

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.

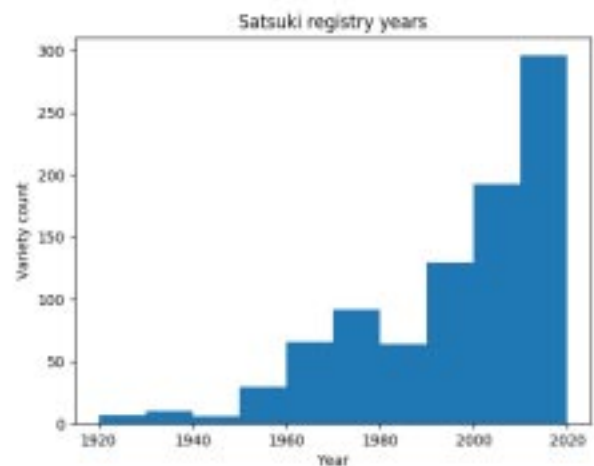


Figure 3. Number of new Satsuki varieties registered by decade in the 2020 Satsuki Dictionary.

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.

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



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

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	焯陽	-	-	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.

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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’

References and Notes

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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>