Chilton TB (F. Kerr 2006).....	Aug, Sep
Low Ho Silver IB (M. Byers 1989).....	Jul, Aug
Mariposa Autumn TB (R. Tasco 1999).....	Oct, Nov
Marty Richards TB (R. Richards 2005).....	Aug
My Generation TB (L. Lauer 2009).....	Aug, Sep
Nickname TB (F. Kerr 2008).....	Jul
Northward Ho TB (L. Zurbrigg 1991).....	Sep, Oct, Nov
October Sky TB (L. Lauer 2000).....	Aug
Oreo TB (K. Keppel 2004).....	Nov
Oxmoor Hills TB (J. Ennenga 2004).....	Aug, Sep, Oct
Ozark Rebounder TB (B. Nicodemus 2003).....	Aug, Sep
Pink Attraction TB (E. Hall 1988).....	Aug, Sep
Reality TB (J. Ghio 1995).....	Sep
Rosalie Figge TB (J. McKnew 1993).....	Aug
Spring Bliss TB (F. Kerr 2009).....	Oct, Nov
Stan Coates TB (L. Painter 2010).....	Jun, Aug
Summer Waltz TB (G. Sutton 2002).....	Aug, Sep
That's All Folks TB (W. Maryott 2005).....	Aug
Throb TB (J. Weiler 1991).....	Jun
Tropical Evening TB (J.T. Aitken 2006).....	Sep, Oct, Nov
Vivid Look TB (B. Hager 2004).....	Jun
Ziggy (V. Keyser 2000).....	Oct

Double Shot TB (G. Sutton 2000)

Photo Credits pages 10 & 11:

Traffic, J. T. Aitken

Plum Wine, C. Buchheim

Two Different Worlds, R. Probst

Double Shot, C. Buchheim



Regions 6, 8, 9, 18, 21
Parts of Canada
Overseas

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Tim Stanek

Midwestern Report *By Director Tim Stanek*

Hello again to all of you reblooming iris enthusiasts. By the time you read this the bitter cold of winter's breath

will be blowing upon us. This is the time for reviewing what went right and what did not during this last year's bloom and rebloom seasons. It's time for planning for next year's acquisitions.

The early rains which kept on coming in the spring some how stopped and the soil dried out completely by mid summer. Fortunately, I was able to control the weed growth through organic methods involving the hoe and muscle power for most of the summer.

A devastating hailstorm followed by nearly a foot of rain within a week during the first part of August caused much damage to crops and homes. The ground became saturated and everything flattened. It looked as if fall had arrived with all the trees barren of leaves. These storms caused much erosion and lush, rampant growth of late-season weeds. I was unable to weed until September. None the less, rebloom came with a furry and most of the old standbys brought welcome blossoms.

Following are some of the varieties that rebloomed very well in my garden. Sunshine yellow 'Days Of Summer' TB (T. Stanek 2001) had bloomstalks on almost every fan in an old plot. Nearly every one-year-old plant of 'Zurich' TB (M. Byers 1990) sent up a stalk.

The tallest variety this fall was 'Raspberry Frost' TB (G. Sutton 2001) with its four-foot stalks and multiple branching. My pink border bearded 'Patty Ann' BB (T. Stanek 2005) somehow managed to have at least one flower in bloom from May through October. Surprisingly, the only dwarf's to rebloom this year were 'Baby Blessed' SDB (L. Zurbrigg 1979) and 'Ahwahnee Princess' SDB (G. Sutton 2004).

This will be one of the few years that I did not get any of the iris replanting done with the exception of a couple of seedlings.

The weather was as unpredictable as ever and those first August storms brought the last real moisture we've had up until the first of December. I am as sure as ever that these hardy irises will grow and be there to greet us again next spring and fall with splendid blooms for us to enjoy.

Make plans now to attend the AIS National Convention in Ontario, California, April 16-21, 2012. Our favorite reblooming iris editor, Carole Buchheim, will have her garden on tour. I had the opportunity to visit Carole's garden again last summer and

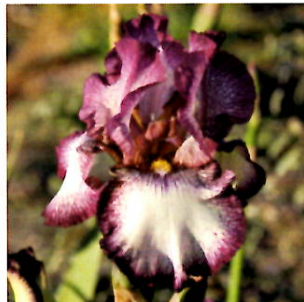
I must say she grows her iris superbly. Many remontant and seedling irises were in bloom during the visit. I hope to see you at the convention. Tim Stanek, Iowa.



Baby Blessed SDB
(L. Zurbrigg 1979)



Zurich TB
(M. Byers 1990)



Raspberry Frost TB
(G. Sutton 2001)



Ahwahnee Princess SDB
(G. Sutton 2004)

Photo Credits page 12:

Tim Stanek, Provided
Raspberry Frost, C. Buchheim
Baby Blessed, G. Spoon
Zurich, C. Buchheim
Ahwahnee Princess,
M. Sutton

Request for Guest Speakers

If any of our members who grow and/or hybridize reblooming irises would be willing to serve as guest speakers at AIS Region meetings, club meetings, etc., please contact Publicity Director, Shirley Trio:

E-mail: shirleytrio@clearwire.net

Phone: (209) 551-6323

Address: 2701 Fine Ave., Modesto, CA 95355



Dave Silverberg

Northwestern Report By Director Dave Silverberg

Regions 11, 12, 13, 20
Parts of Canada

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Photo Credits page 13:
Dave Silverberg, C. Buchheim
Zia Ida, D. Stewart
Pane E Vino, D. Stewart
Bianca Miheletta, D. Stewart
Rosalie Figge, J.T. Aitken

Rebloom season for my garden was non-existent. Winter losses were horrendous! After the "oncens" were finished blooming the entire rebloom bed was dug saving all those that survived. They were then replanted in new soil keeping only 5 of the best rhizomes dug of each variety. Once again the water problem with our well popped up reducing the amount of garden watering that could be done. That dramatically slowed down the growth and maturation of the replants. In late October 'Over And Over' TB (S. Innerst 2001) sent up three stalks that made it up to 8 - 10 inches and were promptly stopped in their tracks by the seasons first killing frost. Even the old reliables like 'Rosalie Figge' TB (J. McKnew 1993), 'Immortality' TB (L. Zurbrigg 1982) and 'St. Petersburg' TB (M. Byers 1990) never showed any sort of a hint of a bloom stalk. All in all a most disappointing season. It was fortunate that others in the region had better luck than I.

Denise Stewart of Snowpeak Iris reports the following: This year was one of the best years for rebloomers and I believe the weather had much to do with it. Our spring came about three weeks later than normal and put all the flowers out of sync with their normal bloom time. Then the frosting on the cake was that we had a longer period before normal rebloom time. That and the fact that not all the rebloomers were transplanted last season resulted in more rebloom. Here are just a few of the wonderful presents: 'Autumn Wine' BB (V. Christopherson 2003), 'Blueberry Tart' SDB (C. Chapman 2002 which was still reblooming in November), 'Aunt Mary' TB (T. Stanek 2000), 'Zia Ida' BB (A. Bianco 2003), 'Cantina' TB (M. Byers 1990) and many others.

A special treat for me was one from Augusto Bianco that arrived from Italy in July and bloomed in early November, 'Bianca Miheletta' (registered but not yet introduced), a very large flowered iris in tones of burgundy

reds. Another of Bianco's that never fails to rebloom even when dug and transplanted is 'Pane E Vino' TB (2001). 'Purple Reprise' TB (W. Moores 2006) always reblooms well as does 'July Yellow' TB (K. Chadwick/E. Warner 2001), 'Peebee And Jay' MTB (B.&D. Schneider 2006) and 'Oxford Tweeds' SDB (D. Spoon 2001).



Zia Ida BB (A. Bianco 2003)

Robin Shadlow, a recently transplanted Nebraskan, seems to be pleased with the way her new Oregon garden is coming along. Robin reports: The 2011 season in Salem was very unusual. Bloom began very late and peak occurred after we returned from the Victoria AIS Convention. From the time the SDBs began, I had something in bloom every single day until frost. This was primarily due to the fact that the latest crop of seedlings which should have bloomed in May had not quite reached maturity in time. The weather was cool enough that maiden bloom on seedlings with rebloom breeding did bloom as soon as they had gained enough size.

In July the rebloomers started. 'Cornhusker' TB (T. Stanek 2005) produced several stalks. It was cool enough that bloom was able to form and it provided a very vivid display from across the garden. 'Days of Summer' TB (T. Stanek 2002) started soon after, which was no surprise since it often was the first to start up in Nebraska as well.

Of course, the ever reliable 'Rosalie Figge' TB (J. McKnew 1993) came through despite being rudely relocated just prior to setting fall stalks. I am happy to report that spring fertility on 'Rosalie Figge' has been quite a bit more successful in Oregon than it was in Nebraska. Several seedlings from 'Rosalie Figge' did rebloom as well as several grandchildren. Hopefully, I will be able to get seedlings in more colors and patterns which can rebloom with the vigor that 'Rosalie Figge' has displayed across the county.



Pane E Vino TB
(A. Bianco 2001)



Bianca Miheletta TB
(A. Bianco seedling)



Rosalie Figge TB
(J. McKnew 1993)

Jim Landers

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USDA Zone 8



Jim Landers

Photo Credits page 14:

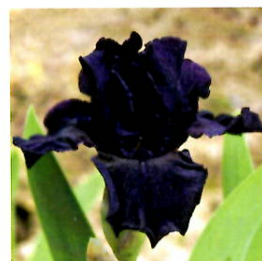
Jim Landers, *Provided*
Delta Lady, *L. Lauer*
Fall Rerun, *C. Buchheim*
Clarence, *C. Buchheim*
Glitter Repink, *L.&K. Jedlicka*
Senorita Frog, *G. Spoon*
Midsummer Night's Dream,
J.T. Aitken



Glitter Repink TB
(*L.&K. Jedlicka 2007*)



Senorita Frog SDB
(*D. Spoon 2002*)



Midsummer Night's Deam
IB (*L. Baumunk 1999*)

Southern Report *By Director, Jim Landers*

Dana Brown, our RIS President, summed it up fairly well when she said that we did not receive the best treatment

from Mother Nature this year. Dana and Vernon of Maleville Iris Gardens in Lubbock, TX only had four rebloomers including 'Lady Emma' MTB (*F. Jones 1986*), 'Master Of Illusion' AB (*S. McAllister 2009*), 'Chain Reaction' AB (*R. Tasco 2007*), and a McAllister seedling, #94-09-09-05 to bloom.

Gordon and Happy Carver in Weatherford, TX reported 'Fall Rerun' TB (*B. Hager 2001*) and 'Delta Lady' TB (*L. Lauer 2009*) as their fall beauties.

Jamie Hadly in Austin, TX listed 'Harvest of Memories' TB (*L. Zurbrigg 1985*), 'Feed Back' TB (*B. Hager 1990*), and 'Immortality' TB (*L. Zurbrigg 1982*) with fall flowers.

Peggy Cathey in Covington, TX had 'Autumn Tryst' TB (*J. Weiler 1993*).

Annette Brown in Denison, TX submitted 'Low Ho Silver' IB (*M. Byers 1989*), 'Sugar Snaps' IB (*D. Pinegar 1999*), and 'Clarence' TB (*L. Zurbrigg 1991*) as autumn bloomers.

Peggy Tolboom in Hico, TX posted 'Anxious' TB (*B. Hager 1992*) and 'Say Okay' TB (*T. Burseen 1991*) as fall bloomers.

Janice Thompson in Sherman, TX reported 'Glitter Repink' TB (*L.&K. Jedlicka 2007*), and 'Midsummer Night's Dream' IB (*L. Baumunk 1999*) as her rebloomers.

Dell Perry in Plano, TX was able to enticed late season bloom from 'Queen Dorothy' TB (*E. Hall 1984*), 'Senorita Frog' SDB (*D. Spoon*



Delta Lady TB (*L. Lauer 2009*)

2002), 'Cinders' SDB (*M. Byers 1989*), 'Wizard's Return' SDB (*R. Tasco 1999*), 'I Bless' IB (*L. Zurbrigg 1985*), and 'Autumn Tryst' TB (*J. Weiler 1993*).

The percentage of rebloomers may have been less than desired but there were irises blooming in the fall and those blooms gave untold enjoyment to their growers.



Fall Rerun TB (*B. Hager 2001*)



Clarence TB (*L. Zurbrigg 1991*)

Donations for the RIS Recorder in Full Color

I would like to express my appreciation to those who have made donations toward the full color printing of the 2011 Fall/Winter RIS Recorder. Printing in full color is financed entirely through donations and color ads. Thank you to the following donors:

The American Bulb Co. ♦ Paul & Carole Buchheim
Inland Region Iris Society ♦ Riley Probst & Shirley Trio

For information on the Memorial Fund, contact Shirley Trio at: shirleytrio@clearwire.net.

—Carole Buchheim, RIS Editor



Betty Wilkerson

Working for Rebloom in Kentucky, Zone 6 *By Betty Wilkerson*

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Breeding programs evolve with time. This was my twenty sixth year to make crosses, so there have been changes. Since moving to my current location, I've found it difficult to find much pleasure in fall cycle rebloomers. Too often, the stalks are left standing in the field due to an early freeze. I'm spending way too much energy and time on this program to have stalks cut down both spring and fall.

After the move to Allen County in 2003, I've focused on combining the best of the spring blooming irises with the cold climate reblooming irises. Currently,

I'm working to bring rebloom back to the resulting seedlings.

My earlier introductions came from breeding with 'Immortality' TB (L. Zurbrigg 1982), 'Feed Back' TB (B. Hager 1983), 'Earl of Essex' TB (L.

in recent years. Each has breeding problems and none have produced perfect seedlings, but I'm seeing some serious improvements.



Star Gate TB (B. Wilkerson 2005)

The conventional wisdom for breeding a quality iris is to use the best two irises available. I need to breed the best I can buy, use the best available for pod parents, and select carefully among the resulting seedlings. Even though rebloomers are basi-

cally garden irises, I breed with an eye toward the show bench, just in case they can make it to an early spring show or a fall show. Many of the rules for breeding once blooming tall bearded irises hold true for breeding cold climate tall bearded rebloomers.

POD PARENT

When breeding for rebloom, I often found conflicting advice. I was told the pod parent contributes more than 70% of the plant characteristics, so it made sense to use the better of the two plants as the pod parent. Then, I was told to use my own seedlings as the pod parent, yet children of rebloomers are not always endowed with the best branching.

My approach has been to look for tall, well-branched and well-budded seedlings to use for pod parents, and use the shorter ones as pollen parents. Many rebloomers, especially those from the 'Immortality' TB (L. Zurbrigg 1982) lines, are short and rarely set pollen. In this situation, I've used short seedlings as pod parents. Each cross will be different and there are no guarantees, but short irises do produce some tall children. Another approach would be to breed the short ones as boarder bearded irises.

If I choose an iris with four buds as a pod parent, most resulting seedlings will have four

Photo Credits page 15:
 Betty Wilkerson, *Provided*
 Star Gate, C. Buchheim
 Pure As Gold, C. Buchheim
 All Revved Up, B. Wilkerson
 Pink Attraction, C. Buchheim



Pure As Gold TB
 (W. Maryott 1993)

Zurbrigg 1980), 'Violet Miracle' TB (L. Zurbrigg 1979) and a few others. Now, I rarely use an iris unless it has been reported to bloom in the summer somewhere. Most of my recent additions to the rebloom parents have bloomed in the summer in my garden. Currently, in addition to my own summer blooming seedlings and introductions, I'm using 'Cantina' TB (M. Byers 1990), 'Pure as Gold' TB (W. Maryott 1993), 'Total Recall' TB (B. Hager 1992), 'Pink Attraction' TB (E. Hall 1988), 'Matrix' TB (E. Hall 1991), 'Renown' TB (L. Zurbrigg 1992), 'October Sky' TB (L. Lauer 2000), 'Lunar Whitewash' TB (S. Innerst 2003), 'Over and Over' TB (S. Innerst 2001), 'Clarence' TB (L. Zurbrigg 1991), and 'Again and Again' TB (S. Innerst 1999). 'Star Gate' TB (B. Wilkerson 2005), 'Total Recall' TB (B. Hager 1992) and 'All Revved Up' TB (B. Wilkerson 2006) have produced strong rebloomers



All Revved Up TB
 (B. Wilkerson 2006)



Pink Attraction TB
 (E. Hall 1988)

Photo Credits page 16:

Matrix, C. Buchheim
October Sky, C. Buchheim
Renown, C. Buchheim
Summer Radiance,
B. Wilkerson
Feed Back, C. Buchheim

Photo Credits page 17:

Over And Over, C. Buchheim
Again And Again, C. Buchheim
Lunar Whitewash, C. Chapman
Total Recall, C. Buchheim
Tara's Choice, C. Buchheim



October Sky TB
(L. Lauer 2000)



Summer Radiance TB
(B. Wilkerson 1996)



Feed Back TB
(B. Hager 1983)

buds! Fortunately, I learned this lesson with my first crop of seedlings. I crossed a red on cream plicata from Gibson breeding, **'Highland Chief'** TB (J. Gibson 1973) with a Shoop pink amoena, **'Peach Spot'** TB (G. Shoop 1973). I made the cross both ways and bloomed over twenty seedlings from each cross.

'Peach Spot' X 'Highland Chief' gave all white seedlings, with a bud count of four. They were all short with poor substance with a few reddish dots on the hafts. "Big Bertha" (a garden name), did give a fall stalk or two. Imagine viewing a twenty-five foot row of these! Each was different genetically, yet they all looked the same.

The seedlings from 'Highland Chief' X 'Peach Spot' were incredibly different. These were tall; multiple budded seedlings with seven plus buds, some with triple budded terminals. They were delightfully varied as to patterns and colors. One was a nice

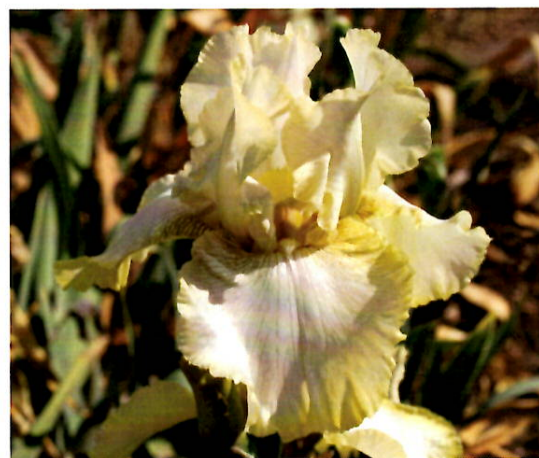
deep orange; two were peach, while several were yellow and yellow over white with yellow fall rings. None were plicata. I've been told it is common for plicata x amoena crosses to produce such beauties! I still consider them to be two of the best crosses I've made due to the lessons learned. In 2011, I've seed from 'All Revved Up' X 'Champagne Elegance' and I'm anxious to see the results.

A renowned hybridizer, known for pink irises, advised me that the seeds from reverse crosses could be mixed together because the results would be equal in performance and beauty. This follows the adage "like breeds like" mentioned above. My experience says that this is only true if both plants have the same color, form, branching, bud count and pattern.

GENETICS

Since I haven't studied genetics, I didn't know what to expect from my crosses. I understood the words dominant and recessive and I spent a lot of time reading *The World of Iris*, yet, I didn't always understand the details and how they factor into iris breeding. Years of trying to understand what works, resulted in the following general summary.

Dominant colors and patterns are easier to work with than recessives. Dominant traits



Matrix TB (E. Hall 1991)

are only required on one side of the cross. The dominant colors in rebloom appear to be white, purple and dominant yellow. I have seen many seedlings in these colors!

It's been my experience that two white seedlings will give a high percentage of white seedlings, even if from dark ancestors. One white **'Star Gate'** TB (B. Wilkerson 2005) child crossed by **'Arctic Fox'** TB (V. Wood 1998)

gave five white seedlings and two pale purples. Although I try not to make such a cross, two purple irises will give mainly purple seedlings. Once I get into mixed patterns and other colors the results are more varied.

Orange tall bearded irises that rebloom in my zone six garden do not exist! I've collected many of the warm climate rebloomers and I'm out-crossing them to **'Summer Radiance'** TB (B. Wilkerson 1996) and rebloomers of other colors with hopes of producing enough pastel reblooming lines. Base variety is my term for a variety that reblooms and can be used in different lines.

Recessive traits are—recessive! Most pastels are recessive. These are harder to work and require the trait to be on both sides of the cross to be expressed in the seedlings. If your goal is seedlings with the tangerine factor, then it must be present on both sides of the cross. There are two types of yellow. The non tangerine yellow is dominant over the tangerine yellow, while tangerine yellow is dominant over pink. Pink is dominant over orange, and orange is dominant over white with a red beard. Again, the tangerine factor must be on both sides of the cross for it to be expressed in the children.



Renown TB (L. Zurbrigg 1992)

An example of my breeding for the tangerine factor is my current batch of seeds from cross #2610:2128-01re: ((Sincerely Yours x Star Gate) x Decadence) X 2019-03: (Lunar Whitewash x Romantic Evening). The pod parent is tall with great branching, while the pollen parent has wonderful form and a wide beard. **'Decadence'** TB (*B. Blyth* 2004) and **'Romantic Evening'** TB (*J. Ghio* 1996) interject a wide variety of colors and patterns, while **'Star Gate'** TB (*B. Wilkerson* 2005) and **'Lunar Whitewash'** TB (*S. Innerst* 2003) are good rebloomers in much of the country. I don't really expect rebloom from this generation, but I do expect some red beards, since it is represented on both sides of the cross. Future crosses have serious potential.

Solid color irises, or selves, are dominant over plicata. The first generation of such a cross will have no plicata seedlings unless there is a plicata in the background of the self. This cross will produce variegatas and bitones. Two plicatas will produce plicatas. My own **'Star Gate'** TB (*B. Wilkerson* 2005) produced a small number of plicatas when crossed by **'Matrix'** TB (*E. Hall* 1991) due to plicata genes in the background of **'Star Gate.'**

One major problem a hybridizers face when working on cold climate rebloomers is the absence of existing cultivars in the various colors and patterns. My garden is zone 6. Many of us are really tired of yellow, white and purple rebloomers. Increasing the fall width and adding ruffles helps to ease the pain but few people are interested in more rebloomers in these colors. These must be bred to other colors, then, select seedlings are crossed back to each other, in hopes of capturing other, more interesting, colors. Yes, my color preferences are showing!

I've been working on a red line for years with outcrosses to purple rebloomers. **'Tara's Choice'** TB (*B. Wilkerson* 2004) was the result of crossing **'Feed Back'** TB (*B. Hager* 1983) onto my red seedling line. I've used it and **'Star Gate'** TB (*B. Wilkerson* 2005) in working with red and black rebloomers. Both lines are showing a lot of progress, but a finished product has not yet evolved.

My summary is only the tip of the iceberg. For those who want more details, I suggest back issues of *The Recorder*, the internet archives of *Iris Talk*, and the book, *The World of Iris*. Know your subject well. There is no real shortcut for research.

SEEDLING SELECTION

This brings us to one of the most important factors in breeding hardy cold climate rebloomers—seedling selection! The first criteria I look for is plant strength. In addition to the genetic ability to rebloom, the seedlings must inherit the plant strength to support these genetics, so my first selection comes when I move the plants from the seedling pots to the field. The strongest will have a good root system, and are planted together. If space is limited, they are the only ones planted. Many of my introductions were found within this group. Rebloomers may not show their full potential for years so it's important to be patient.

I've heard it stated that only the strongest or best growing irises will rebloom and this is not true in my garden. Slow growing rebloomers do exist, but most hybridizers would not introduce them. Good growth is important to the success of a rebloomer. They need to grow rapidly to insure mature rhizomes for both spring and fall. When the cross is for rebloom, I try not to plant the weak seedlings. I'm a sucker for a pretty face so it's best if I don't see the weaker ones bloom.

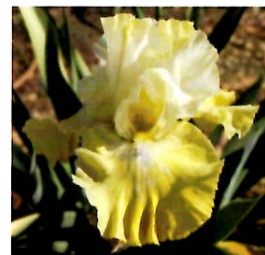
Unlike hybridizers of once blooming irises, I sometimes find it necessary to reuse breeding material. The rebloom gene is even more elusive than some of the patterns and colors we strive to produce. Any given iris is not guaranteed to do well with all pairings. When nothing in the new generation provides what I need, I must either revert to earlier good seedlings and cultivars, or give up the chase. I prefer to dust off the previous generation and try, try again!

It's important to network. Don't be afraid to ask questions, but be kind to your hybridizers, as they are human too! During off season, many hybridizers like to talk about their work. Information can be collected from many places—catalogs, internet sites, and rebloom publications, to mention a few.

There are less than a dozen hybridizers working on rebloom for the northern/colder climates. Some of us share a general idea of how to improve rebloom for these areas, but it's rare when we make the same cross. This is good! Keep in mind; I'm not saying my way is the right way, and most definitely not the only way. It's just my way!



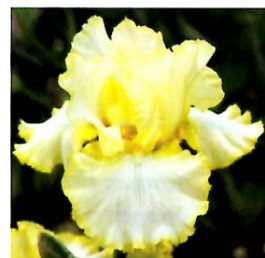
Over And Over TB
(*S. Innerst* 2001)



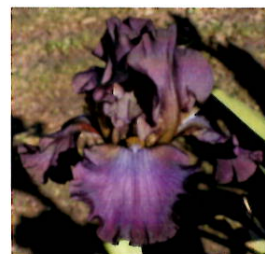
Again And Again TB
(*S. Innerst* 1999)



Lunar Whitewash TB
(*S. Innerst* 2003)



Total Recall TB
(*B. Hager* 1992)



Tara's Choice TB
(*B. Wilkerson* 2004)

2011 Reblooming Iris Society Symposium

By Shirley Trio-Probst



Pokemon MDB
(G. Sutton 2003)



Wizard's Return SDB
(R. Tasco 1999)



Concertina IB
(G. Sutton 2000)



Emma Doodle MTB
(D.C. Nearpass 1999)



Autumn Wine BB
(V. Christopherson 2003)



Pretty Jazzy MTB
(R. Probst 2004)

A total of 1,103 votes were cast for 326 reblooming irises. A few write-in irises were disqualified because instructions stated that no irises newer than 2009 were to be counted and there were several write-in votes for irises introduced in 2010. Reblooming irises need at least two years to evaluate. Anything introduced in 2010 or 2011 could not have been evaluated for two years and therefore was disqualified.

There were dozens of write-in irises that received only one vote. Some of them were older introductions and some were too new to be on the checklist. Any iris that was introduced before the year 2005 and has not received any votes on the symposium in the last two years or won an AIS Award in the last two years will be dropped from the 2012 symposium.

Example: If a reblooming iris introduced in 2003 did not receive any symposium votes for the last two years but won an AIS Award of Merit or a Medal in the last two years, it will remain on the RIS Symposium. If an iris introduced prior to 2005 remains on the ballot for three years and does not receive a total of seven votes accumulative in those three years, it will be dropped from the symposium unless that cultivar has won an AIS Award.

The next symposium will be printed in the spring 2012 Recorder. Your vote is important!

Votes Cultivar Hybridizer Year Intro.

Miniature Dwarf Bearded

First Place Winner

- 6 Aaah (G. Sutton)2009

Second Place Winners (2 Way Tie)

- 5 Mighty Mouse (G. Sutton)2004
5 Pokemon (G. Sutton)2003

Third Place Winners (2 Way Tie)

- 3 Hilda's Gift (D. Spoon)2002
3 Trimmed Velvet (D. Spoon)2006

Standard Dwarf Bearded

First Place Winner

- 10 Wizard's Return (R. Tasco)1999

Second Place Winner

- 9 Forever Blue (C. Chapman)1997

Third Place Winner

- 8 Ahwahnee Princess (G. Sutton)2004

Intermediate Bearded

First Place Winners (2 Way Tie)

- 7 Concertina (G. Sutton)2000
7 Red Hot Chili (M. Sutton)2008

Second Place Winners (2 Way Tie)

- 6 Mariposa Wizard (R. Tasco)2004
6 Tripod (M. Sutton)2006

Third Place Winners (10 Way Tie)

- 5 Deep Conviction (M. Sutton)2006
5 Doohicky (G. Sutton)2009
5 Fast Forward (J.T. Aitken)2002
5 Hot Glow (R. Tasco)2006
5 I'll Be Back (J.T. Aitken)2004
5 Line Drive (M. Sutton)2007
5 Midsummer Night's Dream (L. Baumunk) ..1999
5 October Storm (G. Sutton)2002
5 Spiked (M. Sutton)2007
5 Toe The Line (M. Sutton)2009

Miniature Tall Bearded

First Place Winners (3 Way Tie)

- 6 Emma Doodle (D.C. Nearpass)1999
6 New Encore (G. Sutton)2008
6 Pretty Jazzy (R. Probst)2004

Second Place Winners (2 Way Tie)

- 5 Claire Doodle (D.C. Nearpass)2000
5 Somewhat Quirky (R. Probst)2001

Third Place Winner

- 4 Lady Emma (F. Jones)1986

Border Bearded

First Place Winner

- 10 Autumn Wine (V. Christopherson) ...2003

Second Place Winner

- 7 Fruit Stripe (M. Sutton)2009

Third Place Winners (6 Way Tie)

- 4 Broken Link (M. Sutton)2006
4 Grace Kelly (G. Sutton)2003
4 Minneola (G. Sutton)2005
4 October Splendor (G. Sides)1997
4 Patty Ann (T. Stanek)2005
4 Special Blend (M. Sutton)2009

No Votes for Siberian Iris

No Votes for Japanese Iris

No Votes for Louisiana Iris

Arilbred

First Place Winner

9 Walker Ross (*W. Ross by Chapman*) . . .1998

Second Place Winner

5 Ulalena (*G. Sutton*)2003

Third Place Winner (2 Way Tie)

4 Shabaza (*G. Sutton*)2001

4 Yangara (*G. Sutton*)2003

Species Cross

1 Z Z Zanzibar (*B. Kasperek*)2005

Tall Bearded

First Place Winner

17 Daughter Of Stars (*D. Spoon*)2001

Second Place Winner

15 Raspberry Frost (*G. Sutton*)2001

Third Place Winner

11 Lunar Whitewash (*S. Innerst*)2003



Daughter Of Stars TB (*D. Spoon* 2001)



Walker Ross AB
(*Walker Ross* 1998)



Ulalena AB
(*G. Sutton* 2003)



Z Z Zanzibar Spec. X
(*B. Kasperek* 2005)



Raspberry Frost TB
(*G. Sutton* 2001)



Region 14 Fall Meeting Show Table



Jim Cummins with 'Spring Bliss'

AIS Region 14 Fall Meeting, October 15, 2011

The AIS Region 14 Fall Meeting was held at the Red Lion Inn in Redding, California on October 15, 2011. There were about a dozen stalks of rebloomers entered in the show by several exhibitors: Jim Cummins, Carol Dahout, Riley Probst and Brenda Wood. Jim Cummins of Scott's Valley, CA, near Santa Cruz, a member of the Monterey Bay Iris Society won Best In Show with Fred Kerr's 2009 TB introduction, 'Spring Bliss'.

Photo Credits page 18:

Pokemon, *M. Sutton*
Wizard's Return, *C. Buchheim*
Concertina, *C. Buchheim*
Emma Doodle, *G. Spoon*
Autumn Wine, *C. Buchheim*
Pretty Jazzy, *R. Probst*

Photo Credits page 19:

Daughter Of Stars, *Provided*
Walker Ross, *C. Chapman*
Ulalena, *M. Sutton*
Z Z Zanzibar, *R. Probst*
Raspberry Frost, *C. Buchheim*
Fall Meeting, *R. Probst*
Jim Cummins, *R. Probst*

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Don Spoon

Hybridizing Basics for AIS Garden Judges and Youths of All Ages

By Donald Spoon, Ph. D.

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USDA Zone 6

IRIS CROSSING

Parts of this article were prepared for training AIS garden judges on the basics of hybridizing bearded irises

tard. To be a successful iris hybridizer, just take the time to learn the basic Genetics presented in this relatively short article. Remember the words of Thomas Jefferson, "Luck favors the prepared mind." Increasing your basic knowledge of Genetics can increase your chances for hybridizing success.

EASY LEXICON

Scientific terminology comes mostly from Greek and Latin. The genus name *Iris* is from the Greek name for their rainbow goddess. The scientific word for bearded irises is "pogon" from the Greek word for beard. Whereas "bearded" can be replaced by a different native word in the 7,000+ spoken languages of our 7,000,000,000 humans, the scientific term POGON is always spelled, pronounced, and used to mean the same thing in any language. Pogon separates the bearded irises from the beardless that are called "apogon" or without beards. This article uses about 50 scientific

words, while avoiding as many as possible. Most educated people know over 50,000 words in their own native tongue. It seems a small task to add to your repertoire of words 50 scientific terms that can be written and pronounced, and have the same meaning in every languages on earth. I was often told, "Use of a dictionary (lexicon) will not cause irreparable brain damage." Learning to use correctly 50 scientific terms could allow you to grasp the basic genetic concepts needed to successfully hybridize irises.

GLORIOUS REBLOOM

We held our judges training in the third week of October, during our Region 4 fall meeting, to showcase many reliable rebloomers in full bloom. Many of these began reblooming in early September; and some like 'Trimmed Velvet' MDB (D. Spoon 2006), 'Purple Joy' SDB (D. Spoon 2007), 'Ray Jones' SDB (D. Spoon 2009) and 'Corn Dance' TB (D. Spoon 2008) are so cold hardy, they may continue reblooming until Thanksgiving in our zone 6b. As we continue to intercross the best fall rebloomers, they will produce seedlings that rebloom earlier, even in July and August, with more flower stalks, and with better cold hardiness to withstand fall and spring frosts and freezes. We envision in the near future when these new rebloomers will compete with chrysanthemums for their vibrant fall colors, growing

- the pogons - that can have exotic fragrances and a complete rainbow of colors to attract pollinators. Bearded irises are placed in classifications based on stalk heights and time of blooming: MDB-miniature dwarf bearded (under 8") earliest, SDB-standard dwarf (8" to 16") early, IB-intermediate (16" to 27.5") middle, BB-border (16" to 27.5") late, MTB-miniature tall (16" to 27.5") late, and TB-tall (over 27.5") late. In this article, a cultivar without class designation is a TB.

As president of the Chesapeake and Potomac Iris Society of Region 4, I am directing this summary article to our seven new iris hybridizers, youths 13, 14, 16 and 18 years old, plus three over 19. We have two spring hybridizing clinics where youths may each make five crosses. We provide a hybridizing kit for each youth. I follow their successful seedpods and prepare their seeds; they then plant in their own gardens. Watching with their parents, these youths with their friends gleefully crossing irises in our garden is pure joy. They are the future great hybridizers of the American Iris Society. Hybridizing irises, like life, may be like a box of chocolates. We do not know what we will get. But learning to be a chef who knows the recipes of the confections may remove some of the mystery. Yet, hybridizing bearded irises will always be more mystery than science. Your hybridizing tweezers, like a magic wand, can create wonderful beauty.

EASY GENETICS

This article has been expanded to be clearer and more complete than the seven-page handout in large font, used in the garden judges training. One participant, after looking over the handout, asked me if it was written in English. Many believe that Genetics is Greek to them, it goes over their heads and is beyond their comprehension. Actually, the basics are like the simplest forms of math, like $1+1=2$, $2+2=4$, and half of 4 is 2. To master Genetics and all its advanced textbooks, for its many applications, would take a lifetime. There are thousands of published papers just on the Genetics of the genus *Arabidopsis*, the wild mus-



Corn Dance TB (D. Spoon 2008)



Trimmed Velvet MDB (D. Spoon 2006)

and reblooming in large, deep pots, then planted in a garden to enjoy in spring and fall. Ginny had a dream about driving around Winchester and being awed by the reblooming irises that blanketed the neighborhoods. My dream is that many youths and youthful minded iris growers will decide to become iris hybridizers so Ginny's dream can come true.

"LIVE LONG AND PROSPER"

For many hybridizers, their incentive for growing, blooming, and hybridizing irises, is to sell their introductions to support their hobby, themselves, or even their family. A hybridizer who masters the procedures and concepts summarized in this article could be seeing their first seedlings bloom in two years and begin selling their first introductions in four to five years. Eventually, they could clear over \$10,000 per acre if they use their land as well as their advertising and purchasing funds wisely. You could support a family of four on a five-acre farm with good topsoil.

THEIR PLOT

May I suggest to parents that they offer to their youths a sunny garden plot solely for them to tend of up to 40 by 40 feet. There they can grow their collection of iris cultivars for breeding stock and learn how to hybridize bearded irises as an avocation or possibly a vocation. They will get lots of sun and exercise and eventually earn spending money, and maybe even enough to buy their first vehicle.

Each iris cultivar is a living plant with tens of thousands of genes and the ability to produce gloriously beautiful flowers. Bearded irises are the regal queens of any garden scene and are cherished by gardeners as a choice perennial. They are among the easiest perennials to grow, especially the reblooming cultivars.

TOP START FROM OZ

Repeating the crosses in both directions of top award winners is a good way to start. The brilliant cross that produced for Australian Barry Blyth Wister Medal winning 'Decadence' TB (2004), was 'Temple of Time' X 'Louisa's Song'. Barry has championed making crosses in both directions, pod X pollen and pollen X pod parents, as the results can be quite different. The potential diversity of seedlings in such a cross is over a quadrillion (at least 24 X 24, 24 times or 24 factorial), and repeating the crosses of other hybridizers should be encouraged. You may also want to add a few self crosses of your tallest and most vigorous cultivars or seedlings. Crossing your best cultivars or seedlings on either parent or its sibling can produce some unique offspring, some superior to either parent.

Always save your second best sibling from a cross that produced an exceptional seedling for sibling crosses. Some successful hybridizers believe in limiting their inbreeding at first cousin crosses, yet the results obtained with closer

inbreeding in tetraploids such as self, sibling, and parent crosses speak for themselves. Such aversion to closer inbreeding might delay successful progress. For example, I crossed my Wister Medal winning 'Uncle Charlie' TB (1999) on a sibling of 'Lady of Leoness' TB (2000) from the reverse cross of 'Honky Tonk Blues' X 'Silverado' that



Uncle Charlie TB (D. Spoon 1999)

produced 'Uncle Charlie'. From this reverse sibling cross, I obtained my 'Orchid Dove' TB (2007) that got the most votes for TBs at the Wisconsin AIS National Convention. 'Orchid Dove' has several recessive traits not found in either parent or grandparent. I converted their two doses to four doses for hidden recessive traits and expressed lace, orchid pink coloration as seen in the Dykes Medal winner 'Mary Frances' TB (L. Gaulter 1973), dove blue pigment, etc. 'Orchid Dove' is a vigorous grower with

good increase and is an excellent parent. The master judge Perry Dyer said, "It is gorgeous!" Once an introduction leaves your garden, any praise or awards it receives must be earned on its own merits. AIS garden judges know that their greatest responsibility is to vote for the cultivar and not its hybridizer.

SELFED BY CRAWLING INSECTS

Random outcrossing seldom produces superior seedlings. In modern bearded irises there are few pods, except in a few dwarfs and MTBs, that are randomly crossed by flying insects like bees and bumblebees, as the stigmatic lips are too highly positioned. This is why you do not have to remove the falls after making a cross as required with beardless irises. Those who have had success planting seeds from "bee crosses" such as Dick Sparling, most likely planted seeds from a selfing by crawling insects.

Failure to remove all three stamens greatly increases the chances for such selfing. Most hybridizers throw away all pods they did not cross. We plant the seeds from such pods on the best cultivars assuming they are self crosses, and have obtained some of our most unique seedlings with good vigor from these mystery pods. We make about 50 self crosses each year that set few pods, yet they can express novel recessive traits and even uncover a new, hidden mutation. Selfing the same flower rarely works. To make a successful self, use mature pollen from an older flower on a newly opened flower.

LOOK-A-LIKES

In outcrossing, using look-a-likes is usually more successful than unlikes, in which few seedlings will surpass either parent. Likes X likes is especially important when the traits you are pursuing are recessives like tangerine beards or the plicata pattern. Once you learn how to hybridize, you will often cross unlikes, as a pink on a plicata. For example, cultivars carrying two recessive, unexpressed doses of plicata like the vigorous, modern flowered bicolor



Ring Around Rosie TB
(R. Ernse 2000)



Titan's Glory TB
(Schreiner's 1981)



Fancy Woman TB
(K. Keppel 1995)



Romantic Evening TB
(J. Ghio 1996)



My Ginny TB
(D. Spoon 2000)

'**Little John**' TB (D. Spoon 1996), with pink standards and lavender falls, are useful when crossed on plicatas or variegated flower pod parents. '**Little John**' came from a cross of a pink times a reliable plicata rebloomer that gave it two doses of recessive plicata and zone 9 rebloom.

Richard Ernst got his Wister Medal winning '**Ring Around Rosie**' TB (2000) with purple sanded fall pattern with yellow rim with a triple sibling cross {(sib x sib) Sibling X (sib x sib)} of the pink '**Edna's Wish**' TB (J. Gibson 1983) on the complex plicata '**Wild Jasmine**' TB (B. Hamner 1983). Ernst produced a series of beautiful cultivars such as '**Carnival Ride**' TB (2002) and '**Looky Loo**' TB (2005) using sibling crosses.

George Shoop was probably the greatest master of in-breeding, often using sibling crosses. Study the crosses with dwarfs by the late Bennett Jones in his small garden plot and learn his successful methods. There are many knowledgeable hybridizers who will gladly answer your questions by e-mail, mail, or by phone when they are available, and even schedule you a visit to their garden at a time of day when they are not busy hybridizing.

SELECT AND COLLECT

Another successful strategy is to collect and use cultivars that are known to be great parents like '**I Do**' TB (L. Zurbrigg 1974), '**Vanity**' TB (B. Hager 1975), '**Titan's Glory**' TB (Schreiner's 1981), '**Suspicion**' TB (K. Keppel 1999), '**Queen's Circle**' TB (F. Kerr 2000), '**Romantic Evening**' TB (J. Ghio 1996), '**Fancy Woman**' TB (K. Keppel 1995), and '**My Ginny**' TB (D. Spoon 2000). Select for your collection known rebloom carriers like '**Spinning Wheel**' TB (D. Nearpass 1996), '**Yaquina Blue**' TB (Schreiner's 1992) and '**Starring**' TB (J. Ghio 2000) that are good parents. Obtain some of the best reliable rebloomers including those that bloom early in the fall as well as late summer. Select those with cold hardy stalks that can withstand early fall and late spring frosts. Other growers may allow you to gather pollen in their gardens or give you flower stalks they entered in shows. Buying or trading for the less expensive, best older cultivars will stretch your funds and still yield good seedlings.

There are many ways to gain knowledge to invest wisely in the newest and best cultivars to use for your specific goals. You can attend local iris shows or regional and national conventions. You can read iris books, catalogs, and articles from the AIS *Irises*, section publications

(*The Reblooming Iris Recorder*), and *Tall Talk*. You can search through web sites for commercial sources of irises and the AIS website (irises.org) where you can click on the Iris Encyclopedia (wiki.irises.org).

Iris cultivars over 30 years old are called historic, those newly introduced in the last ten years we call the moderns, and those in between we call classics. As the years progress, there are now many inexpensive classics that are nearly as good as the best moderns. There are many colors and color patterns found only in the historic and classics that lack reliable rebloom and need improvements in form and vigor. Prices drop from \$25-75 (SDBs to TBs) the year of introduction, to \$5-15 in five years and \$3-5 in ten years. Unlike daylilies, hostas, peonies, etc. costing hundreds of dollars when introduced, only two introduced TB irises, space age '**Unicorn**' TB (L. Austin) in 1954 and super rebloomer '**Immortality**' TB (L. Zurbrigg 1982) topped out at \$100. Now, a few TBs are introduced at \$75, but most are \$35 - \$60.

Buying cultivars you have seen performing well in private and commercial gardens in your climate zone is a good practice. Assembling about 100 choice cultivars selected specifically as breeding stock is a good start. If you begin with a single goal where there is little competition, even 5 could be a good start. You have to invest in maintenance of each cultivar you add to your collection, so choose each one carefully. You should feel free to remove from your collection any that under perform in your zone. In your second year, you should have increase from your collection to sell. In a few years, you will have your own vigorous reselects for planned crosses to reach specific goals and begin your program of successful line breeding.

LASTING SIGNS

For our permanent metal signs we buy rust resistant metal markers from Eon Industries 107 W. Maple Street, P.O. Box 11, Liberty Center, OH 43532-0011 Phone (419) 533-4961, Fax 533-6015. These have thin stainless steel rectangular pieces for the label with two holes at each end and rounded edges that don't cut your arms while weeding. We buy their Nursery Markers with a u-shaped bent wire with two 15" long legs; about 7" goes into the soil. For a few labels, we use Brother P-touch® laminated label maker with one inch wide tape for two lines for cultivar name, hybridizer, year of introduction, classification and rebloom. For larger projects we use Avery® 5520 weatherproof address labels from the Staples catalog center. With these Av-

ery ® labels you should use a laser printer that won't wash off. Ginny uses a database, either from Works or Excel. She then selects the fields to print, and can make hundreds of labels this way. These labels last 10 years or more without fading. Put the stainless steel rectangle with label affixed on the two wire legs with the label upside down and bend the top at a 45 degree angle, which turns the label right side up, then it won't slide down the wires from winter snows. These permanent metal signs each cost about \$1 to make.

An inexpensive way to make signs to label reseeds and seedbed crosses is to use 9" sections of 1" wide vinyl venetian blinds. Insert by the cut pointed end halfway into the soil. Repeat the information in the top and bottom half so if the top is broken off by an animal, you still have it labeled. A pencil will write on this vinyl surface and the graphite will stay indefinitely, unlike "permanent" markers whose ink is removed by sunlight in a year or less. Punch a hole in the bottom end of the vinyl strip. Then wrap on itself a thick rubber band through the hole that will prevent the sign from heaving in winter. Keep current your maps of all your garden plantings. Animals can remove signs. Making maps should be the first thing you do when you plant.

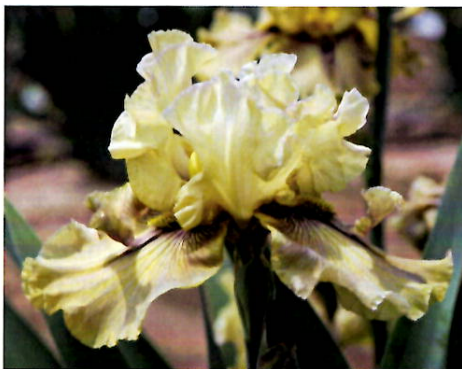
INTRODUCE YOURSELF

You will learn the value of selecting cultivars for introduction that are vigorous growers and have at least three increases per year. You should build up your stock before the year of introduction to at least 50. This will take three or four years; however, in warm climate zones or with exceptional increasers you may reach this number in two years. Eventually, you may master early seed germination methods, growth inside under lights or in a greenhouse, and even embryo culture to accelerate this process. Plan to save at least 15 good plants to replant and increase back to 50 by the next year. You will need three of your largest plants of your best cultivars to send to the AIS national convention where garden judges will appraise its flowers, stalks, and two-year growth in three different guest gardens. If you sell 25 plants at \$40 each, you will gross \$1,000. In its first year of introduction, 'Daughter of Stars' TB (*D. Spoon 2001*) that can have eight increases per year, sold over 100 plants grossing over \$4,000 from a 4' by 8' raised production bed. If you have a superior cultivar, hold back introduction until you have over 100 plants, or over 200 if it is also a reliable rebloomer. You may have enough to send to some regional competitions.

SETS IN CLASSES

Most modern bearded irises are TETRAPLOID (4N) with larger flowers, taller stalks, and sometimes more vigor, and their gametes are DIPLOID (2N). Diploid historic

cultivars and species have two sets (2N) of chromosomes; their gametes have one set (1N) called haploid. Diploids very rarely make fertile offspring when crossed on tetraploids unless the diploid forms a gamete that does not reduce by half in meiosis and is diploid. Diploids can be converted into tetraploids with colchicine and other chemicals, but this conversion requires careful



Thornbird TB (*M. Byers 1989*)

procedures. Most modern TBs, BBs, and MTBs have 48 CHROMOSOMES in four look-a-like sets of 12 different chromosomes and can be intercrossed producing fertile offspring. Because of the bell shaped curve of possible stalk heights - a polygenic (many gene) trait - two parents with shorter stalks can produce occasional offspring with much taller or shorter stalks. MDBs and SDBs can have variable chromosome numbers, yet many cross on one another producing fertile offspring.

SDBs X TBs crosses give IBs that are usually infertile hybrids with variable chromosome sets, but can have hybrid vigor; and some have limited fertility. IBs bloom between the other classes and can be great, low maintenance garden plants. IBs offer good possibilities for new hybridizers by crossing the best SDBs and TBs with similar traits. For his first cross, Lowell Baumunk crossed rebloomers, TB 'Best Bet' X SDB 'What Again', and obtained a deep violet IB rebloomer, the incomparable 'Midsummer Night's Dream' (1999) with some fertility that won the top AIS yearly IB award.

ONLY YOU DECIDE

It is good to choose unique cultivars for introduction, however, look-a-likes adding reliable rebloom and/or extraordinary garden performance can be big successes. Seedlings with slight improvements over introduced look-a-likes should not be introduced. In a garden training, Perry Dyer said, "If you have doubts about introducing your seedling, then don't introduce it." Yet, it is entirely your decision to make. You can err on the side of being overly cautious. Other growers may really like your cultivar. There is no such thing as a perfect cultivar with all pros and no cons, but some like 'Starwoman' IB (*M. Smith 1998*), 'Stairway to Heaven' TB (*L. Lauer 1993*) and 'Dusky Challenger' TB (*Schreiner's 1986*) come close. If you added to them reliable rebloom, even down to zone 6, you would have a winning introduction. 'Dusky Challenger' is pod fertile, yet rarely produces pollen; but it is a rebloom carrier, so even one well-planned cross might suffice. Monty Byers was ready to compost 'Thornbird' TB (1989), but others liked it. Monty decided to introduce it and it won a Dykes Medal. It is one of the most widely grown and admired cultivars.

KARYOTYPING

To count the number of chromosomes, treat a growing root tip with cells in various stages of mitosis with col-

chicine. This antimitotic agent dismantles the spindle fibers attached to each side of the kinetochore of the chromosome. The spindle fibers would have pulled apart the two identical, joined chromatids of the chromosome into two newly formed cells. We call these condensed structures arranged on the metaphase plate "chromosomes", yet these x-shaped structures are two identically replicated chromatids. You can make a squash of these cells, then stain and photograph all the chromosomes. Like ones can be arranged to form a karyotype that in humans has 22 similar X-shaped pairs, plus a pair of sex chromosomes, the X and small Y.



Edith Wolford TB (B. Hager 1986)

In a tetraploid iris, there would be 48 chromosomes, each composed of two chromatids, and you could arrange 12 sets of similarly shaped ones in rows of four. In plants, there are no distinguishable sex chromosomes. Some chromosomes have constrictions near their ends forming thinner, rounded satellites that can be deleted with their genes for various traits like those producing sexual structures. Flat-tops may be deletions that lost the genes to form upturned standards, stamens, etc.

DIVIDE AND MULTIPLY

In MITOSIS, cell division, the chromosome number and DNA sequence of nucleotides remains constant. However, a SOMATIC MUTATION can occur either with a deletion or addition of chromosome material or by a POINT MUTATION with a nucleotide change that alters the three base DNA code that changes the amino acid sequence in a protein and its function. Somatic mutations are called sports. In MEIOSIS, reduction and division, the chromosome number is halved ($2N$ to $1N$ in diploids or $4N$ to $2N$ in tetraploids) to produce gametes. Similarly shaped, (HOMOLOGOUS) chromosomes (homologs) with two identical CHROMATIDS produced in cell division I of meiosis join together (SYNAPSE) as chromatid tetrads in diploids and octets (8) in tetraploids. This joining together allows many CROSSOVERS to occur, yet more often in the tetraploids than diploids. This synapsing of chromosomes to find their partners in each set is one of the great miracles of life considering that some sexually reproducing organisms have over a thousand chromosomes. In meiosis division II, there is no replication of the DNA, chromosomes, or their kinetochores that hold the two replicated chromatids of the chromosome together. Meiosis division II, without replication, yields reduction of the chromosome number. In meiosis division II in diploids, there is a tetrad of four chromatids of a set of two similar synapsed chromo-

somes. In tetraploids there is an octet with eight chromatids to be separated into two cells. Which chromosomes of the pairs in diploids or the quartets in tetraploids that goes to either gamete is random, having either maternal or paternal origin. This is the independent, random assortment of the maternal and paternal chromosomes and of all their particulate genes that can determine inherited traits. Crossovers are more likely to occur in genes further from the kinetochore. Crossovers allow unlikely exchanges of paternal and maternal genes that change the expected gene frequencies in the gametes.

POGON LOWDOWN

Bearded irises are higher plants producing long-lived seeds with two seed coats. They are monocotyledons (meaning one seed leaf) with parallel vascular bundles in the leaves. Vascular bundles interconnect the whole iris plant appearing as veins in the flower parts. They are wrapped in strength-giving sclerenchyma and have phloem carrying nutrients down to the roots and xylem vessels carrying water, minerals, and nutrients up from the rhizome and roots. Large vascular bundles give stalks peripheral support; however, turgor pressure adds to the strength of the stalk that is lost if it is frozen or the plant is dug up while sending up stalks. Some rebloomers with winter hardy foliage have winter tender stalks that cannot withstand an early fall freezing frost and lose turgor pressure and collapse.

POLLEN GRAINS ARE PLANTS

Bearded irises, as higher plants, have an alternation of generation from gamete-producing gametophytes to dry tolerant sporophytes. There is a double fertilization, the first producing the zygote and the second producing the endosperm. When you make a cross you are adding hundreds of microgametophyte plants - the pollen - onto the stigmatic lip of the sporophyte. Less than 100 have a chance to succeed. Each pollen grain responds to the sugary solution on the stigmatic lip to grow, as fast as possible, a pollen tube down through the style arm and perianth tissues to the central placenta tissue of the three chambered ovary, each with its double row of ovules. You can cross section an iris ovary and take a look for yourself. Growing this microscopically thin tube takes about eight hours to reach the ovules in the ovary. The pollen tube will grow through the short ovule stalk into the micropyle opening of the ovule that is a microgametophyte plant. This allows the gamete ($2N$) sperm nucleus to unite with the ovum, the gamete ($2N$) egg, to produce the ($4N$) zygote.

All of the protoplasts that develop into chloroplasts come from the ovule and none from the pollen grain. The pod parent provides all the chloroplasts that power photosynthesis and plant growth and vigor. The zygote divides and develops into the multicellular new sporophyte plant embryo that is attached to an endosperm of stored food inside the seed. The endosperm comes from the second fer-

tilization when the second pollen tube nucleus enters the ovule and unites with two polar cells in the ovule to produce triploid (3N) cells in diploids and hexoid (6N) cells in tetraploids. The endosperm serves like a yolk sac that nourishes the germinating embryo. Only one pollen grain will doubly fertilize one ovule producing one embryo with its attached nutrient-rich endosperm. (Processed white wheat is all endosperm.) The developing seed coat covering comes from the sporophyte parent, while the embryo with its endosperm comes from two gametophyte parents. As you can see, this is quite different from the reproductive process in diploid humans. However, the end result is the same, two gametes unite to produce a zygote, doubling the chromosome number.

HE AND SHE

Irises are neither he nor she, but **HE AND SHE**, being functional hermaphrodites like earthworms. Both sexes are housed in one plant. Usually, they are pod and pollen parent fertile, but sometimes only pod fertile, pollen fertile, or infertile. Feel free to name irises with the first name of either males or females like 'Clarence' TB (*L. Zurbrigg 1991*) and 'Suky' TB (*C. Mahan 1991*). If you use first and last name, and they are living, you need a signed, consent letter from them, or if recently deceased from a first of kin to send to the AIS registrar. Naming irises to honor friends, family, and celebrities gives real satisfaction, and many like 'Edith Wolford' TB (*B. Hager 1986*), and 'Beverly Sills' TB (*B. Hager 1979*) have won

AIS awards and been commercial successes. An excellent cultivar sells itself, yet a good name can help. Names can define traits, such as 'Sky and Sun' TB (*D. Spoon 1999*), sky blue with bright sun-like yellow beards, and the deep purple 'Grape Harvest' TB (*D. Spoon 2005*) that smells like concord grapes. Short names are good for dwarfs as they have smaller writing surfaces on their fans.

FABULOUS FLOWER

Long ago, irises were called sword lilies for their sword-like foliage and flags for their three upturned standards and three down arching falls. (Standards are flags flown up above a castle and falls are banners hung down in front of a building.) Each petal, as a modified leaf, has a broad blade and a basal claw that is narrow in standards and broad in falls. Down the center of the fall's claw is the beard made of an elongate caterpillar-like tuft of thin epidermal hairs that add surface area to diffuse volatile oils and their dissolved perfumes. The standards arch over to form a domed

space where these fragrance-laden oils can be trapped and concentrated. The insect pollinator sees the broad petals from a distance and the contrasting beard as it draws nearer. Then, it detects the fragrance that increases as it lands on, or by, the beard and crawls down to the base of the fall's claw where the cup-like nectaries offer a drink of sugary liquid. On each side of the beards are the hafts where pigmented

veins point the way to the two nectaries. Beyond the beard, on each side of the arching fall, are the two shoulders of the fall.

My mother said the iris flower is like a cathedral with three petals lifted up to the Trinity and three petals turned down as our body, mind, and soul. She said each of us was the Creator's cathedral where we were granted our lives. She often told me to do nothing that would harm my cathedral.

It is a challenge to describe the beards, its colors and their distribution. The beard can be all one color or solid white. No one has yet produced a solid, inky black beard on a white flower. The base or throat, middle, and end can be different colors. The beard hairs are often white or pastel at their bases and tipped darker or a different color. I admire white-based hairs tipped violet as in MDB 'Lotta Dotta' (*D. Spoon 2011*). There can be a middle section of the hairs that is darkly pigmented sandwiched between the lighter end and base.

There may be more pigmentation, or a different color pigmentation, at the base of the standards and the falls. The standards may have different pigment patterns on each side and some falls have color on their bottom sides like our 'Sunny Butter'. There can be darker pigmentation down the center of the standards or falls called the midline. In plicatas, a line across the ground of the falls was called a "belly line". It now occurs on beautiful, modern cultivars. There is a dominant modifying gene with dosage effects for this dark line crossing the white or pastel colored ground. If this line were wide enough, it would make the two ground areas look like a cartoon character's eyes. In SDBs, a white or light pastel midline often dissects the darkly pigmented central pumila spot. At the end of the beards extending down the falls can be a light spike that is a dominant trait that is passed on to its offspring. If you break off a fall and a standard, you will have a better view of these color patterns in the standards, falls, and style arms.

The male parts of the flower are its three stamens composed of elongate anthers and supporting filaments. The stamen with its anther has two parallel pouches 25



Beverly Sills TB (*B. Hager 1979*)



Clarence TB (*L. Zurbrigg 1991*)

with thousands of pollen grains and looks like a slender double popsicle on a single stick. The female parts (ovary, style, and stigma) together are called the pistil – “the pistol packing momma”. The ovary below is connected to the other flower parts by an elongate perianth tube to the six petals and three inner style arms. Each style arm arches upward and outward with its horizontal, upturned stigmatic lip extended across the widest portion and topped with two, tapered, thin crests. There is a groove up the middle of the style arm on its out-facing surface where the stamen lies protected. Each style arm and its crests act like umbrellas shielding the pollen grains of the anther. Even in a light, driving rain, one style arm with its protected stamen may have dry pollen. The style arms are beautifully sculptured with an internal midline ridge that is often more darkly pigmented. The lateral sides are thinnest on their edges and the whole structure tapered down to its base. The edges are often a different color creating a beautiful pattern seen from above if the standards are erect or open and not closed. There is a “rule” that a flower with open standards should have an internal, beautiful pattern or lose points. A self with petals and style arms, all of one color, would not need such an inner color pattern to improve its beauty. This rule dictates that selfs must have closed standards. With increased substance, width, and ruffling many modern cultivars of necessity have open standards.



Laced Cotton TB (*Schreiner's 1980*)

COUNT YOUR GENES

Genes are particulate, not mixed as titers in the blood as proposed by Charles Darwin, who had copies of Mendel's papers in his study, apparently unread or unappreciated. Also, Darwin obtained 3 to 1 ratios of traits in his own pea crosses, yet died not knowing that genes are particulate. A linear location, LOCUS, plural LOCI, on a chromosome is the gene for a specific trait. In plant cells, most genes are in the linear DNA of the chromosomes in the nucleus; however, fewer additional genes are in the cytoplasm in the cyclic DNA of mitochondria and chloroplasts. Genes can be: 1. descriptive genes for recognizable traits, 2. modifying genes that can alter the degree of expression of the descriptive genes - may have dosage effects being most effective at four doses, 3. regulatory genes - called MADS box or just BOX genes that can switch on and(or) off a cascade of different gene expression - regulatory genes in humans and animals are called homeobox genes, 4. jumping genes, TRANSPOSONS, inserted into plant cell DNA by retroviruses, and 5. cytoplasmic genes in the mitochondria and chloroplasts. Cytoplasmic genes of the chloroplasts do not follow the genetic laws of Mendel. They are pod - maternally - inherited. Variegated foliage must be in the

pod parent to obtain it in the offspring. Most likely, other modifying genes in the chromosomes give a dosage effect.

ALLELE APPEAL

At each separate locus, it is possible to have only one, or two or more different alleles that can express different traits. ALLELE is an essential term in genetic discussions. The allele is the linear strand of DNA at a specific locus as the address of a specific trait. Factor is still used to denote just the trait, like the tangerine factor; yet now, factor usually means a molecule with a specific physiological action. The genotype (tttt) is the alleles at a locus on the four similar chromosomes in tetraploids, while the phenotype (tangerine beards or pink petals) is the expressed traits in the seedling. One dominant allele can prevent expression of three recessive alleles. There are several dominant gene loci for yellow (Y) carotenes. We say that yellow is dominant over the recessive tangerine (lycopene) allele, yet a flower can have a blend of yellow from xanthophylls mixed with red-orange lycopene to produce yellow-orange. If a cultivar has only lycopene, it could be a spectrum red or used in crosses to intensify and produce one.

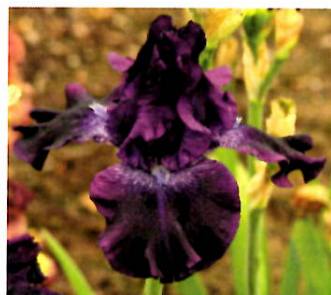
IN STITCHES

At the locus named plicata, there are at least eight different alleles for different expressed traits, with only four being present in a tetraploid; theoretically, in a cross, you could have all eight in both parents. First, there is the “no pattern” dominant allele (Pl) that produces a self with anthocyanin pigmentation in the petals and style arms. To be fully expressed, there must be four recessive doses of the allele, or it occurs only with other recessive alleles. Some recessive alleles can express their traits mutually, like in a pecking order, pl > lu > gl. Plicata (pl) has anthocyanin in “stitched” borders and around and in the beards, yet none in the central GROUND of the falls. Luminata (lu) has anthocyanin reduced in veins and around petal edges and none in beards or around beards. Glaciata (gl) has absolutely no anthocyanin in the flower. There are minimal plicatas showing reduced anthocyanin in their borders, yet the style arms may be dark violet, and those like the white ‘**Laced Cotton**’ TB (*Schreiner's 1980*) with no plicata pattern that with test crosses show it is a plicata. The genotype, (lu lu gl gl) produces a LUMINATA PATTERN, (lu lu pl pl) produces a FANCIATA PATTERN (described below), (pl pl pl pl) or (pl pl gl gl), etc. can give a PLICATA PATTERN, and (gl gl gl gl) a glaciata phenotype. In their flowers, glaciatas have no anthocyanins or their precursor molecules that turn violet in dilute HCl acid solution. In the past, (pl subscript a) meant “all white” for glaciata, then called “ices”. This notation is both difficult to type and a misnomer as glaciatas can be white plus any color or color pattern of yellow, pink, red, and orange. In the past, some of these patterns were called “fancies”. I single out as “fancies” only lumi-

nata-plicatas (lu lu gl gl) as the fanciata pattern having light veins and edges and an anthocyanin wash over the falls and anthocyanin around and in the beards. A modifying gene determines, with dosage effects, how very dark or very light the wash will be. All the cultivars with the luminata pattern I have studied with test crosses had to have two doses each of luminata and glaciata alleles. The (lu) allele may produce just the lightened veins, and (gl) the rest of the luminata pattern. I have yet to find a cultivar that I felt strongly was a four-dose luminata.

SPLISH SPLASH

Variegated flowers have a transposon inserted into the host chromosome that deactivates the single dominant allele at the plicata locus (Pl pl pl pl) so the three



Grape Harvest TB (D. Spoon 2005)

recessive plicata alleles can be expressed. When the transposon jumps off the (Pl) dominant gene reactivating it, the cells from its division produce anthocyanin pigmentation with the (Pl) self pattern. This jumping on and off creates the splishes and splashes of white or pastel and anthocyanin pigmentation.

Bryan Spoon selfed 'Millennium Falcon' TB (B. Kasperek 2000) and got 'Alessandra's Gift' TB (2011), the most vigorous variegated we grow, a rebloom carrier producing tangerine beards. It has two shades of jade in splishes and splashes plus a second variegation of violet wedges lined white. Michael Sutton's 'Breaking Point' TB (2007) has a variegated flower plus a nice space age adornment and reliable rebloom. One of the best parents for variegated flowers is the 36" tall 'Brindled Beauty' TB (A. Ensminger 1994).

LUCK BE MINE

My mentor, Dr. Charlie Nearpass, was convinced that to be a successful iris hybridizer you needed to learn all you could about their genetics. He told me how he planted about 1,000 seeds from a single cross he made to try and express together three recessive traits that had a probability of about one in 500. He was unlucky and got none.

Allan Ensminger spent forty years to produce a cultivar to honor his wife, 'Gladys My Love' TB (1998), that required expressing in one cultivar, three different recessives. He also worked many years to produce a good garden plant with variegated flowers plus variegated foliage. He got several, but none met his standards for introduction. Var-

iegated foliage has a portion of its blades that are white with no chlorophyll, so they have reduced vigor. Allan said his greatest successes came from following the lead of his seedbeds where he appraised over 250,000 seedlings. He



Millennium Falcon TB (B. Kasperek 2000)

was trying to make a red, white, and blue plicata to name 'Our Flag' TB (1964) and produced the line that has led to most of the beautiful modern cultivars with variegated flowers.

Brad Kasperek added greatly to this line and won a Wister Medal for his variegated 'Millennium Falcon' TB (2000). If your seedbed presents you with a new hybridizing goal, go for it. If you learn how to inbreed, you can reach difficult goals in two to three crosses in less than ten years. If you are both smart and lucky, you may reach your goal in one cross in two years. A single inbred cross (selfing, sibling, or back on parents) can increase a hidden recessive allele from two to four doses allowing its phenotypic expression. If there is only one dose, two inbred crosses can increase it first to two and then to four doses. Relying only on first cousin inbreeding requires many more crosses and seedlings to go from one to four recessive allele doses with phenotypic expression of the trait.

HOW TO CROSS

Make carefully planned crosses designed to reach a specific goal. If you can make the cross only one way, the more vigorous cultivar should be the pod parent that provides all the chloroplasts. The best pod parent flower is a newly opened one. It needs to have stigmatic lips moistened with its sugary solution that induces pollen grains to dehisce - burst open. An older flower will provide anthers with their two linear pouches opened, exposing the puffy, mature pollen. Anthers from a newly opened flower may not work; and once the stamen is removed, the pollen in the anther



Breaking Point TB (M. Sutton 2007)

makes no further development and remains immature. Gently remove all three stamens from the pod flower by grasping the thin, basal filament of the stamen and not the anther. Place a Postem® paper, cut square into a 5-cm plastic Petri dish, and with a pencil write date, name or seedling number, and goal. Place the dish with the stamens in an 8 ½ by 11" tray covered with the thick piece of paper on which you record your crosses and pertinent notes. The thick 20 weight paper (three hole punched) will shade the closed dishes that can heat up from the direct sun, and cause the pollen grains to die. Place a stamen, puffy side up, in your palm and with your best hand grab with tweezers the anther in its

middle. With the puffy side down, apply pollen to all three or just one of the stigmatic lips. The pollen tubes growing from one stigmatic lip can reach all of the ovules in the three chambers of the ovule. Use an up stroke followed by a down stroke. Do not repeat any swipes or pollen can be removed. You can use the thumb and forefinger of your other hand to hold the style arm crest and gently pry open each stigmatic lip. Wipe clean your palm and tweezers tips after each cross.

With pencil, write on a flexible plastic key tag, the date, cross number, and pod and pollen parents. Tie this tag on the stalk below the flower. This tag will follow the cross. When the seeds are planted, it can be secured with the cross sign wire or through a hole in the vinyl tag and will last several years. If rain is predicted within two hours after you have made a cross, cover the flower with an open Ziploc® bag with a corner cut out so heated air can escape. Record your cross using the "ladies first rule". Give the pod parent times (X) the pollen parent. Transpose with permanent ink or pencil, not ball points, all this cross information to bound record books. Keep them in a dry, secure location.

For the computer literate, do not trust your hard drive or backup discs, rather rely on a laser printed hard paper copy for your permanent cross record folders. Someday they may be kept in the AIS library. Never take your precious record books into the yard or on a visit. I make a second list of each year's crosses on thick sheets written in permanent ink that are held in a clipboard or in a three ring notebook that can be taken into the yard or on a visit to discuss with others. A laptop with your photographs is a great way to share your successes with other hybridizers. A planned program of your best seedlings will be appreciated. But let them share theirs too, you don't want to be an "iris borer".

LONG LIVE POLLEN

Pollen kept in 5-cm closed plastic Petri dishes in cold storage (45 F) will be viable up to six weeks and some survive three to four months. You can save SDB pollen to cross with TBs a month later. To insure pollen longevity, store your closed dishes with stamens in the refrigerator except when you are out hybridizing. Frozen, in folded pieces of plastic film or gelatin capsules, pollen lasts over a year. However, once thawed the pollen must be used in a few days and not refrozen.

POD CARE AND SEED PLANTING

If you gently remove the two spathes or leaf-like valves at the base of the flower after you make the cross, aphids can not hide under them from predators like beetle larvae. Aphids can harm the developing pod. You can cover the pod, once the flower parts are fully dried, with a loose, porous fabric secured at the stem with a twist tie, so verbena bud moths can not burrow into the pod and eat 10-30% of the seeds. The fertile ovary will swell into a pod in weeks, and in two months will turn tan, crack open, and the

seeds fall out. Avoid this by harvesting the mature pod and removing the seeds to a labeled paper lunch bag that is fully porous to air, but not impermeable plastic bags. Double fold and crease the bag edge to ensure the seeds will stay inside and store upright in a cool, dry location in a larger open paper bag. I arrange each bag with its seeds from one pod as to goals and renumber them, such as #2011-1. This way, seedlings for the same goal will be close together for crossing. I record in the permanent record books the original cross number as on the field record sheets. In TBs, the pods may be as big as walnuts and have up to 100 seeds, in dwarfs, pecan sized with up to 50 seeds.

Plant directly into seedbeds in late October through early November at least 3 inches apart, in rounded depressions ¼" deep or twice the seed thickness, then covered with a little soil and gently patted flat. A ¼" layer of pine mulch can prevent rain from dislodging the seeds to the surface. Plant seeds in pots - at least one gallon size - 1-2" apart and cover with a ½" mulch of short pine needles. With pots, usually the seeds that do not germinate the first year are discarded when you transplant the seedlings; but you can hold the pot for another year or more and transplant the remaining seedlings that germinate. Do not let the seedbeds or pots dry out. In northern zones, the pots need to be in contact with the soil and mounded with sand. You can cover the seedbeds and pots with wire to keep out animals. In zone 6b, seedlings begin coming up in early April. When the seedlings planted in pots have 4-6 leaves, replant them in seedbeds at least 6" apart. In soil, seeds can germinate for up to 5 years. You may get 40-60% germination the first year and 10-20% more the second year. Seedlings that come up in seedbeds the second year can not compete with larger seedlings that came up the first year and to survive need to be transplanted to a separate seedbed.

STRATIFY?

You may want to try moist stratification in a refrigerator of the seeds from a cross by placing them in a porous fabric bag. This method was developed by John Weiler and perfected by George Sutton. I have used it often, but prefer planting seeds directly in a seedbed. You can make closed bags for the seeds from a cross with a 6" square of muslin labeled with a permanent marker for the cross. Purse the edges and tie tightly with a twist tie. Place the bags with securely enclosed seeds in a cut off milk bottle as a low tray. Fill the tray to cover the bags with water and store in a cool place. Rinse the trays daily for 7-10 days to remove germination retarding chemicals like abscissic acid. Pour off most of the water and refrigerate them below 50 degrees F for 90 days of vernalization. A maximum-minimum thermometer in the coldest part of the refrigerator can prevent freeze damage. The bags may need added water about once a week to stay slightly moist. Check them at 70 and 80 days for emerging roots and before the roots elongate and penetrate the muslin. Sutton uses sections of stockings with a finer

mesh. You may get nearly 100% germination. However, the procedure has lots of chances for failure and is very difficult to master, especially planting the brittle embryos. Try it first with some less valued crosses or "bee" pods.

UNINVENTIVE INCENTIVES

Dominant genes of cultivars usually express wild type traits from species that created the hybrid. Modern traits for flower form, like wide and ruffled petals, come from recessive genes and their modifying genes. To be expressed, these traits from recessive genes must occur in four doses in tetraploids. In diploids, the Punnett square for the gene frequencies of Aa (dominant plus recessive allele) $\times Aa$ gives a potential of one in four offspring as aa expressing the recessive trait and three expressing the dominant. In tetraploids, the similar cross of $AAaa \times AAaa$ with a Punnett square predicts one in 16 $aaaa$. However, yields are nearer to one in 36, nearly a ten fold increased difficulty to express recessive traits in tetraploids compared to diploids.

AIS judges who place flower form above all else in a cultivar in competition for awards add decades of hybridizing efforts for a new form, color pattern, or color break to be acceptable to them as "a good garden flower". We must also ask if such "modern form" can create oversized, heavy flowers that with rain can hardly open or close without rotting. Maybe, as one British author suggested, the natural, graceful lines of the wild iris flower are being lost. Those who write the AIS handbook guidelines need to ask, "Is this a wise incentive?" Also, should the three bud terminal goal that can lead to undesirable flower bunching be so highly valued, and is the seven buds per stalk minimum requirement for TB seedlings narrowly restrictive? Many good seedlings do not appear at shows for the general public because of this "bud counter's rule". Bud counts of seven or more should never be used to rank higher a seedling of less overall quality. Bud count is just one trait, and one that is highly dependent on growth conditions, climate zone, and seasonal influences. We planted about a hundred TB cultivars from our gardens in Virginia to the Biosphere II site in Oracle, AZ and watched them growing there for three years. In general, the cultivars with 5-7 buds in the East had 7-11 in the West and had bigger flowers with more ruffling. Some like 'Silverado' TB (Schreiner's 1987) were excellent in both the East and the West.

TWO PIGMENT PAINTS

Most pigmentation of the flower is in the upper and lower epidermal cells. The water-soluble violet, blue, maroon, and cardinal red anthocyanin pigments are in the central fluid vacuoles. The lipid soluble yellow xanthophylls and carotenes plus pink, red, and orange lycopene pigments are

in the cytoplasm. (Lycopene - a carotene - has no six-carbon rings on its two ends and does not dissolve in alcohol as do yellow carotenes and xanthophylls.) I call the water-soluble pigments ANTHOCYANINS (or "CYANINS", abbreviated AC) and the lipid-soluble pigments CAROTENES (CT). There are different genes for pigment expression in the beards. A SELF can be one color yet have beards of a different color. A COMPLETE SELF has beards of the same color. Most of the color patterns in anthocyanins are also found in carotenes. Anthocyanins and carotenes are



Queen's Circle TB (F. Kerr 2000)

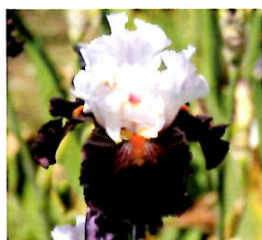
independently superimposed onto one another as if painted on two separate, overlaid sheets of transparent plastic.

IA IC

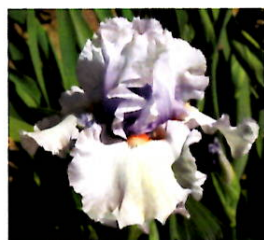
There is a dominant inhibitor of anthocyanins (IA), and one for carotenes (IC) at a separate locus. {I add an A to the I so I will not have to write (Is) in the next sentence that is the word is.} (IAs) inhibits anthocyanin only in the standards producing amoenas, classically with white standards. As hybridizers, we know all the carotene pigment patterns can occur, so a dominant anthocyanin amoena can have white, as well as yellow, pink, or orange standards and be bicolors. The IA gene by inhibiting anthocyanin pigments in standards, style arms, and falls is responsible for most white, yellow, pink, and orange selfs. One dominant dose can remove most of the anthocyanin. However, you will know these cultivars are not glaciatas as there is always a tiny bit of anthocyanin pigment at the base of the falls. Also, dilute HCl acid turns the flower violet, yet does not in glaciatas with no anthocyanin precursor molecules. With IA inhibition, the anthocyanin is chemically cloaked but still there, while in glaciatas there is absolutely no anthocyanin or its precursor molecules. It appears that this IA gene has a dosage effect and with four dosages white is whiter and the carotene pigments are purer and less greyed with the light lavender blue of anthocyanins. Often this light lavender blue wash with low dosages of IA is removed after a few hours of exposure to sunlight as in Lloyd Zurbrigg's 'Immortality' that then turns into a pure white.

SWEET AMOENA

Amoena - means pleasing - was once just recessive amoena in bearded irises with difficulties for its expression in tetraploids; yet it came with smooth hafts. Paul Cook crossed yellow *I. reichenbachii* with TB 'Shining Waters' TB (E. Essig 1933) producing 'Progenitor' IB (1951) and by a series of back crosses to TBs secured the IAs gene (dominant anthocyanin inhibitor for standards only) producing 'Whole Cloth' TB (1958). He discovered a plicata-like, yet solid anthocyanin border pattern, and named it for his wife, 'Emma Cook' TB (1959), the EC pattern, an IAs variant as in 'Queen's Circle' TB (F. Kerr 2000). 29



Starring TB
(J. Ghio 2000)



Friendly Fire TB
(K. Keppel 2003)



Hollywood Nights TB
(R. Duncan 2001)



Feature Attraction TB
(Schreiner's 1994)



Paul Black TB
(T. Johnson 2003)

The IAs gene is a good example of descriptive gene with DOSAGE EFFECTS. (A term with a long history is "NEGLECTA" meaning a bitone of violet-blue anthocyanin pigments with the standards lighter than the falls as in the lovely 'Mystique') Four doses of dominant (IAs) produces an AMOENA with no anthocyanin in the standards that can be white, yellow, pink, peach, or orange. Three doses (IAs IAs ias) give a SLIGHT BITONE. Two doses gives a BITONE with lighter S. One dose gives a bitone with slighter lighter S. than the F. (as a violet-blue NEGLECTA), and four doses of recessive (ias) gives an anthocyanin SELF. I propose a gene (A) at a different locus for dominant anthocyanin self that is darker and smoother than the plicata (PI) self. Crossing a plicata with all recessive genes on a self may remove all (PI), and then the (A) will express a darker, smoother violet self. This also works for anthocyanins like cardinal red and spectrum blue. Amoena can be added to other patterns like plicata expressing the plicata pattern only in the falls.

TOPAMOENA

Reverse amoena is when the anthocyanin pigment is more pronounced in the standards than in the falls. It appears to be at a separate locus and this trait is dominant with dosage effects. Many are trying to reach the goal of solid black standards with white falls and spectrum red beards. This seemed a distant goal for the regular dominant amoena pattern, but Joe Ghio showed it could be done with his gorgeous 'Starring' TB (2000). Keith Keppel won the Dykes Medal with the violet-blue reverse amoena 'Crowned Heads' TB (1997), but he may have topped it with his orange bearded 'Friendly Fire' TB (2003) and Wister Medal winner 'Wintry Sky' TB (2002). There are many beautiful color patterns like yellow and brown in reverse amoenas.

FLOWER POWER

SUBSTANCE is the thickness, turgor, and strength of the flower parts that supports them in wind and rain. When frozen, this substance disappears and the petals lose their whiteness and are translucent and drooping. TEXTURE is the surface of the flower parts like velvety falls that give them multicolor, shining sheen. DIAMOND DUSTING or GLITTER is produced by the raised epidermal cones acting as prisms. GLITTER can appear white, golden-yellow, or pink. SILVER LINING, produced by epidermal ridges, creates shining lines on petal edges as in 'Sky and Sun' TB (D. Spoon 1999). The color white in irises is

produced by the ability of the epidermal cones to produce a full spectrum of light as big enough droplets of atmospheric water make white clouds. A frozen flower shows no white pigments in any pattern.

FRINGING AND BUBBLES

Lace (petal fringing) is variable. Lace is neither dominant nor recessive, coming from either parent and may require modifying genes with dosage effects to be expressed. Lace can be slight toothed crenulations, pointed fringes, bubble lace as small, raised hemispheres, or even rare, long and pointed as in 'Feathered Friend' BB (A. Ensminger 1981), like in laced tulips. Some older laced cultivars were cold tender and prone to bacterial soft rot. These undesirable traits have been bred out of modern laced cultivars. Lace used to be restricted to pastel colored cultivars like 'Feature Attraction' TB (Schreiner's 1994), but now heavy lace is appearing even in violet blacks like 'Hollywood Nights' TB (R. Duncan 2001). Nicely laced rebloomers are rare, suggesting a good goal.

RUFFLING AND FLUTING

Heavy ruffling and wide petals are hallmarks of modern flower form and considered by some hybridizers and garden judges to be required for introduction. I believe that smooth edged petals called (TAILORED) are also beautiful. Tailored MDBs and SDBs with narrow blades and petals are delightfully petite and dainty. Some believe even their petals should be wide and ruffled. Graceful, sinusoidal RUFFLING can be lovely. Ruffling, like in a Dutchman's collar or roller coaster, is called FLUTING. Heavily ruffled and laced, wide flowers with heavy substance require especially sturdy stalks and strong anchoring roots. It is encouraging that a cultivar with moderately wide falls like 'Paul Black' TB (T. Johnson 2003) has been awarded the Dykes Medal. It makes a commanding presence in the garden with its great, sturdy stalks and beautifully ruffled dark purple-blue flowers with contrasting orange beards.

FLOWERS AND FLAT-TOPS

Standards can be CLOSED at the top hiding the interior, ERECT showing the interior pigment patterns, OPEN, or even pointing outward. Falls can be horizontally flared, FLARED in a waveform, slightly arched, ARCHED, or UNDERCURRED (tucked under). Charlie Nearpass had a system of five stars for evaluating his seedlings. He only gave five stars to one seedling he named for his daughter,



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'My Katie' TB (1987), a tall bearded with wide, beautifully flared falls. Recently, some have tried to impose their "personal rule" that tall-stalked TBs should not have flared falls, as they should be viewed from a considerable distance where arched falls show more color. I prefer viewing a clump directly in front of it so you look down on all the falls, flared or arched. The standards and falls of irises are all petals, and they have no sepals. Bearded irises and daylilies lost the box gene for sepal development while doubling the box gene for producing petals. In irises, the regulatory gene for one set of three petals mutated to produce upturned standards. FLAT-TOPS have no standards and six falls, and no stamens. All flat-tops are sterile, but can make great garden plants, and some are reliable rebloomers. Iris flowers are bilaterally symmetrical coming from two cells each producing ½ of the flower split down the middle of one fall and between the two falls on the other side. A point mutation at later divisions produces CHIMAERAS (or chimeras) with a petal or streaks of a different color or white. Some chimaeras have ½ the flower white and the other half pigmented. (Rarely, this happens in animals as in a cardinal that is white on one side and normal red colors on the other side.) Box genes control different realms or areas of the flower turning on and off many different genes.

This is sometimes seen at the end of the hafts and beard and the rest of the fall or at the shoulders where the fall arches over and deeper pigmented THUMBPRINTS can occur. The fall blade has concentric realms for control of multiple borders ending in dark HAIRLINE EDGES as in



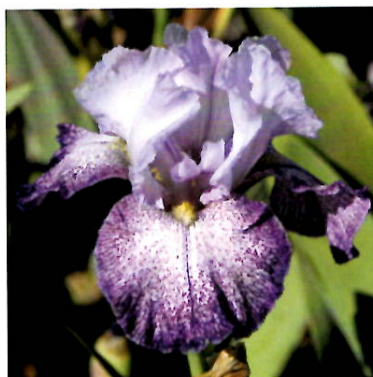
Immortality TB
(L. Zurbrigg 1982)

'**Splashacata**' TB (R. Tasco 1998). One carotene border is the HALO, a recessive trait perfected by Dave Niswonger, as in '**Halo in Rosewood**' TB (1993). Borders with no anthocyanin pigment is an UMBRATA (shaded as by an umbrella) pattern, with anthocyanin only in the central area of the falls. This umbrata white or carotene border can be narrow as in '**Joy Joy Joy**' TB (A. Ensminger 1996) to wide and may be controlled by a modifying gene with dosage effects. Hybridizers are approaching umbrata patterns so wide in bearded irises that the central anthocyanin area forms small dark spots at the end of the beards resembling the signal spots in aril irises. Arils are bearded irises, some have larger standards above undercurved falls.

I'LL BE BACK

Bearded iris REBLOOMERS (RE) of similar form, color, and pattern may eventually replace look-a-like SPRING BLOOMERS in many gardens. The buying public appreciates iris cultivars that extend the bloom season for two

weeks or more into late summer and fall. Beardless and a few bearded cultivars can be REPEATERS (RP) putting up additional stalks in June or July. Rebloomers have lost wild type, dominant traits by selection of four doses of recessive alleles: 1. LOSS OF SPRING ONLY BLOOM CONTROL. No rebloom is possible without four doses of recessive alleles of the gene locus that is called *Frigida* in *Arabidopsis*. Cultivars with these four recessive doses, yet do not rebloom in any zone, that can produce rebloomers when crossed on rebloomers are called REBLOOM CARRIERS (REC). Fall rebloom (FRE) is coupled with earlier growth and stalk formation in the spring when late frosts may occur. Rebloom in the fall will be at a similar photo-period (hours of sunlight) as in the spring. 2. LOSS OF PHOTO-PERIOD CONTROL. Any of the dominant genes that produce photo-period control in four recessive doses can add shorter day, summer and longer day, later fall rebloom (SFRE). 3. LOSS OF SUMMER DORMANCY CONTROL. Four doses of recessive dormancy alleles will remove the dominant summer dormancy controls allowing better midsummer rebloom in late June and July. If all three traits are four dose recessives, you can have MULTIPLE (three or more) rounds of blooming and reblooming occurring throughout the growth season, or ALL SEASON (ASRE), for your climate zone. Your growth season may be down to six months in zone 4 and up to 12 months in zone 9. Our all season rebloomer BB, pink and peach with tangerine beards, '**Midsummer's Eve**' BB (D. Spoon 1999) sometimes puts up stalks with the MDBs and continues all season until the hard frosts of late November. It is from the cross, 'Immortality' X pink 'Enchanted World' and shows that '**Immortality**' TB (L. Zurbrigg 1982) carries two doses of recessive tangerine factor allele. There are only about 25 such all season rebloomers, and beginning hybridizers should secure the best of them for their collections. It is best to cross all season rebloomers on one another or cross them back on their parents or on siblings to keep all four recessive allele doses for all three of the required traits.



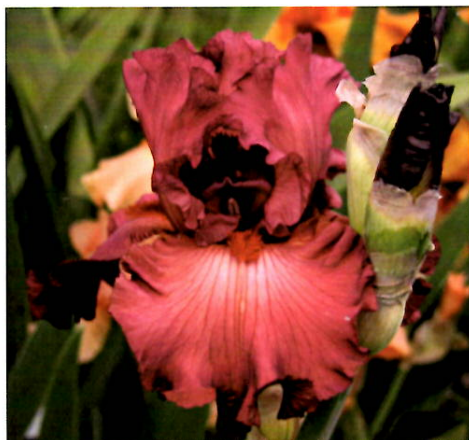
Splashacata TB (R. Tasco 1998)

Rebloomers need support from high doses of dominant genes for vigor, increase, and resistance to bacterial soft rot, other diseases, and pests. Without extra watering in prolonged summer droughts and added fertilizer in mid summer, late summer and fall rebloom may be minimal. This limitation does not apply to some historic rebloomers like '**July Sunshine**' TB (G. Brown 1965) that can rebloom without extra watering and fertilizer. This valuable trait needs to be added to modern rebloomers. To record a cultivar as reblooming in your zone it must at least open the top flower before a freezing frost hits the stalk. Some rebloomers

are SPORADIC, meaning they seldom rebloom. This is not a reliable rebloom, yet it can be used in crosses as a rebloom carrier. Rebloomers that are reliable only in zone 8 and 9 when crossed on rebloomers from colder zones, 4 to 7, can produce offspring with reliable rebloom in these colder zones.

LYCOPENE SCENE

Pink, peach, red, yellow-orange, and orange are produced by the carotenoid pigment, LYCOPENE (LP). This recessive allele (t) for lycopene expression in four doses (tttt) produces the "tangerine factor". Orange is probably a combination of lycopene with yellow xanthophylls. If no yellow pigment is present as in some beards, the color is a true spectrum red (RHS 43A) as can be seen in the beards of **'Signal Red'** TB (D. Spoon 2006) and **'Code Red'** TB (J.T. Aitken 2003), whose color can vary with



Code Red TB (J.T. Aitken 2003)

cultural conditions. If any red color remains after removal with alcohol, even deep in the beard throat, the genotype is (tttt). If one yellow dominant carotene gene is present, no lycopene is made. A SDB sibling cross I made produced a glaciata seedling with no anthocyanin and a cardinal red seedling. This showed that cardinal red (RHS 53A) is an anthocyanin pigment and not due to any lycopene. Combining cardinal red anthocyanin with red lycopene in the petals produced a good flag red color (RHS 46 A/B) in our TB for 2013, **'Red Hot Momma'**. The IC gene, dominant inhibitor of carotene, has a dosage effect. Four doses (IC) make white flowers. Genes for the beards are different so they can be red-orange on a pure white flower as in **'Christmas Rubies'** TB (M. Hamblen 1978). Four doses recessive (ic) give the most intense pink pigmentation as in **'Ovation'** TB (C. Tompkins 1969). There are many paths to producing the first signal or spectrum red (RHS 43A) self. A difficult pathway is with recessive glaciatas that would produce a translucent, luminous red color. Progress with orange and red glaciatas could be quite rewarding. However, working with recessive glaciata can be challenging.

BUZ LIGHTYEAR

Space age (SA) irises have adornments as petaloids at the end of the beards. Some have two on each fall. They can be pointed HORNS (HN) with and without beard hairs, elongate SPOONS (SN) with narrow blade-like tips like a teaspoon, elongate FLOUNCES (FN) with broader ruffled ends, bouquet-like POMPONS (PN) (my term) on

thick claws, to the **'Nth Degree'** TB (2010) by Tom Burseen, and beyond. In space agers, box genes for directing formation of the falls have been turned on in thick masses of cells at the ends of the beards to produce three new modified fall petals or petaloids. A pattern such as the border recessive halo, EC dominant border, or plicata is similar to the falls extending down the new "SA petal" (my term) as seen in **'Momentous Occasion'** TB (G. Sutton 2000).

Earlier, other hybridizers had this Space Age trait appear in their gardens; but it was Lloyd Austin who championed them. Many of his introductions are retained in historic collections. His initial cross was a selfing of Sidney Mitchell's **'Advance Guard'** TB (1945), and some early SAs had falls with unattractive middle crimping and vigor problems. Now SAs, like those of Lloyd Zurbrigg, Jim Hedgecock, George Sutton, and his son Michael Sutton, lack such problems and can be great garden plants. Three Space Agers, **'Thornbird'** TB (1989), **'Conjuration'** TB (1989) and **'Mesmerizer'** TB (1991) by Monty Byers, won the Dykes Medal.

A good SA parent that carries rebloom is Manley Osborne's **'Sky Hooks'** TB (1980). Crossing SA X SA can yield diverse results yet also deformed monsters. The SA gene is dominant, so use the most vigorous parent as pod parent, usually the non-SA. Ideally, a cultivar should have all flowers with the same kind of SA petal.



Mesmerizer TB (M. Byers 1991)

The full development of the SA petals is determined by climate and culture as seen in space agers such as **'Thornbird'** TB (M. Byers 1989) that can have horns or spoons. The development of new SA cultivars has already reached amazingly unexpected levels. Being dominant, SA petals could adorn any other goal. Ben Hager believed adding space age adornments should give a "lift" - as to fly - to the beauty of the flower, as in the sky blue **'Lady Sings the Blues'** TB (2009) by Jim Schroetter.

SMOOTH HAFTS

Recessive anthocyanin amoenas have SMOOTH hafts lacking haft marks with darkened veins. I believe that the dominant wild type gene for this locus is HAFT MARKS that act as guides to insect pollinators to the nectaries at the base of the falls. This dominant may have dosage effects. One dose would be haft marks beside the beards, two doses they extend into the shoulders or like a sunburst around the beards, three doses they extend half or more down the falls as in **'Panama Hattie'** TB (J. Begley 1995), and four doses, the whole falls as in Ben Hager's **'Anything Goes'** TB (1988). Another explanation is that a modifying gene with

dosage effects is involved. Haft marks were once avoided like the plague, but now can be beautiful.

LOTTA DOTTA

I propose that at this haft locus are recessive alleles for anthocyanin pigmentation above the vascular bundles (LINES) and small spots (DOTS) between the bundles. Having two doses of each you get the lines and dots ("speckles") pattern of 'Expose' TB (*J. Ghio 2004*) with its umbrata border. George Shoop's 'Fancy Tales' TB (1980) is one of its ancestors. Stitched plicatas can have anthocyanin borders that are solid, just lines, just dots, or both lines and dots. I believe that the haft recessives lines and/or dots pattern has been superimposed on the recessive plicata pattern. The unique 'Splashacata' TB (*R. Tasco 1998*) out of plicata 'Purple Pepper' TB (*D. Nearpass 1986*) has both lines and dots, but 'Celestial Explosion' TB (*R. Tasco 2004*) has



Inside Track TB (*K. Keppel 2002*)

only dots, possibly with four doses of haft locus recessive alleles for dots. Placing on top of the plicata this line pattern we have dark veins running across the white ground as in our spider series such as 'Spiderman' SDB (*D. Spoon 2005*) out of 'Bordeaux Pearl' X 'Dinky Circus'. We usually think of plicatas as having white grounds in their falls, yet it can be yellow, peach, and even yellow-orange as in the gorgeous Dykes Medal winner 'Drama Queen' TB (*K. Keppel 2003*). With his black plicatas like 'Inside Track' TB (2002) and 'Oreo' TB (2004) Keith Keppel may be conjuring up a spooky black plicata with intense orange ground. Maybe you will give it a spectrum red ground with an overlying spider web of dark veins.

ZONALS, SUNBURSTS, AND WHISKERS

There are color patterns where the anthocyanin is missing or reduced around the beards. There appears to be two kinds of ZONALS. The first zonal is where an area around the beard is white or pastel being completely without anthocyanin with defined, dotted, or serrated border. 'Full Impact' TB (*Schreiner's 2001*) has such zonals in both the standards and the falls. The second zonal has pigmentation that grades from very little to more as you move from the beards to the fully pigmented periphery of the falls as in 'Victoria Falls' TB (*Schreiner's 1977*). This grading light zonal is present in many of the top awarded anthocyanin and carotene cultivars as it really sets off the beards. Both types of zonals appear to be recessives with the first (zn) probably at the plicata locus and the second (z) may be at the (A) anthocyanin locus I have proposed. Another anthocyanin pattern is where the areas between the pigmented veins



Orchid Dove TB (*D. Spoon 2007*)

are wider and produce a white or pastel SUNBURST (sunspray) effect in a semicircular area around and beyond the beards. These appear to be recessives as well, and there may be several kinds at different loci. In SDBs, the anthocyanin pumila spot in the middle of the falls is dominant over not having this spot. This PUMILA SPOT can have radiating pigmented veins forming dark WHISKERS extending out from the end of the beards as in SDB 'Snow Tree'. This whisker pattern in the center of the falls is rare in TBs like in my zone 8 rebloomer 'Plum Pretty Whiskers' (2003) that needs some improvements.

CAROTENE PATTERNS

Recessive carotene amoenas with white standards and yellow, peach, pink, or orange falls offers many challenges to the hybridizer, with white standards, spectrum red falls, and blue beards being the greatest challenge. Superimposing recessive carotene amoena on dominant anthocyanin



Again and Again TB (*S. Innerst 1999*)

amoena can produce black amoenas. The carotene pattern in yellow 'Again and Again' TB (*S. Innerst 1999*) is similar to the anthocyanin pattern in 'Suky' TB (*C. Mahan 1991*). The carotene can be darker in the falls center as in Griff Crump's lovely 'Coral Chimes' IB (2007) and for anthocyanin orchid pink in 'Orchid Dove' TB (*D. Spoon 2007*). A

carotene border can be superimposed on an anthocyanin border to produce a brown or black border. Most patterns in anthocyanin can occur in carotene, superimposed or separate, yet the carotene patterns are more likely to be recessive. Jean Witt and Lynn Markham expressed their belief that the anthocyanin pigment patterns could all occur as similar patterns in carotene pigments. Our new knowledge of box regulatory genes might explain this as box genes determine which of the two pigment systems are activated or deactivated in the various realms (areas) of the flower to produce the various pigment patterns. Central to this controversy is whether there is an amber colored carotene that is not an anthocyanin pigment. Pigment extraction and analysis is fairly easy and inexpensive, and such procedures could be useful for a truth seeking hybridizer.

HEAVEN SCENT

A pleasant fragrance can add greatly to a cultivar. Presently, the AIS registration form only asks you to check absent, slight, or pronounced and sweet, spicy, or musky. To me a "pronounced musky" smell would be unpleasant 33

ant, and there are many spice fragrances. I never met a bearded iris I did not smell and have found many other distinctive scents other than just sweet, spicy, and musky to describe them. We have about 400 different smell receptors in our nasal epithelium and can distinguish about 100,000 different fragrances. Earlier, there was an AIS fragrance robin ably led by Libby Cross of Region 4, and back then fragrance was considered more important. Maybe the AIS registration form will be changed and allow us to write in grape, vanilla, chocolate, allspice, clove, rose, etc. for cultivar fragrances.

The genetics of fragrance seems to be dominant with dosage effects, so cross together the best scented ones. Libby chose the best scented rose amoena I grew for her namesake, **'Libby Cross'** TB (2010) that won the Region 4 Nearpass award for best introduced cultivar. Our **'Secret Santa'** TB (2009) and **'Daughter of Stars'** TB (2001) have especially pleasant fragrances. At our 2003 AIS National Convention a visitor in her 90s, in a wheelchair pushed by her son, stopped in front of a clump of my **'Uncle Charlie'** TB (1999). I gave her a flower to hold. She put her nose into the flower and after a long pause she looked up at me and said, "This is how Heaven will smell". Most irises have unique fragrances. Nearly blind at ninety-two years old, hybridizer Frank Jones was brought by a friend to our fall show. When he was led up to the stalk of one of his own introductions, he smelled it and said with a knowing smile on his face; "This is my **'Grape Adventure'**".

X FILES

Here are some other useful hybridizing notes. Wide as well as long beards are dominant to narrow and short. Cross cultivars with widest and longest beards together. Sturdy stalks are dominant to stalks that routinely fall over. It may be better to save an exceptional seedling with this one recessive trait and make the cross to give it sturdy stalks. Using a cultivar with just one dose of dominant allele for sturdy stalks will produce some good ones, and four doses will give all offspring with sturdy stalks. Purple base foliage is dominant to lacking it. Crossing two cultivars with PBF can produce seedlings with expanded distribution of the purple pigment. Cultivars like **'Opalescent Dream'** TB (O. Brown by P. Black 2003) with spathes that stay green are rare. This trait is recessive and you need to find another cultivar with it for your seedlings to have this trait.

A point mutation in **'Beverly Sills'** TB (B. Hager 1979) changed this coral pink cultivar into a white cultivar that was introduced as **'Beverly in White'** TB (J. Harris 1999). Lace only in the style crests means the cultivar can produce laced offspring if crossed on a laced cultivar. Cultivars

that bloom earlier in the spring season is an indication they may be rebloom carriers, that do not rebloom, yet crossed on rebloomers produce rebloomers. Crossing two rebloom carriers that do not rebloom may produce reliable rebloomers. Two cultivars, each with only two doses for fall rebloom, may produce reliable rebloomers with four doses. Multicolored (green, white, creamy yellow, and plum) variegated foliage cultivars produce foliage you can sell to florists for flower arrangements. We need more vigorous cultivars by crossing the most vigorous pollen parents on multicolored variegated foliage pod parents.

GREEN SCENE

Violet blue (VB) and spectrum blue (RHS 105B/C or true blue – BL) are two separate anthocyanin pigments controlled by separate dominant genes. Inbreeding can isolate most of the spectrum blue from the violet blue as in our **'America the Beautiful'** TB (2000) from selfing **'Daredevil'** TB (K. Keppel 1988) or completely isolate only spectrum blue as in our SDB **'Mir'** (2011).

John Weiler isolated the spectrum blue in his light turquoise **'Navajo Jewel'** TB (1984) that I crossed on lavender blue **'Clear Day'** TB (J. Gatty 1989) producing my turquoise and sky blue blend, **'Sky and Sun'** TB (1999). A cultivar with only spectrum blue times a spectrum yellow can produce a true green, turquoise, or teal color. Crossing a cultivar with violet blue to lighter lavender-blue times a yellow cultivar may produce greyed green or olive offspring, but not a pure, spectral green color.

COLOR ME BEAUTIFUL

Some judges feel that muted, greyed colors are "muddy". Any catalog for expensive clothes will show these colors are considered choice. I say greyed shades and pastel tints of the basic hues are equally as attractive as "rich", intense spectral hues. I consider such views as prejudices based on one's own eye for what is beautiful. The real question is "As a whole, is the cultivar clump with its stalks and flowers a thing of beauty". For **'Thornbird'** TB (M. Byers 1989) this is a resounding, "Yes".

RHS 4 ALL

All hybridizers should be strongly encouraged to describe their registered cultivars using the RHS (Royal Horticultural Society) color charts that are used by most plant societies. The RHS charts are expensive; however, older sets are still usable and AIS affiliate clubs could purchase a new or used set for their hybridizers. They are free, on line with the Azalea Society, but you can not make a print copy.

MINDS IN LINE

It would be helpful if all hybridizers used an alphanumeric naming system for their seedlings giving the year and cross number with seedling designating letters; especially



Sky And Sun TB (D. Spoon 1999)

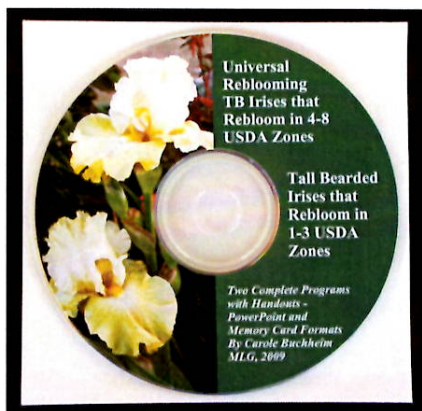
for recessive traits, like orange beards and rebloom, that can vary greatly among siblings. (Example: #2011-75 B.OR/FRE.) The AIS printed registrations are communications to other hybridizers and could be in a more uniform language. We use abbreviations E, M, and L for early, middle, and late bloom times within each class, and VE (very early) and VL (very late). We use S, F, and B, for standards, falls, and beards. I suggest we use ST to abbreviate style arms. I prefer using VAR for variegated flowers. The color is not "broken" but pied, batik, or brindled. "Variegated" has priority and BC means bicolor. VRF could be used for variegated foliage. Other abbreviations are: PBF-purple base foliage, SF-self, CSF-complete self, BC-bicolor, BT-bitone, NG-neglecta, AM-amoenia, RAM- reverse amoenia, VG-variegata as yellow S. and maroon or ruby red F., PL-pliata, LU-luminata, FC-fanciata, GL-glaciata, UM-umbrata, EC-Emma Cook, SA-space age, BD-blend, SB-sunburst, and ZN-zonal. A color has three properties: 1. HUE, its color in the spectrum (ROYGBIV), 2. INTENSITY, and 3. ADULTERATION with either white to give pastel TINTS or mixed with grey, black, or its complementary color as blue for orange to give SHADES. Abbreviations for basic colors are: WT-white, BK-black, GY-greied, PT-pastel or whitened, LT-light, DK-dark, R-red, OR-orange, Y-yellow,

G-green, BG-blue green, BL-blue, PR-purple, VB-violet blue, VT-violet, LV-lavender, PK-pink, PC-peach, MU-mauve, BN-brown, MN-maroon, TN-tan, TQ-turquoise, TL-teal, and OL-olive. You can hyphenate some of these like R-OR for red-orange, Y-OR for yellow-orange, Y-G for yellow-green, etc. These abbreviations are useful to record the traits of seedlings.

BOLDLY GO

Garden judges can embrace the novel and diverse and resist the temptation to stifle hybridizers with rules based on personal preferences and fixed mind-sets. They can encourage young and new hybridizers to introduce their creations with selected traits, such as vigorous growth with good increase, as well as durability that is resistance to cold, heat, drought, disease organisms, iris-eating pests, and weed competition. Valuable goals include: extended and more reliable rebloom and in the colder zones 4 and 5, new SA flower forms, new color patterns, new variegated flowers and foliage, long-lived garden clumps with many stalks with long lasting flowers, and color breaks for spectrum red and blue, green, and blue green. Bearded iris hybridizing has awesome, unlimited horizons for youths of all ages. "To infinity and beyond!" The beauty of irises brings us together to enjoy rewarding, lifelong friendships.

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(Continued page 36)



Classic Suede TB
(L. Lauer 1999)



Sea World TB
(M. Byers 1990)



Returning Rose TB
(W. Maryott 1998)

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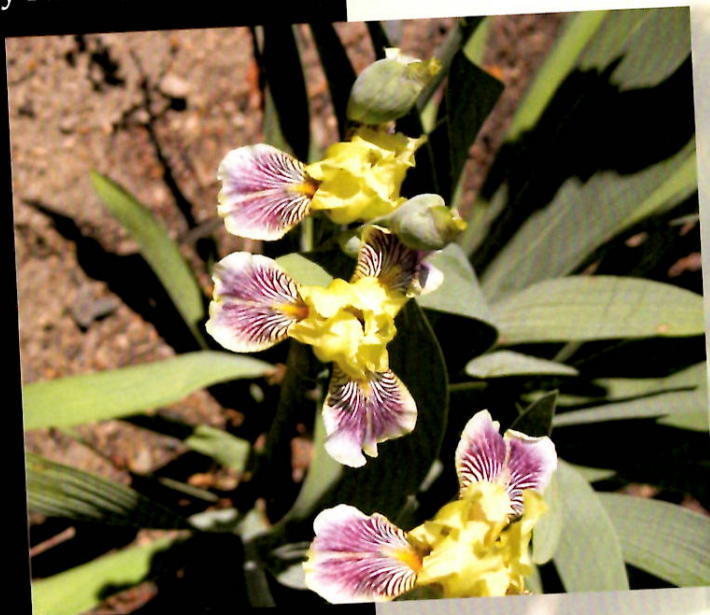
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Mariposa Autumn TB (R. Tasco 1999)

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