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The Azalean

Journal of the Azalea Society of America

President's Letter

Charlie Andrews—Cumming, Georgia



Louisiana Convention

We had a great convention in Lafayette, Louisiana, in March. The Louisiana Chapter with Denise Lanclos as convention chair put on a great event. Conventions are wonderful times to visit different areas and see not only plants and gardens, but historic and interesting sites as well. Often the food is exciting and in Louisiana, food alone is worth the trip. The educational speakers and knowledgeable tour guides this time did not disappoint. One always returns from our conventions with a garden bag full of new information. Read all about the Lafayette convention in this issue.

The Real Reason

Yet, that is not the reason I love to go to these conventions. The most important reason is to see all of you. People are the real joy and pleasure of these get-togethers. We see many friends we have not seen for a good while. It never fails that here we will make new friends. On the tour buses, we often sit next to someone we just met and now have a new friend. We learn where they live, the plants they like, and what their horticultural interests are. Likely as not, we will have common interests. Many informal discussions take place at the conference hotel, where we share information. That's where the real education takes place. This is where I really learn. It is amazing the knowledge one can find within our group.

Georgia with Azaleas on My Mind

You don't want to miss our next convention. It is a joint convention with the American Rhododendron Society, hosted by the Northern Virginia Chapter ASA and the Azalea Chapter ARS. The 2023 Joint ARS/ASA Convention will be held April 19-23, 2023, at the Atlanta Marriott Perimeter Center Hotel. Atlanta is easy to get to, and the hotel north of the city is easy to get to by car and from the airport. It is adjacent to Atlanta's rapid transit, MARTA, and is convenient to all downtown attractions. Our convention attendees will receive free hotel parking and free shuttle service within the local area (including the MARTA station).

So Much To See and Do

Georgia is rich in native flora. Of the 17 named species of North American azaleas, 12 grow natively within the state. Many of the other elepidote and lepidote rhododendrons are also native to the state. We are not native snobs, though. Many non-native plant species thrive here. Our latitude is about the same as parts of Japan. The state hosts outstanding gardens and parks. Amazing tours and programs await you. In addition to the flora, Atlanta and Georgia culture and history offer much to see.

All This and Your Friends Too

So plan now on joining me next April to see your friends in Atlanta for flora, fun, and fellowship. Learn about the convention, Atlanta, our tours, and programs by visiting <https://www.azaleas.org/convention2023/>. More details are forthcoming on the 2023 convention web pages and in the Fall and Winter issues of *The Azalean*.

I always want to hear from you. You are the reason we exist. You can reach me at president@azaleas.org.

~ *Charlie*

The Azalea Society of America, organized December 9, 1977 and incorporated in the District of Columbia, is an educational and scientific non-profit association devoted to the culture, propagation, and appreciation of azaleas which are in the subgenera *Tsutsusi* and *Pentanthera* of the genus *Rhododendron* in the Heath family (*Ericaceae*).

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Deadlines for *The Azalean*:

- Fall 2022 issue is due July 15, 2022
- Winter 2022 issue is due October 15, 2022
- Spring 2023 issue is due January 15, 2023
- Summer 2023 issue is due April 15, 2023

On the Cover

The blooms of a ‘George Lindley Taber’ Southern Indian azalea at the Lafayette Museum – Alexandre Mouton House in Lafayette, Louisiana. Photo by Kathy Jentz.

Remember, you too can write for *The Azalean*!
To submit your articles and photos for publication, contact: theazalean@gmail.com.



Development of New Satsuki Azalea Hybrids in Japan (The ‘Suisen’-family)

By Mark Nijland—Wageningen, Netherlands

Exactly 20 years ago, Jim Trumbly wrote an article titled, “The Changing Fashion of Satsuki,” appearing in the Summer 2001 edition of *The Azalean*.¹ In this excellent article, Jim covers many aspects of Satsuki azaleas, including the hybridization of new varieties. Two decades have passed and today many new Satsuki azalea varieties have been developed by Japanese Satsuki enthusiasts. Last year, I bought the newest release of the Japanese Satsuki dictionary. This book is a catalog of Satsuki azalea that describes varieties using a picture and a description in Japanese characters. This latest edition has a total of 1,400 varieties (figure 1). This is an overwhelming number of varieties, with many of them hybridized in the last few decades. Almost all will be very unfamiliar to many western azalea enthusiasts. In this article, I will discuss the development of new Satsuki varieties in Japan by focusing on the role of the cultivar ‘Suisen’. The availability of most of the varieties discussed is limited outside of Japan. I very much hope that by introducing the reader to these new Satsuki varieties, I am doing more than familiarizing my audience with difficult, if not impossible, to obtain azalea varieties. Maybe the knowledge of the existence of these new azalea breeds will help improve their availability outside of Japan. In any case, I believe that at least the reader can enjoy the pictures provided in this article.

Improved Satsuki Azalea Availability in Europe

As a European, I look with a bit of envy at the popularity of evergreen azaleas in both Japan and North America. Yes, evergreen azaleas have a long history here and European plant breeders also produced some excellent varieties. However, most of them are small-flowering Kurume-type varieties, ideal for landscaping purposes. A few nurseries here in Europe are still breeding new varieties. But it feels as if this does not compare to the richness found in North America. And certainly not compared to the recent hybridization efforts in Japan. My main interest is in Satsuki azaleas, both for their attractive foliage and their multi-colored patterned flowers. Satsuki



Figure 1. Japanese 2020 Satsuki dictionary containing 1,400 varieties, released by Tochinoha Shobo and available on Amazon.co.jp.

azaleas are compact-growing azaleas that display their flowers against a background of fresh new leaves. Their flowering period is later, and Satsuki open their flowers more gradually. Back when I was a college student in 2010, I learned about the huge range of Satsuki cultivars in existence. First through internet sources like the ASA website and picture database, then through Callaham’s excellent book.² And finally, I bought the 2010 Satsuki dictionary that described 1,200 varieties. It was a bit strange to want to be involved in a hobby of growing plants of which you knew thousands existed, but none were really available for me. I could look at all these pictures. But these Satsuki were not for sale anywhere in Europe. Back in 2010, it was really hard to obtain any Satsuki azaleas. The only people in Europe growing Satsuki

azaleas were bonsai hobbyists, who had to obtain their Satsuki bonsai by importing them from Japan; an expensive endeavor only worthwhile for large specimens often valued at a several hundred or even thousands of euros.

Old Satsuki Varieties as Landscape Plants in the US

In contrast, Satsuki varieties in the form of reasonably priced garden plants do seem to be somewhat available in the US. However, the varieties of Satsuki azaleas available in the US do not seem to have significantly changed in the last 10 years. Nurseries like White's and Nuccio's produce mainly old to very old Satsuki cultivars that were generally developed in the 1960s. These are excellent, but most of them have grown out of favor in Japan. There, a few of the old varieties have become classics. This is especially true for varieties connected strongly to more traditional bonsai where the trees are old, the trunks are fat, the *nebari* (roots) are very prominent. These bonsai are exhibited outside of the flower season. 'Osakazuki', 'Korin', 'Kozan', and 'Kinsai' are the most popular varieties at these shows.³

Importance of Flower-Display Satsuki in Japan

In contrast, there are the flower display Satsuki exhibitions (figure 2). Very often, these Satsuki are styled as *meika* (銘花, meaning: famous flower) trees. These are tall potted single-trunked conical-shaped azalea plants, sometimes with S-shaped curves, and somewhat resembling a Christmas tree. The



Figure 2. 'Aika', award winner in the *meika* class at the 2014 Kanuma Satsuki Festival.

meika-shape is ideal for displaying varieties with variegated multi-colored flowers. Here, the challenge is to get a good distribution of different flower patterns. This then demonstrates the full range of color possibilities of a specific variety. Besides the *meika*-style, thin single and multi-trunked azalea bonsai are also

popular. Additionally, each year azalea breeders also compete for several best new Satsuki variety awards. When the priority is on the flowers, a Satsuki bonsai does not require an ancient tree with a single fat trunk. Instead, one can buy a plant that is just a few years old and design it into some shape over the course a few years. In this case, new Satsuki varieties have the strongest impact. New varieties combined with the *meika*-form of bonsai allow azalea enthusiasts to buy relatively cheap and young plants. These plants can then be turned into a more casual style of bonsai, to be enjoyed especially when in flower. I think this aspect of the Satsuki azalea bonsai explains the large number of new Satsuki varieties produced in Japan.

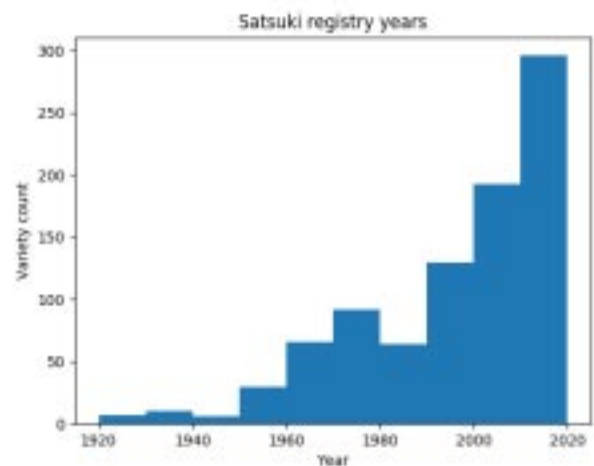


Figure 3. Number of new Satsuki varieties registered by decade in the 2020 Satsuki Dictionary.

Explosion of New Varieties in Japan

The 2020 Satsuki dictionary lists the year in which a variety was registered. Figure 3 displays a bar chart that visualizes this registration year data. This chart demonstrates that there seems to be an accelerated rate of new variety development. However, these statistics are somewhat biased because older varieties lack a registration date while middle-aged varieties may have been dropped from the 2020 edition, as they never gained enough popularity. In contrast, a Satsuki dictionary usually contains the new varieties that were registered and exhibited in recent years. While these brand new varieties are included, since they are so new, it is not yet known how popular they will become and if nurseries will decide to mass produce these Satsuki and make them available to the general Japanese audience. All this made me wonder about the breeding goals and strategies. How much more progress could potentially be made by making the right crosses? The Japa-

nese are focused very strongly on producing new or rich flower patterns. They generally do not cross Satsuki with other cultivar groups or species different from *Rhododendron indicum*. Very occasionally, Kurume or *R. kiusianum* hybrids are used. Often, both parents are very similar types of Satsuki azaleas. Sometimes one parent is a new flashy flower-oriented variety, while the other is a traditional and time-tested variety with more modest flowers, a solid bonsai tradition, and likely a superior plant habit.

Dominant Role of ‘Suisen’ in the Development of Large-Flowering Satsuki Varieties

In all the breeding carried out in the past three decades, one single cultivar dominates. The name of this variety is ‘Suisen’ (翠扇, meaning: green fan). ‘Suisen’ is a cross of ‘Komei’ with ‘Reiko’, registered in 1975 by Kikuro Shionotani (塩野谷喜久郎). It is a white star-shaped flower with red stripes and pink or red selfs. The green-yellowish blotch is relatively distinct and may explain the name. The leaves are on the larger side for a Satsuki, and somewhat rounded when compared with *R. indicum* ‘Kozan’/‘Osakazuki’, but not as rounded as maruba Satsuki like ‘Gumpo’ and ‘Izayoi’.

Thicker Flower Petals as the Key Quality of New Satsuki Cultivars

While ‘Suisen’ is definitely very attractive-looking, this in itself does not fully explain the success of ‘Suisen’ as a breeding parent. I believe that the key to ‘Suisen’ is that it has tetraploid gametes.⁴ Let me explain. Evergreen azaleas usually carry two pairs of chromosomes, just like us humans. However, in some types of plants it is fairly common for each cell to contain more than just two copies of their entire genetic code. This is referred to as polyploidy. The more copies of the genome there are in each cell, the larger the cell has to be. And larger cells lead to thicker tissues and larger flowers. This is often desirable in plants—both for food crops and for ornamentals. Larger flowers and especially thicker, and thus more durable, petals are very desirable traits in azaleas. It turns out that especially triploids, where there are three copies of each chromosome, usually have the best ornamental traits. Diploid azaleas have 26 chromosomes i.e. 13 pairs.⁵ Therefore, triploids have 39 chromosomes and tetraploids have 52. Triploid flowers are usually larger and thicker petals compared to tetraploids. Furthermore, triploid plants usually have impaired fertility, which seems to enhance bloom



Figure 4. ‘Koyo’, a sport of ‘Suisen’ with mainly solid red flowers.



Figure 5. ‘Suisen’, the most popular breeding parent among modern Satsuki azaleas.

times since flowers usually fade after fertilization has occurred. Gartrell used the tetraploid ‘Gettoku’ (‘Getsutoku’) with great success in producing some excellent Robin Hill Azaleas.⁶ Why is ‘Suisen’ special? There have been many earlier tetraploid Satsuki. One reason may be the smooth neater flower shape of ‘Suisen’ over ruffled (*namiuchi*, 波打) flowers like ‘Gettoku’ and its Robin Hill offspring. Many old Satsuki cultivars have ruffled flowers. Some are ‘Asahi-no-hikari’, ‘Gyoten’, or ‘Gumpo’. But almost none of the new cultivars registered in Japan have this trait. Smooth, neat flowers seem to be in fashion today among the Japanese Satsuki crowd. This matches the “changing fashion” as explained by Jim Trumbly in his Summer 2001 article in *The Azalean*.

The Sports of ‘Suisen’ and Their Origins

Like every major Satsuki variety, ‘Suisen’ also has many sports. ‘Koyo’ is a solid red sport that retains the ability for white flowers to reappear (figure 4). ‘Miharu’ is the pink version of ‘Suisen’. The Japanese refer to this as a *jiai* sport, referring

to pink as an in-between color. ‘Shin Koyo’ is a newer sport similar to ‘Koyo’ and throws white flowers even more often, which allows ‘Shin Koyo’ to have a more equal mix of both white and red flowers on the same tree. ‘Yumemonotagari’ is a ‘Suisen’ sport with more rounded petals, less of a star-shaped flower. ‘Eiga-no-homare’ is a Satsuki variety very similar to ‘Suisen’. Besides looking very similar, it also has the same parents and the same hybridizer. Through communications with Kenichi Naoi, the owner of Naoki Satsuki Garden in Shioya, Tochigi, I learned that ‘Suisen’ could actually be a sport of ‘Eiga-no-homare’. ‘Eiga-no-homare’ is described as having an ordinary leaf shape. For ‘Suisen’, the leaves are more rounded and larger. Furthermore, this results in thicker petals. This mutation or sport has also been seen in other azaleas, where this change in leaf shape is also accompanied with thicker petals. However, this mutation is also said to reduce the strength and vigor of the variety a little bit.

Jim Trumbly informed me that he recalls that ‘Suisen’ used to be described as having both the normal and the narrow leaves. In that case, maybe old ‘Suisen’ had both characteristics, but modern ‘Suisen’ and ‘Eiga-no-homare’ both represent the pure round leaf character and the normal leaf character, respectively. In a scientific paper by Sakai et al, ‘Eiga-no-homare’ has been reported as a diploid. Therefore, I believe ‘Suisen’ is a mixoploid sport of ‘Eiga-no-homare’, where most of the ‘Suisen’ tissues are tetraploid (figure 5).

Breeding New Azalea by Hybridizing ‘Suisen’ with Other Popular Satsuki

The popularity of ‘Suisen’ resulted in it being crossed with basically every other major Satsuki variety. Maybe the best example are crosses with ‘Juko’, which was the dominant flower display variety before ‘Suisen’ was obtained (figure 6). These crosses have resulted in several new varieties, one of the most famed of these is ‘Meisui’ (figure 7).

Like ‘Suisen’, ‘Juko’ also has many sports with ‘Karenko’ being one of the most popular. ‘Karenko’ is a two-color sport of ‘Juko’. ‘Byakuren’ is a white-base flower sport of ‘Karenko’. Several new varieties were obtained as the result of crossing ‘Koyo’ with either ‘Karenko’ or ‘Byakuren’. One of these varieties is ‘Shinsei’, which is very similar to ‘Meisui’ (figure 8). ‘Shinsei’ is the result of a cross of ‘Koyo’ with ‘Byakuren’. Its flowers



Figure 6. ‘Juko’, one of the most influential Satsuki varieties. Relatively fast-growing with small, dark green leaves but relatively large flowers. Used in plant breeding to produce new types of flowers specifically with softer pastel colors.



Figure 7. ‘Meisui’, cross between ‘Suisen’ and ‘Juko’.



Figure 8. ‘Shinsei’, cross between ‘Koyo’ and ‘Byakuren’.

are slightly smaller than ‘Meisui’, but it makes up for this through its pastel colors and elegant patterns. Another variety I want to briefly mention is ‘Sachi-no-kagayaki’, which has white centers, and usually 6 or 7 petals that are rather pointy. Besides ‘Suisen’ and ‘Juko’, ‘Asuka’ is another more recent and very influential Satsuki variety. It is known for the deeper purple color, large flowers, with narrow but somewhat blunt-tipped petals. ‘Asuka’ has produced plenty of sports and seedlings, which is beyond the scope of this article. The variety ‘Saishun’ was obtained by crossing



Figure 9. 'Asuka', cross between 'Gekkeikan' x 'Shunsui'. Rounded.



Figure 10. 'Sachi-no-kagayaki', cross between 'Miharu' and 'Karenko'. Six or seven pointy petals.



Figure 11. 'Suika', cross between 'Asuka' and 'Suisen'. Petals overlap makes the flower appear more organic.



Figure 12. 'Saishun', cross between 'Suisen' and 'Asuka'. Vivid contrast between white background, red stripes and yellowish blotch.

'Suisen' with 'Asuka' while 'Suika' was produced from 'Asuka' x 'Suisen'.

New Varieties Obtained by Crossing 'Kogetsu' with 'Suisen'

Beyond crosses with 'Juko', 'Asuka', and their sports, the following are some other noteworthy offspring of 'Suisen'. Together with 'Kogetsu', it has produced 'Meguriai'. 'Kogetsu' is among the most famous red-white mix multi-colored Satsuki. Few varieties can beat a good 'Kogetsu' in terms of richness in flower patterns. 'Meguriai' seems to be one of the most common 'Suisen' offspring around. I think it is available in the US. 'Aika' is the pink jiai sport of 'Meguriai', which is arguably even more attractive (figure 13).



Figure 13. 'Aika', pink sport of 'Meguriai' known for the different shades of pinks and reds.

“'Aika' is one of the more 'showy' Satsuki varieties,” Luis Rodríguez Míguez explained to me. He runs the nursery of MiniSatsuki located in France, where they import Satsuki varieties from Japan and propagate cuttings for the EU market. They are careful to make sure the flowers patterns stay true to the variety. “For us, 'Aika' has a strong growing habit and over the years it has become one of our favorites among the pink and salmon-tinted varieties,” he continued. “Once in full bloom, the pink and rich red patterns make it really eye-catching.”

Four More Showy Violet, Carmine, and Red Satsuki Varieties that are Easy to Grow

Another very common variety from the 'Suisen'-system is 'Moeka' (figure 14), produced by crossing 'Suisen' with 'Ai-no-tsuki'. An early bloomer, 'Moeka' is known for being very reliable and easy to grow, given the right climate. 'Sanshimai' is the two-color sport of 'Moeka' and has superior flower patterns. Akio Nagano is the owner of Nagano



Figure 14. Moeka', cross between 'Suisen' and 'Ai no tsuki' is now a very popular and easy to grow variety.



Figure 15. 'Sanshimai', sport of 'Moeka' is known for the more vivid carmine red stripes.

En, a Satsuki nursery in Fukuoka. He gave me the following description of 'Sanshimai': "Judging from pictures, 'Moeka' and 'Sanshimai' look similar. However, if you see 'Sanshimai' with your own eyes, the difference is obvious (figure 15). And one starts to feel sorry for 'Moeka'." One of Mr. Nagano's customers bought a 'Sanshimai' and after seeing the flowers commented "'Sanshimai' is on a different dimension of beauty."⁷ Mr. Nagano has been a long-time member of the Fukuoka branch of the Japanese Satsuki Society. His trees have been featured in *Satsuki Kenkyu Magazine*.

It seems 'Sanshimai' is able to produce a wider range of both colors and patterns. Here lies also the challenge. Not every individual plant is equally able to produce flowers with a full and elegant range of colors and patterns. This is especially true with two-color blooming varieties like 'Sanshimai' and 'Karenko'. Some individual plants truly stand out in their ability to produce rich and well-distributed patterns. By taking cuttings

from these special plants, the odds of obtaining new plants with similarly good flowers is much improved. (Also see Jim Trumbly's article in *The Azalean*, Summer 2001.)⁸ Mr. Nagano also laments that even his best digital camera is not able to capture the true beauty of these flowers. However, I feel that his pictures are some of the best Satsuki flower pictures I have seen. Mr. Nagano graciously gave me permission to use his work for this article. However, I fear that in the paper version of *The Azalean*, even more of the magic of these flowers will be lost. By crossing 'Suisen' back to its parent 'Reiko', 'Satsukibare' was produced (figure 16). Judging from pictures, 'Satsukibare' is among the more showy flowers in terms of variegation intensity. A variety I do have myself is 'Seiten', a cross between 'Suisen' and 'Gyoko' (figure 17). 'Seiten' has the thickest flower petals of any azalea I own. Though I have not been able to compared it with all the other varieties I men-

Table 1: Overview of all the pictured cultivars in this article.*

English name	Japanese characters	Seed parent	Pollen parent	Flower size	Bloom time	Registration year
Suisen	翠扇	Komei	Reiko	large (8-10 cm)	midseason	1975
Koyo	煌陽	-	-	large (8-10 cm)	midseason	1992
Juko	寿光	Kotobuki	Gyoten	medium (5-9 cm)	late	1971
Meisui	明扇	Suisen	Juko	large (8-10 cm)	midseason	2001
Shinsel	新生	Koyo	Byakuren	very large (10-12 cm)	very late	1999
Sachi-no-kagayaki	幸の輝	Miharu	Karenko	medium (5-9 cm)	midseason	2009
Asuka	明日香	Gekkeikan	Shunsui	large (8-10 cm)	early	2002
Saishun	彩春	Suisen	Asuka	large (8-10 cm)	midseason	2005
Suika	翠香	Asuka	Suisen	large (8-10 cm)	midseason	2003
Seiten	晴天	Suisen	Gyoko	very large (10-12 cm)	midseason	2007
Satsukibare	五月晴	Suisen	Reiko	large (8-10 cm)	late	2004



Figure 16. 'Satsukibare', cross between 'Suisen' and 'Reiko'. Note the large number of tiny red spots.



Figure 17. 'Seiten', a cross between 'Suisen' and 'Gyoko' has very large (> 4") flowers.

tion here in this article. The flowers of 'Seiten' do have more substance to them than even 'Hilda Niblett', the Robin Hill, or 'Haru-no-sono'.

For many of these varieties, the only knowledge I have is just a few pictures, their flower color and size, and their parentage. I wish I could tell you more about the specific characteristics and unique features of each of them, as well as about the specific flower patterns they produce. A few of these varieties I was able to obtain, but only recently. I hope that these pictures suffice in giving you a fair representation of the newest showy large-flowering Satsuki varieties, their colors, flower patterns, and petal shapes. Luckily, pictures of azalea flowers often speak maybe not a thousand words, but at least a sentence or two.

What is the Purpose of So Many New Varieties?

Out of the 300 new varieties produced in the 2010-2020 period, many will likely not gain any traction. Many of these new varieties are very nice, but they are also somewhat redundant as many are very similar. Only the best and most distinct ones will survive. Some of them will be picked up by Japanese growers and be produced in larger numbers, including some for export to Europe or North America. Those varieties that do not enter rotation could be dropped from future Satsuki dictionaries. But their place will eventually be taken up by some of the hundreds of new varieties that will likely be produced by Japanese enthusiasts in the coming decades. Which of the current newest varieties will themselves be used to produce many new varieties in the next 30 years?

And what kinds of flowers will these future varieties be able to provide? What are the limits on the size, color intensity, and diversity of flower patterns in Satsuki azalea flowers? Or, maybe we should ask ourselves a different question? Namely, how extreme and unnatural must a Satsuki flower become before our taste and sensibility tells us it is just too much? And that we would rather prefer a more modest, plain and natural-looking flower. I suspect that for some readers, some of these varieties have already passed that point.

Introducing New Satsuki Varieties in the West

In the meantime, our current challenge is to introduce these new varieties to the US and to Europe, propagate them true to their flower patterns, and keep them properly labelled. I believe these varieties will do well in temperate regions with winters with Zone 8 hardiness. While many will do well in Zone 7, Zone 6 may be too cold for most of them. Very likely, the 'Suisen'-system varieties are not the most hardy among the Satsuki. I grow a few of these varieties in the full ground here in the Netherlands in Zone 7. They survived a -13°C (9°F) winter without direct damage. I have observed some stress and weak branches. Some of these varieties are not thriving like some of my other azaleas. Based on a few plants over a few years, I would say that 'Hilda Niblett' and other Robin Hill azaleas do better in my climate in comparison with the 'Suisen'-group cultivars. Since the Japanese focus a lot on the quality of the flowers, some of these varieties may be on the delicate side in terms of general hardiness and robustness

as required for landscaping plants. I believe that many Satsuki varieties would be happier if they could enjoy a longer growing season than my local climate provides.

What Role Can New Satsuki Cultivars Play in Our Gardens?

What do these new Satsuki varieties offer to our gardens? How do they fit in the toolbox of a landscape architect? Short answer is, I am not completely sure. Designing a garden is not my expertise. The long answer is that these Satsuki excel on the individual flower level. Because of their variegated flowers, every flower has their own unique pattern. New varieties are selected both on the neatness of the flower shape as well as the range of patterns. This is best appreciated while enjoying these azaleas from up close. As garden plants and without any specific bonsai-like training, these azaleas are low-growing compact mounding shrubs. It may take many decades for a nursery plant to grow into a 5-foot high plant that will allow one to easily enjoy the flowers from up close and without kneeling. Therefore, I believe these Satsuki are best planted in pots or raised beds of some sorts, elevating them. As low mounding shrubs, they would do well in front of taller more upright plants, like Glenn Dales, deciduous azaleas, or Japanese maple trees. As these are late-blooming azaleas, they will benefit from afternoon shade. This will improve flower longevity and prevent pigment bleaching. The main challenge with these new cultivars is to introduce them to the US. Next, to find out which ones perform the best as garden plants in certain local climates. And finally to produce sizable plants with the correct flower patterns so they can be an addition to the gardens of American azalea enthusiasts. Of course, they can also be enjoyed as small potted plants or true bonsai.

About the Author:

Mark Nijland has been growing and collecting Satsuki azaleas in the Netherlands since 2010. His projects include hybridizing new varieties and propagating Japanese Satsuki cultivars. Currently, he is a PhD candidate at Wageningen University working on protein aggregation.

*Early blooming in Satsuki cultivars is early to mid May in most climates. Thus, “early” in the Satsuki still means they bloom after most other evergreen azaleas start blooming.

Appendix: Availability of Satsuki cultivars mentioned in this article in America and Europe. US sources for Satsuki azaleas mentioned in this article.

- Nuccio’s Nursery 2018 catalog lists: ‘Get-toku’, ‘Juko’, ‘Ai-no-hikari’, ‘Kinpo’, ‘Kogetsu’, ‘Kaho’, ‘Gumpo’, ‘Gyoten’
- White’s Nursery 2021 azalea catalog lists: ‘Ai-no-tsuki’, ‘Izayoi’
- Azalea Hill Gardens & Nursery 2021 inventory lists: ‘Ai-no-tsuki’, ‘Gyoko’

Note that none of these US-based nurseries stock ‘Suisen’, its sports, or its offspring.

EU source for Satsuki azaleas mentioned in this article:

MiniSatsuki.com has sold in the past: ‘Aika’, ‘Meguriai’, ‘Suisen’, ‘Miharu’, ‘Koyo’, ‘Shin Koyo’, ‘Hitomebore’, ‘Juko’, ‘Karenko’, ‘Asuka’, ‘Asukayama’, ‘Kogetsu’, ‘Ai-no-tsuki’, ‘Shisen’, ‘Karenbana’

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Image credits

Figure 1: Kaboku center at Kanuma, <https://kaboku.or.jp/Satsuki/>

Figure 3: Jim Trumbly, ASA

Figure 4: Tochinoha Shobo Staff Blog, <http://staff.tochinoha-shobo.com/?eid=4306>

Figure 8-12 & 15-17: Nagano Satsuki En, <http://naganoSatsukien.blog66.fc2.com>

Figure 13-14: MiniSatsuki, <http://miniSatsuki.com>

Welcome New Members!

New At Large members include:

- Anita & David Lynn, Franklin, TN
- Belinda and Ronald Jacob, Savannah, GA
- Emily Nolan, Watkinsville, GA
- William Randles, Kingston Springs, TN
- Steven Ratzlaff, Louisburg, NC

The Alabamese Chapter welcomes:

- John & Brenda Guest, Auburn, AL
- Lance Bedgood, Pine Mountain, GA
- Heaven Lee Pagan, Montgomery, AL

The Arkansas Chapter welcomes:

- Emilie Monk, Bryant, AR
- Suzy Still, Hot Springs, AR

The Ben Morrison Chapter welcomes:

- Cynthia and Scott McCabe, Silver Spring, MD

The Louisiana Chapter welcomes:

- Susan Fisher, Lafayette, LA
- Roger S. Lowe, Loranger, LA
- John and Shirley Millet, La Place, LA
- Mary and David Mizell, Folsom, LA

The Northern Virginia Chapter welcomes:

- Thomas McClelland, Oreland, PA
- Jake Summers, Glen Mills, PA
- Yu Yu, Jie Peng, Alexander Yu, and Anthony Yu, Fairfax, VA
- Kevin Van De Velde, Hamilton, NJ

The Rev John Drayton Chapter welcomes:

- Kevin and Angelia Ryan, St. Helena Island, SC

The Texas Chapter welcomes:

- Clara Coziar, Lufkin, TX
- John T. Gregory, Tyler, TX
- Tammy Purser, Nacogdoches, TX

The Texas Forest Country Chapter welcomes:

- Deanna and Dusty Young, Brookeland, TX

Best Article Announced

Congratulations to the Best Article in *The Azalean* in 2021! The members voted for “Rose Ishbel Greely, a Pioneer in Landscape Architecture” by William C. Miller III.



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Chapter News



Jake Summers and Pete Vines on a bench donated by the Northern Virginia Chapter in Pete's honor. Photo S. Bauer.

Northern Virginia Chapter

Rick Bauer, Corresponding Secretary

The chapter had a busy spring. On 27 March, we had a great presentation by Jake Summers, the project manager of the Holly Springs Legacy Garden at Jenkins Arboretum, Devon, PA. We had a large turnout for the presentation, both in person and via Zoom. The chapter has been working with Jenkins in the development of the garden for the last several years, providing plants and monetary support. A contingent of the chapter was also in attendance on 15 May for the formal dedication of the garden. We were pleased that the Holly Springs hybridizer, Pete Vines, was able to travel from Amelia Island, FL, to join in the dedication. He was joined by some of his family members. In appreciation for his efforts in planning, designing, and coordinating the implementation of the

garden, chapter president Barb Kirkwood, presented Jake with a certificate of appreciation from the chapter and the chapter gave him a three-year membership in the society.

The chapter also donated additional Holly Springs Azaleas and pots for use by the garden (pots are currently in short supply in the industry). The chapter has also been working with Norfolk Botanical Garden over many years to increase their Glenn Dale collection. We delivered additional Glenn Dales to Norfolk on 17 May.

Spring is also the best time to sell azaleas while they are in bloom. The chapter held a number of



Northern Virginia Chapter member Lars Larson and Les Parks, Director of Horticulture at the Norfolk Botanical Garden with Glenn Dale Azaleas donated by the Chapter. Photo by R. Bauer.



Northern Virginia Chapter members Barb and John Kirkwood, Leslie and Dave Nanney, and Paul and Carolyn Beck delivered additional Holly Springs Azaleas and pots to the Jenkins Arboretum in Devon, PA. Photo R. Bauer.



We Need Your Seed!

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highly successful plant sales to the general public and also a separate one to the members of the Northern Virginia Bonsai Society Chapter for their use in creating bonsai.

Our next scheduled event is our cutting and plant exchange on 17 July. If you are in the area, you are more than welcome to join us.



Texas Chapter *Sherrie Randall, Secretary*

The Texas Chapter held their annual plant sale at the Nacogdoches Farmer's Market Spring Fling event. We arrived with 114 plants, came home with 23. Another financial success as we'll again be able to fund two horticulture scholarships. All back issues of *The Azalean* taken were handed out along with the Azalea Society pamphlet in hopes of increasing membership. Sadly, that was only a minimum success as we had just one sign-up on site, but hopefully the enthusiasm of other shoppers may result in some mail-ins. Chapter members to thank for their support are David Creech, Don Parsons, Barbara Stump, and Donna Vander-molen.

The Texas Chapter began their spring outing at the IDEA garden in Tyler, Texas. It is maintained by the Smith County Master Gardeners within the Tyler Rose garden, Chapter members enjoyed the diverse, blooming, and labeled plantings. The rose gardens and Japanese maples were fully leafed out and stunning. Taking advantage of the ideal weather and beautiful setting, the Chapter held their spring meeting on picnic tables within the garden.

Following lunch at a local Mexican restaurant, members traveled to the Longview Arboretum and Garden Center. This garden has it all! Won-

derful hardscape, mass bed color plantings, container plantings, bridges, water features, Japanese maples, azaleas (of course), and some fun seating. This garden inspires visitors to a casual, pleasant walk...truly enjoyable, and highly recommended by all members.

The Texas Chapter of the Azalea Society of America awarded \$500 scholarships to Stephen F. Austin State University (SFA) horticulture majors Kaitlyn Skelton and Luke Keene. Profits from the Chapter's azalea plant sale held during the Spring Fling at the Nacogdoches Farmer's Market funded these scholarships. Presenting the certificates is Dr. David Creech, President of the Texas Chapter and Director of the SFA gardens.

All photos this page by Sherrie Randall. Shown at left is the IDEA garden in Tyler, TX. The two photos below are from the Texas Chapter's visit to the Longview Arboretum and Garden.





Society Officers for 2023-2025

For our next election, we will be electing society officers to serve during the term 2023-2025. The positions up for election are Society President and Vice President. Additionally, we will be electing three Directors to serve during the same period. Those interested in volunteering for one of these positions, or who would like more information, should contact the Chairman of the Nominating Committee, Rick Bauer, at rickfbauer@gmail.com. Volunteers should submit a copy of their resume no later than 30 September. These will be published in the Winter issue of *The Azalean*.



Scholarship winners Kaitlyn Skelton (above) and Luke Keene (below) pictured with Dr. David Creech. Photos by Sherrie Randall.



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2022 Annual Convention Summary

By Kathy Jentz—*The Azalean*, Editor

The Louisiana Chapter of Azalea Society of America hosted the society's 2022 Convention from Thursday–Sunday, March 10–13, 2022, in Lafayette, Louisiana. The hard-working Denise Lanclous planned and ran the event. She did a tremendous job “herding cats” and keeping everything on schedule.

Wildlife sightings were a particular highlight of this meeting with birds getting a starring role. Birders in the group swooned over stops at the Rip Van Winkle Gardens and Bird City Rookery on Jefferson Island and the nearby Avery Island's Jungle Gar-

dens. We even saw some resident alligators at the University of Louisiana at Lafayette's campus.

For the plant nerds amongst us, it was an absolute treat to be guided around the university grounds by Jim Foret, a horticulturist and consulting arborist. He led us through the campus' canopy of “Century Oaks” and explained the geography and soils of the region. He shared the planting and care details of the campus trees. (I, for one, came home with dozens of photos of the native Live Oaks.)

Those who drove or packed light came home with lots of plants to add to their home collections. We made a short shopping stop at All Seasons Home and Garden Nursery and the azalea sales each day during the conference back at the hotel were brisk.

The history of Lafayette and Louisiana was woven throughout the meeting with bus drives through historic and cultural districts and garden neighborhoods along with stops at several points of interest. The Good Hope Hall in Freetown-Port Rico Historic District is owned now by the Glen Armentor Law Offices. Our stop there included an explanation of Freetown's story and its importance during the reconstruction period of the South. For those who stayed on a bit, there was also an informal gathering at the Vermilionville Living His-

tory & Folk Life Park that depicts regional living conditions in various time periods.

The education programs included excellent talks by Dr. David Creech about his research and academic funding issues and Heather Kirk Ballard

about the new wave of gardeners we are experiencing. Buddy Lee of Encore® Azaleas gave a talk on the past, present, and future of azaleas. In the future section, he mentioned that azalea breeding is focusing on unusual shapes and colors of the calyx, trying to stabilize the colors of variegated blooms, developing more yellow

flowers, and plants with variegated foliage. He also mentioned the goal of achieving picotee edges, blotches, and stripes all on the same flower.

The ASA business meeting and awards presentations included accolades for several member volunteers who have gone above and beyond in their service to the Society. President Charlie Andrews stressed the need for more active chapters and for continual member recruitment for the continued success of ASA.

The food deserves a special mention here as it was a highlight of the conference. We enjoyed incredible hospitality University of Louisiana's Alumni Center and a private catered event at the McIlhenny family historic home to name just two of the wonderful group meals we experienced. Many of us left Louisiana a few pounds heavier and filled with lots of great memories.



Pictured above, the group gathered at Jefferson Island by Kathy Jentz. See the convention photo collage on the back cover. Clockwise from top, left: Azalea Trail signage by Rick Bauer. A peacock at Jefferson Island by Shane Harris. Buddy Lee and Shane Harris by John Torbert. Temple at Jungle Gardens by Barbara Kirkwood. Group photo at the Alexandre Mouton House by Carolyn Beck. Gators and turtles at University of Louisiana at Lafayette by Rick Bauer. Bird Island by Rick Bauer. Rick and Susan Bauer boarding the Ragin Cajun buses. Check-in table by Rick Bauer. See many more convention photos posted at the ASA Facebook page.

2022 Distinguished Service Award Winner

By Shane Harris—Dadeville, Alabama

John Torbert is the current president of the Alabamense chapter of the Azalea Society of America. He has been a member since 2012 and was elected as chapter president in October 2020.

John spent his career in the field of forest soils; the first half in academia and the second half with timber industry. Now, in semi-retirement, he mostly spends his time working in his small native azalea nursery and occasionally selling timberland as a real estate sales person for AFM Real Estate. His many years of work in the great outdoors prompted his curiosity, interest, and love of our native azaleas.

John and his wife Kira Bowen, (Alabamense Chapter Treasurer) enjoy life on their 160-acre tree farm in Salem, Alabama. John is passionate about native azaleas and has grown them very successfully over the last few years. He propagates them from seed as well as from cuttings. Amongst the pine trees around his home is an impressive collection of planted specimens and a miniature nursery of potted native azaleas. John enjoys sharing his passion and knowledge of azaleas with members and others and actively sells his plants locally. Like most of us, he is always improving his knowledge of azaleas and often seeks advice and conversation with members and experts. John is very well respected and enjoys people, plants, and learning.

The Alabamense chapter under John's leadership has increased its visibility and activities. Each quarter, John writes, produces, and distributes a chapter newsletter of news, photos, articles, interviews, and business items. The feature stories and photos he does on members and the time and travel he dedicates to producing it is not only admirable, but engaging. The chapter's Facebook page, presently with 155 followers, has gained more attention from nonmembers and has been a great outreach platform, specifically for answering questions and highlighting events. It has been an efficient means to share interests with the community and to help attract new ASA members.

Despite the social distancing restrictions and cancellations in 2020 and 2021, John also organized several programs, garden tours, and outings for members. Business meetings were held via Zoom with an informative educational program



always included. In the spring of 2021, the chapter partnered with Alabama Extension to offer an "All About Azaleas" public webinar series to showcase our favorite plants when conferences and gatherings were impossible. Over 500 people participated, both nationally and internationally, at some point in the four part-series from March to June. Various member garden tours in Georgia and Alabama were held with John going to all of them and sharing photos and info back with those who could not attend. John speaks often of getting more members involved and doing more outreach programs. Additional strategies are currently being pursued to invite and include Master Gardeners and other plant enthusiasts to future endeavors such as the 2024 ASA Convention, to be hosted by the Alabamense chapter.

This recognition of John Torbert's service to the Azalea Society of America is well deserved

About the Author:

Shane Harris is Secretary of the Alabamense Chapter of ASA and is the County Extension Coordinator, Tallapoosa County, Alabama Cooperative Extension System, Auburn University.

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Pleasant Progress and Other Interploidy Pathways

By Sally Perkins and John Perkins—Salem, New Hampshire

Mariana Castro, Silvia Castro, and João Loureiro—Coimbra, Portugal

Native North American diploid (2x) and tetraploid (4x) deciduous azalea species interact to produce viable seedlings. This has given us the opportunity to explore interploidy interaction that could possibly occur in nature. Most people who are into hybridizing have mundane goals such as bigger flowers or more fragrance or brighter colors. For us these are secondary to our search for interploidy pathways. To be clear, we have done years of hybridizing using the diploid species *Rhododendron alabamense*, *R. arborescens*, *R. canescens*, *R. cumberlandense*, *R. eastmanii*, *R. flammeum*, *R. occidentale* (the Western azalea), *R. periclymenoides*, *R. prinophyllum*, *R. prunifolium*, *R. viscosum* and the tetraploid species *R. atlanticum*, *R. austrinum* (including the “pink austrinum”), *R. calendulaceum*, and *R. colemanii*. As an aside, none

of this discussion involves the North American native species *R. vaseyi* and *R. canadense*, or the Asian *R. molle* or the European *R. luteum* species because there is little reason to think they interact in nature.

This direct interaction between diploid and tetraploid species is not bidirectional but has been shown to be one way. As shown in the Table of Ploidy Interactions (page 43), when the diploid species is the seed parent and tetraploid species is the pollen parent the result is viable seedlings. The blooms of these seedlings exhibit more of the tetraploid species characteristics. Flow cytometry has confirmed that the great majority of such

Photo 1. “Pleasant Progress” (4x), a tetraploid resulting from diploid × tetraploid interaction [(*R. cumberlandense* (2x) × *R. viscosum* (2x)) (2x) × *R. colemanii* (4x)].



Table of Ploidy Interactions

Seed Parent	Pollen Parent	Seedpods	Offspring	Offspring Flowered	Offspring Fertile
2x diploid	2x	Yes	2x	Yes	Yes
2x	4x	Yes	3x	Yes	Not Usually
2x	6x	Yes	4x	No	Not Tested
3x triploid	2x	Rarely Yes	2x to 4x	No	Not Tested
3x	4x	Rarely Yes	3x to 5x	Yes	Sometimes
4x tetraploid	2x	No			
4x	4x	Yes	4x	Yes	Yes
4x	5x	Yes	4x to 5x	No	Not Tested
4x	6x	Yes	5x	Yes	Yes
4x	8x	Yes	6x	Yes	Yes
5x pentaploid	4x	Yes	4x to 5x	Yes	Yes
5x	5x	Yes	Not Tested	No	Not Tested
5x	6x	Yes	Not Tested	No	Not Tested
6x hexaploid	4x	Yes	5x	Yes	Yes
6x	5x	Yes	Not Tested	No	Not Tested
6x	6x	Yes	6x	Yes	Yes
6x	8x	Yes	7x heptaploid	No	Not Tested
8x octoploid	Open-pollinated	Occasionally Yes	8x		

interactions with diploid X tetraploid deciduous azaleas produce the expected outcome of a triploid (3x). In all our hybridizing work with deciduous azaleas, seed has never been produced when the tetraploid species is the seed parent and the diploid species is the pollen parent.

“Pleasant Progress”

In this article we are reporting a very unusual result in a plant we call “Pleasant Progress” (See Photo 1). “Pleasant Progress” is the result of a hand cross between the diploid hybrid seed parent, (*R. cumberlandense* X *R. viscosum*) (See Photo 2.), with the tetraploid species pollen parent, *R. colemanii*. (See Photo 3.) What is surprising is that “Pleasant Progress” is a tetraploid and produces open pollinated seed.

The normal case for the diploid seed parent is to form the ovule (egg) by reducing chromosomes to a haploid (1x) gamete. We theorize that the most likely scenario in producing a tetraploid from this cross would be for the diploid seed parent, (*R. cumberlandense* X *R. viscosum*), to produce an unreduced gamete and therefore had a 2x gam-

ete that was fertilized with a normal contribution from the tetraploid pollen gamete, also 2x, *R. colemanii*. This combination results in a tetraploid seedling ($2x + 2x = 4x$) rather than a triploid ($1x + 2x = 3x$). Flow cytometry shows that the siblings of “Pleasant Progress” tested, as expected, to be triploids ($1x + 2x = 3x$). The triploid siblings appear to be both seed and pollen sterile, again, as expected and more heavily favor the tetraploid parent *R. colemanii* also as expected. (See Photo 4.) “Pleasant Progress” is however both seed and pollen fertile. The backcross [*(R. cumberlandense* X *R. viscosum*) (2x) X “Pleasant Progress” (4x)] produces seed and viable seedlings. With “Pleasant Progress” we have a fertile tetraploid that can contribute diploid genes into the tetraploid species gene pool.

“Park’s Deep Pink”

Despite our findings that crossing between diploid and tetraploid deciduous azalea species is unidirectional, in that diploid pollen is not accepted onto the tetraploid, that does not hold true when interploidy plants are produced. An unusual and



Photo 2. (*R. cumberlandense* × *R. viscosum*) (2x). The diploid seed parent of “Pleasant Progress” (4x).



Photo 3. *R. colemanii* (4x), the tetraploid pollen parent of “Pleasant Progress” (4x).



Photo 4. A typical triploid (3x) sibling of “Pleasant Progress” [(*R. cumberlandense* × *R. viscosum*) (2x) × *R. colemanii* (4x)] showing the higher influence of *R. colemanii*.

fortuitous finding is a plant bred by the late Joe Parks of Dover, NH, called simply, “Park’s Deep Pink” (See Photo 5). “Park’s Deep Pink” is a seed fertile triploid deciduous azalea, producing seed when crossed with both diploids and tetraploids. When “Park’s Deep Pink” is crossed with a diploid producing seedpods the flow cytometry testing of the seeds shows that there is a mix of diploid, triploid, and tetraploid seeds. To date, only a few long-term viable seedlings have been produced from the diploid crosses. Using flow cytometry, we have been able to document that seedlings from “Park’s Deep Pink” X tetraploid tested in a range from triploid, tetraploid, aneuploid (an abnormal number of chromosomes between triploid and tetraploid), and occasionally pentaploids (5X). Our hybrid “Canobie Conundrum” (See Photo 6.) is the tetraploid pollen parent used in hybridizing with “Park’s Deep Pink” to produce seedlings of different ploidy levels.

Photo 7 shows a pentaploid seedling that is the result of the cross (“Park’s Deep Pink” X “Canobie Conundrum”). This pentaploid seedling from (“Park’s Deep Pink” X “Canobie Conundrum”) has proven to be seed fertile. So far, “Park’s Deep Pink” seeds produced using tetraploid pollen have better germination than from diploid pollen. These results show that fertile triploids can be a mechanism for bidirectional gene flow between diploids and tetraploids and also a mechanism for the production of fertile pentaploids containing both diploid and tetraploid genes.

‘Fragrant Star’ and “Pleasant Pathway”

Another interesting finding involves using the plant ‘Fragrant Star’ in our breeding program. ‘Fragrant Star’ is an octaploid (8x) produced by Bruce Briggs of Olympia, Washington, who chemically treated the tetraploid *R. atlanticum* ‘Snowbird’. ‘Fragrant Star’ is both seed and pollen fertile producing a 4x gamete but we have only been successful using it as a pollen parent (See Photo 8). Crosses of tetraploid with ‘Fragrant Star’ pollen produce, as expected, hexaploid (6x) seedlings ($2x + 4x = 6x$). An example of a hexaploid result is the plant we are calling “Pleasant Pathway” (See Photo 9). “Pleasant Pathway” is a hexaploid resulting from the tetraploid ‘Chickasaw’ crossed with pollen from the octaploid ‘Fragrant Star’.

Hexaploids will reduce in gamete formation to a 3x pollen or 3x ovule. These hexaploid plants are both seed and pollen fertile and, incidentally, very fragrant. Remarkably, we crossed tetraploids with these hexaploid plants in both directions and produced pentaploid (5x) offspring ($3x + 2x = 5x$) or ($2x + 3x = 5x$). Pentaploid seedlings from such crosses have proven to be both seed and pollen fertile also. (See Table 1). Hand crossing of diploids with hexaploid pollen produced seedpods and viable tetraploid seedlings ($1x + 3x = 4x$). None of these hexaploid pathway tetraploid seedlings to date has matured to flowering size. Since 2020, we have demonstrated that crossing pentaploids with other pentaploids produces seedpods. The resulting seeds have not been tested for ploidy. Since pentaploid seed parents produce viable offspring, we are hopeful that subsequent years' seed crops will also prove viable.

Flow cytometry from the Portugal group has been used to verify the ploidy levels of seed and seedlings resulting from all crosses mentioned above and was used to create the Table of Ploidy Interactions.

Conclusions

The interploidy pathways demonstrated in our hand crosses may play a role in the bidirectional flow of genes between diploid and tetraploid deciduous azalea species of North America. Possible mechanisms are 1) unreduced gametes from diploids, 2) variable sized gametes from fertile triploids, and 3) variable sized gametes from fertile pentaploids. Lepidote rhododendrons do have naturally occurring hexaploid and octaploid species based on flow cytometry. However, the higher ploidy of hexaploid and octaploid are of academic interest in deciduous azaleas, as there is no evidence to date that suggests hexaploid or octaploid deciduous azaleas occur naturally in North America or elsewhere.

We have demonstrated that fertile pentaploids can be produced via a triploid pathway or a hexaploid pathway. We will continue this work by looking at flow cytometry of fertile pentaploids offspring. Planned future hand crosses will explore the diploids interaction with pentaploids.



Photo 5. "Park's Deep Pink" (3x), a seed fertile triploid deciduous azalea.



Photo 6. "Canobie Conundrum" ('My Mary' (4x) × 'Marydel' (4x)) is the tetraploid pollen parent used in hybridizing with "Park's Deep Pink" (3x) to produce seedlings of different ploidy levels.



Photo 7. An example of a pentaploid (5x) seedling of "Park's Deep Pink" (3x) × "Canobie Conundrum" (4x)



Photo 8. 'Fragrant Star' (8x), the octoploid, chemically created from *R. atlanticum* 'Snowbird' (4x).



Photo 9. "Pleasant Pathway" (6x), a hexaploid result from 'Chickasaw' (4x) × 'Fragrant Star' (8x).

About the Authors:

Sally and John Perkins garden in Salem, NH, on a small wooded lot full of wildflowers and rhododendrons made possible by the excellent drainage, afforded by the slope down to the shoreline of Canobie Lake. Both have been members of the Massachusetts Chapter American Rhododendron Society for 30 years in various roles, now mostly with the Plants for Members program and the seed exchange. They also maintain a Vaseyi Chapter membership in the ASA and contribute to its seed exchange. Sally and John are both happily retired from their former lives and enjoy spending winters not in New Hampshire.

Mariana Castro, Silvia Castro, and João Loureiro are all members of the Centre for Functional Ecology - Science for People & the Planet, University of Coimbra, Coimbra, Portugal. João Loureiro is Assistant Professor at the Department of Life Sciences (Plant Physiology and Bioinformatics). Ten years ago, Mr. Loureiro offered to do the flow cytometry if the Perkins could provide the samples and if the University of Coimbra would have the right to use the data. They have run almost 3,000 samples to date.

All photos in this article are by John and Sally Perkins.

Additional Resources on Ploidy Interactions and Definitions of Terms

- Perkins, John and Sally. 2010. "Rules of Engagement: Have Pollen—Will Travel." *The Azalean*, 32(2): 28-33.
- Perkins, John and Sally. 2015. "More Weighing: Exploring the Ploidy of Hybrid Elepidote Rhododendrons." *The Azalean*, 37(1&2): 28-42.



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ASA Financial Statement - December 31, 2021

By Paul A. Beck, Treasurer

INCOME STATEMENT

Year 2021

RECEIPTS

Contributions, Donations & Gifts	\$ 7,269
Dues (Life & Regular) ¹	\$15,095
Seed Exchange	\$ 1,493
<i>The Azalean</i>	\$ 4,915
Interest & Dividends	\$ 5,316

Total Receipts \$34,088

EXPENSES

Grants	\$ 0
Professional Fees	\$ 7,200
Printing, publications, postage	\$10,657
Membership	\$ 2,188
Other expenses	\$ 1,007

Total Expenses \$21,052

INCOME - EXPENSES \$13,036

¹ In 2021, the dues revenue was \$15,095 compared to \$12,270 for 2020. \$1,200 of the difference is due to two life memberships.

Full details may be found on the ASA website under About the Society/Archives/Annual Reports. You must be logged in to view the report.

BALANCE SHEET

December 31, 2021

ASSETS

Checking	\$ 9,765
Savings	\$ 27,422
PayPal	\$ 775
CDs	\$ 83,287
Investments	\$207,019

Total Assets \$328,268

LIABILITIES AND RESERVES

Uncashed checks	\$ 0
Credit Card Account	\$ 104
Operating Fund	\$154,696
General Endowment	\$ 59,400
Research Fund	\$114,068

Total Liabilities \$328,268

Chastant Brothers, Inc. is a 3rd generation, family-owned and operated farm store based in Lafayette, LA.

We make a custom camellia-azalea fertilizer called the "Bayou Special."



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