The Fuchsia Breeders Initiative

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Contents of this issue:

Contributions for the next issue, which is scheduled for the end of July 2026, should be in the editor's possession ultimately on 10 July 2026.

Please send your contribution in Word, with the photographs attached separately. Large contributions can be transferred by uploading the file with, for example, WeTransfer.

Any new Fuchsia cultivars being released? Please provide a photograph and some descriptive information, and it will be seen and get attention all over the world!

Photograph on front page: 'Aphaia' (De Cooker, 2014)

A year of highs and lows

It was a year of highs and lows. The lows were undeniably the loss of two icons of the fuchsia world: Mr. Henk Waldenmaier and Mrs. Simone Lomet. You can read their obituary in this issue. The highs were the progress in the development of aneuploid fuchsias. It opens up a world of new opportunities.

This issue of The Fuchsia Breeders Initiative was scheduled to feature the progress made in creating multi-flowering fuchsias. Last year, many crosses were made for this purpose, several of the offspring of which will certainly flower in 2026. To keep reporting up-to-date, this article has therefore been postponed.

A more urgent need for an article lies in the progress made in creating aneuploid triphylla fuchsias. New results and insights on this topic continue to develop. Every year, new colour schemes are obtained from crosses. Even more interesting is that, based on a re-evaluation of previous flow cytometry measurements, it appears possible to create open-pollinated hexaploid lines from certain pentaploid triphylla fuchsias. The enormous variation that seems possible in the genotype, and consequently in the phenotype, potentially opens up a world of possibilities for creating new triphyllas in all sorts of shapes and colours. This can be further enhanced by making crosses with species with an interesting, unusual shape, such as *Fuchsia apetala* and *F. inflata*.

Editor of The Fuchsia Breeders Initiative

Mario de Cooker

Several promising offspring have been obtained from *F. apetala* this year. Crossings with *F. inflata*, with its very long tube of 13 cm, were not yet successful. This is partly due to the small number of flowers produced so far on the rather slow-growing plants, which limits the number of crosses that can be accomplished.
A little patience is required here.

I wish you, your family and friends a Merry Christmas and a Happy, Healthy and Peaceful New Year.

Mario de Cooker

Obituary Henk Waldenmaier (1943-2025)

On an already gloomy and drizzly October day, we received the sad news that our fuchsia friend Henk Waldenmaier passed away on Saturday, October 18th, at the age of 82. The news of his passing wasn't entirely unexpected. Henk had been ill for some time, and the prognosis offered little hope for a good outcome.

Just a few weeks earlier, in mid-September, my wife Sonja and I had visited Henk and his partner Wilma. Henk was already quite weak, but his mood certainly hadn't suffered. We enjoyed a cup of coffee and a pleasant chat, accompanied by a generous portion of pastries. "It can't hurt anymore," Henk said with a twinkle in his eye as he devoured a large 'Bossche bol'.

With Henk, we lose an icon in fuchsia breeding. His first activities in this field date back to the early 1970s. His interest in genetics stemmed from his studies at the Agricultural College and his work at the pharmaceutical company Organon. The great diversity of fuchsia shapes and colours appealed to him, and he never doubted for a moment that it was very worthwhile to delve into this plant. This hobby grew into a true passion and, as fuchsia enthusiasts have all experienced, has yielded great success. Thanks to Henk's efforts, several hundred new cultivars saw the light of day, initially released under the abbreviation WALZ as a kennel name, later with the prefix Herps, referring to his place of residence Herpen.

'WALZ Jubelteen'

The most successful varieties were 'WALZ Harp' (widely used for breeding), 'WALZ Mandoline' (the first beautiful double orange), and of course the top variety 'WALZ Jubelteen' (with upright facing flowers). Many cuttings of this last cultivar are still sold annually.

Henk's interests in plants were broad. He and Wilma spent many hours in the garden, not only tending to his fuchsias, but also to his begonias, hydrangeas, grapevines, fruit trees, and tomatoes, to name just a few.

Sonja and I enjoyed a close bond with Henk and Wilma for many years. Something precious has now passed. However, our sorrow for Henk's passing pales in comparison to the grief Wilma, her children, and grandchildren are now experiencing. We wish them strength and courage. And we express the hope that the fruits of Henk's life's work: the many beautiful new fuchsias, will continue to find their way to the many fuchsia lovers in the Netherlands and far beyond for many years to come.

Escapees

By Edwin Goulding *Photographs by Edwin Goulding*

Introduction

Part one of this two-part article on "Escapees" looked at some seedlings that never made it to market. The reasons for their destruction accompanied some of the rationale behind the original crosses. We will continue along these lines.

Grouping Fuchsia hybrids into niche categories helped when planning each year's hybridising programme and sales. We have already considered Triphyllas and Encliandras together with other aspects of colour, flower conformation, habit of growth, and novelty value.

Encliandras

Work within Section Encliandra has been sadly lacking. Productive work, that is. One of the reasons for this is the lack of available tetraploids among the Species in circulation. It also appears that the majority of these are not even true Species. Variation among seedlings is just too great and pollen analysis refutes the suggestion, fertility rates are too low. One British hybridist sought to produce the smallest flowered Encliandra. We know that these can only be pistillate blooms. Perfect, or complete, flowers will always be of a larger conformation. Colchicine has not been used when hybridising in this Section and doubleness is still a dream.

Coral Baby

X

F. ravenii

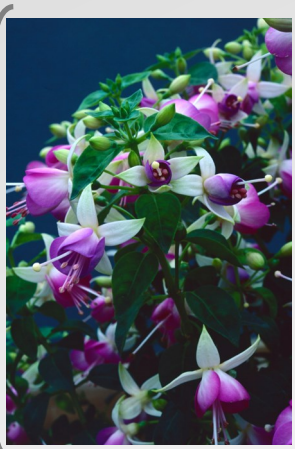
Unnamed seedling, 1996

Upward & outward

Estelle Marie had several advantages as a parent. First, it had open saucer-shaped flowers. Second, these were displayed at the periphery of its foliage pointing upward and outward where they were clearly visible. Perhaps less obviously, this was a multi-flowering hybrid. Lastly, it was very fertile in both directions, a rare attribute. Aalt Groothuis was notable for its large saucer-shaped blooms. As can be seen from the photograph (p.4), this seedling had an attractive conformation but, unfortunately, its habit of growth left much to be desired as it was lacking side shoots. The whole plant when mature lacked eye appeal and proved sterile.

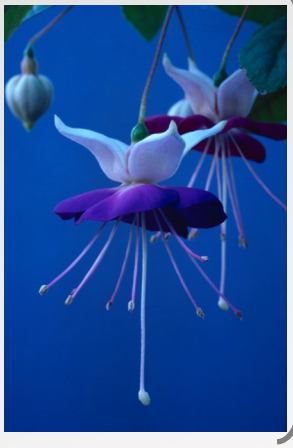
Estelle Marie

x



Estelle Marie

x



Aalt Groothuis

Unnamed seedling, 1996

Upward & outward

Blush of Dawn has no visibly strong characteristics but will partner many other Fuchsias. Here, an attempt was made to change the formation of upward and outward flowering blooms. Love's Reward lacks great individuality. Seedlings resulting from this partnership had fabulous flowers but lacked all originality. It is worth reiterating here that a single seedling is rarely the outcome of any cross. Others are unlikely to be taken seriously if their habit of growth and blooms prove inferior to the best one as shown here. In this instance both flowers and growth resembled the seed parent much more than the pollen one.

Blush of Dawn

x

Love's Reward

Unnamed seedling, 1999

Triphyllas

As can be seen, Leverkusen proved fertile as a mother plant. Here it was crossed with one of the smaller double white hybrids called Snow White. This would have been experimental rather than in expectation of a particular outcome. Perhaps, doubleness would appear; white petals would have been an advantage. This seedling shows that doubleness did occur, but at the expense of curved and unsightly long tubes, a case of almost. Growth was sprawling and pedicels too weak. Flowers were not consistently produced in every leaf joint, never mind in terminal racemes like triphyllas usually do. In this case the seedling proved sterile both ways.

Leverkusen

X

Snow White

Unnamed seedling, 1999

Doubles

Brian Kimberley once counted the petals and petaloids present in the tightly ruffed corolla of a Wally Yendell flower; there were fifty-five. While most hybridists were concentrating on other matters, we were forced by commercial necessity to supply a range of different cultivars to Fuchsia collectors and enthusiasts. This is where niche sections also partially dictated the balance of the annual hybridising programme. Just a pretty flower was not adequate, if the flower was too much like others already available, then the habit of growth had to be greatly improved. Here, novelty did not exist, and the seedling illustrated was subsequently destroyed.

Kelly Stableford

X

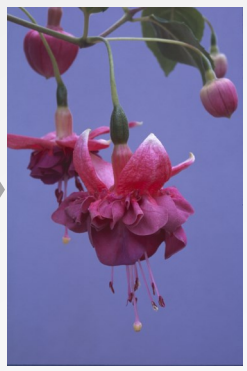
Wally Yendell

X

Giovana & Wesley

X

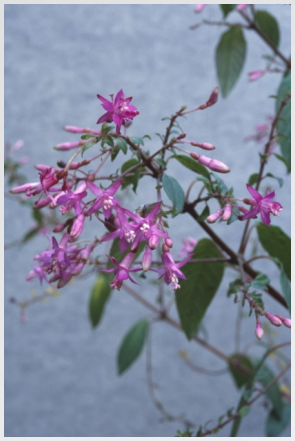
Wally Yendell



Unnamed seedling 2001

Paniculates

In this cross there was complicated parentage that probably included *F. splendens*, *F. paniculata* and *F. magellanica* in past generations. Adding others created another huge leap into the unknown. Colour changes could be expected, and the presence of petals in every flower. Sadly, the blooms were of no great significance and the habit of growth left much to be desired. It could legitimately be claimed this was a (crazy) mixed-up seedling. The final drawback was its lack of fertility in either direction. However, as is explained in Springer's book, *Ornamental Crops*, such experiments paved the way towards future developments such as Encpans and Pantris.



Piet van de Sande

X

F. ravenii

Unnamed seedling, 2003

Encliandras

We have touched on this section before. Jan de Boer not only gave us large numbers of unusual introductions, but he also provided us with fertile hybrids. Here is a seedling raised from the cross between Straat Moji and *F. ravenii*, the largest flowered Species in Section Encliandra. It had few faults but was condemned for its mediocrity, nothing new or different, nothing novel. Fertility was lacking, so we can see why this group has been crossed with paniculates in recent times (Encpans). The breeder of the Oulton series of Encliandras once showed me a photograph of a double he had destroyed, its pollen parent was Baroness van Dedem, seed parent unknown.

Straat Moji

X

F. ravenii

Unnamed seedling, 2003

Conclusion

Of the thousand Fuchsia seedlings bred every season for twenty years, fewer than one per cent were kept. In this article only fourteen seedlings that were destroyed have been illustrated and discussed. Thirteen, unlucky for some? Well, there were a lot more. Various reasons can explain their demise. When we are told about the survival of "the good old ones" it is easy to ignore the thousands that were released at identical times and then perished, survival of the fittest in operation. Plants need a purpose. Vast numbers never even reach the marketing stage. Major developments in hybridising Fuchsias are very slow, as they are with other Genera.

Herman de Graaff said that all new seedlings presented for approval by the Nederlandse Kring van Fuchsiavrienden judges should be assessed for their Novelty value. Gouldings Fuchsias had a similar concept, new introductions had to be "Better and/or Different". We know that individual assessments will always vary somewhat but those made by people who have little, or no experience of hybridising, are unlikely to "cut it" in the commercial world. A wide and detailed knowledge of the thousands of introductions already on the market is a prerequisite for any valid assessment. Those that don't sell won't survive. Don't ask peoples' opinions, ask them for their money and you will see.

In the TFBI, Issue 12, page 9 detailed information is provided about the most comprehensive and up-to-date book to be published on breeding ornamental plants. Chapter sixteen is devoted to Fuchsias. The book is produced by Springer International, the German academic publishing house. It is the second of their publications in the series *Handbook of Plant Breeding*. I would suggest that for anyone seriously interested in hybridising the *Genus Fuchsia* it is essential reading. However, one glance at its price might put you off. It needn't do so. Individual chapters are obtainable more cheaply, and several different presentations are readily available, e.g. Kindle. Anyone seeking clarification can look on the web site suggested or contact Mario de Cooker who has first-hand knowledge of this book's production and availability.

Participation, that's the thing.

You must be in it to win it.

New Fuchsia from Hans van Aspert

Photographs by Hans van Aspert

Fuchsia 'Jaspers Happy Days'

'Jaspers Happy Days' originates from the cross ((*F.* x *colensoi* x *F. magdalenae*) x 'Jaspers Big Boy') x 'Spray'. It is an upright, medium-sized plant with moderate branching. This fuchsia is easy to grow and tolerates plenty of sun. Flowering starts early, from late May, and continues unabated until pruning at the end of the season. It produces abundant flowers, two to three per leaf axil.
Overwintering is no problem at all.

Obituary Simone Lomet (1933-2025)

Notre amie Simone Lomet est décédée dans la nuit du Dimanche 28 septembre à la suite d'une courte maladie.

Peu de temps avant, nous avions eu le bonheur de passer une après midi chez elle, évoquant d'anciens souvenirs. Son jardin, que nous avions lentement parcouru, en s'arrêtant devant chaque fuchsia, témoignait de sa passion et de sa connaissance de ces plantes. Dans son salon, ses broderies de fuchsias faisaient échos aux nombreux objets qui témoignaient de sa passion pour « Fuchsia Lore » auquel elle était très attachée.

Chaque mardi elle était présente dans son bureau de la Société Nationale d'Horticulture de France. Elle y apportait bonne humeur et dévouement pour la cause des fuchsias accompagnée souvent par une de ses pâtisseries dont elle avait le secret. Elle ne manquait jamais les événements organisés par la SNHF ou les fêtes des plantes, elle s'assurait discrète et efficace que la section fuchsia y soit bien représentée.

Sa passion pour le fuchsia, sa connaissance encyclopédique des noms de ces plantes lui avait valu d'être honorée de deux créations de fuchsia par René Massé, l'un porte son nom « Simone Lomet », l'autre le surnom affectueux de son époux » Gamin de Paris ».

Son dévouement pour le fuchsia ne doit pas faire oublier toute son implication dans nombre d'activités de la SNHF, particulièrement ses célèbres « voyages fuchsias », grâce auxquels nous avons pu découvrir en sa compagnie les plus beaux jardins de Grande Bretagne et d'Europe.

***Fuchsia* 'Simone Lomet'**
(Massé/Delhommeau, 1993)


© Catherine Secq

Simone Lomet

Sa participation active à Eurofuchsia fut pour elle un grand moment de sa vie. Vous y aviez pu apprécier sa gentillesse, sa convivialité, son enthousiasme et sa grande connaissance et amour des fuchsias. Elle avait gardé en mémoire toutes les rencontres qu'elle y avait fait. Elle nous rappelait sans cesse l'urgence de publier notre bulletin « fuchsias-pélargoniums », que sitôt paru elle s'empressait d'envoyer à tous ses amis d'Eurofuchsia.

Elle était très dévouée au sein de la paroisse de sa ville de Pontault-Combault. Grâce a son action efficace la chapelle où fut célébrée sa messe d'adieu est ornée de magnifiques vitraux aux lumineuses couleurs. L'assistance très nombreuse à cette cérémonie, recueillie et reconnaissante, manifestait son attachement en lui offrant d'énormes gerbes de fleurs.

Son infatigable engagement lui valurent honneurs et récompenses. Elle reçut la grande médaille de la SNHF. Suprême marque d'honneur, elle fut élevée au grade d'officier dans l'ordre national du mérite agricole.

La section fuchsia pleure la disparition d'une très chère amie et d'une grande dame du monde du fuchsias.

La section fuchsias de la SNHF

Alain KARG, Alain LE BORGNE

Our friend Simone Lomet passed away in the night of Sunday, September 28th, following a short illness.

Shortly before, we had the pleasure of spending an afternoon at her home, reminiscing about old times. Her garden, which we strolled through at a leisurely pace, pausing before each fuchsia, bore witness to her passion and knowledge of these plants. In her living room, her fuchsia embroideries echoed the many objects that reflected her passion for "Fuchsia Lore," to which she was deeply attached.

Every Tuesday, she was at her office at the National Horticultural Society of France. There, she brought with her a good mood and dedication to the fuchsia, often accompanied by one of her pastries for which she had a secret recipe. She never missed events organized by the SNHF or plant fairs, discreetly and efficiently ensuring that the fuchsia section was well represented.

Because of her passion for fuchsias, and her encyclopaedic knowledge of their names, she was honoured with two fuchsias, created by René Massé. One bears her name, "Simone Lomet," and the other her husband's affectionate nickname, "Gamin de Paris" (Parisian Kid).

Her devotion to fuchsias should not make us to forget her extensive involvement in numerous activities of the

Simone Lomet and Alain Karg (2011)

Diploma of Honor of the SNHF awarded to Herman de Graaff (2015)

EuroFuchsia meeting in Paris (2009)

Embroidery, made by Simone for Mario de Cooker

SNHF (the French National Horticultural Society), particularly her renowned "fuchsia tours," which allowed us to discover, in her company, the most beautiful gardens of Great Britain and Europe.

Her active participation in Eurofuchsia was a highlight of her life. It allowed us to appreciate her kindness, conviviality, enthusiasm, and profound knowledge and love of fuchsias. She cherished the memories of all the people she met there. She constantly reminded us of the urgency of publishing our "Fuchsias-Pelargoniums" newsletter, which she promptly sent to all her friends at Eurofuchsia as soon as it appeared.

She was very dedicated to her parish in Pontault-Combault. Thanks to her effective work, the chapel where her farewell mass was celebrated is adorned with magnificent stained-glass windows in luminous colours. The many attendees at her farewell, attentive and grateful, showed their affection by the many bouquets of flowers they brought.

Her tireless efforts earned her awards and rewards. She received the Grand Medal of the SNHF). As the ultimate mark of honour, she was made an officer in the National Order of Agricultural Merit.

The Fuchsia section mourns the loss of a very dear friend and a great lady of the world of fuchsias.

The Section Fuchsia of the SNHF

Alain KARG, Alain LE BORGNE

F. excorticata **in the Trewidden Gardens, UK (2012)**

Happy faces at a tour in the Cotswolds, UK (2008)

Together in 2013 with Karl Strümper, famous German hybridist (1929-2023), best known for making the iconic Fuchsia 'Leonhart von Fuchs'.

On the genome of Fuchsia 'Our Ted' and its progeny

By Mario de Cooker

Introduction

In recent years, it has become clear that pentaploid fuchsias with the AAAAB genome often have excellent fertility and can, in many cases, produce healthy offspring. Such good fertility was contrary to expectations, as there is in this genome no suitable mating partner present for the B chromosomes during meiosis.

Experiences with this type of pentaploid cross were previously described in The Fuchsia Breeders Initiative, Issue 22, December 2023, for seedlings with the TTTTJ genome. Here, T represents a complete set of 11 *Fuchsia triphylla* chromosomes and J represents a complete set of 11 *F. juntasensis* chromosomes.

From these crosses it can be concluded that the pentaploid fuchsia TTTTJ produces gametes consisting of TT + xj, that is, two sets of *F. triphylla* chromosomes plus a number of individual *F. juntasensis* chromosomes without a mating partner.
The set of 11 *F. juntasensis* chromosomes is distributed statistically among the gametes in a ratio of 6:5, 7:4, etc., whether or not supported by an alignment mechanism as described in [1]. The seedlings from this type of cross almost always have an aneuploid genome.

These new insights into the fertility of pentaploid fuchsias and the phenotype and traits of offspring from subsequent crosses offer the opportunity to reevaluate previous estimates of the genome of several polyploid fuchsias derived from this type of cross in previous years.

'Our Ted'

'Göttingen'

The article focuses on the cultivar 'Our Ted' and some of its descendants. This re-evaluation, as part of the ongoing 'Work in Progress' on triphylla Fuchsias, invalidates all estimates of the genome of the *Fuchsia* 'Our Ted' and its progeny published previously in The Fuchsia Breeders Initiative.

The genome of the Fuchsia cultivar 'Our Ted'

The Fuchsia cultivar **'Our Ted',** a nearly white triphylla, originates from the cross 'Thalia' x 'Thalia' [2]. The cultivar 'Thalia', like the cultivar 'Göttingen', originates from the cross *F. fulgens* x *F. triphylla*. Flow cytometry measurements suggest that 'Göttingen' is a pentaploid fuchsia with the genome TTTTF, where F represents a complete set of 11 *F. fulgens* chromosomes and T represents a complete set of 11 *F. triphylla* chromosomes. This genome has been verified by a chromosome count [3].
From flow cytometry, a 2C DNA value for 'Thalia' is derived that is comparable to that of 'Göttingen' [4]. The phenotypes of both cultivars also show great similarity. It is therefore very likely that the genome of 'Thalia' can also be described as a pentaploid TTTTF.
In the cross 'Thalia' x 'Thalia' = TTTTF x TTTTF, the *F. fulgens* chromosomes, referred to as f, divide statistically with an average ratio of

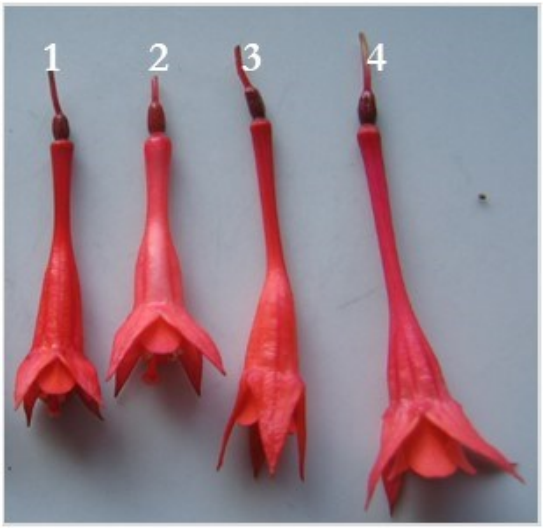
6:5 among the gametes. The *F. triphylla* chromosomes divide regularly 1:1 during meiosis as TT and TT. As a result of the aforementioned 'Thalia' selfing, an average genome of seedlings corresponding to TTTT + 11f is expected [5].
For 'Our Ted', a 2C value of 6.05 was found. Based on this, it was initially assumed that this might represent a pentaploid genome, such as TTTFF. However, the new insights into gamete formation in pentaploid fuchsias of the AAAAB type make this highly unlikely. The genome of 'Our Ted' seems better described as TTTT + 14f, thus a *F. triphylla* genome supplemented with 14 separate *F. fulgens* chromosomes [6].
This TTTT + 14f genome falls well within the margin for the expected value of the genome, based on a statistical distribution of f across the gametes.
Note that 11f of these 14f do not necessarily represent a complete set of *F. fulgens* chromosomes. This is even highly unlikely given a statistical distribution of the *F. fulgens* chromosomes across the gametes.
Therefore, we cannot represent the genome TTTT + 14f as TTTTF + 3f.
Some of these 14 f will, by definition, occur in duplicate, and possibly, but much less likely, even in triplicate. Because the multiple f all originate from the same source, that is, the same set of 11*F. fulgens* chromosomes in 'Thalia', they are also identical and homozygous at all loci.

Based on experiences with crossbreeding and selfings of *F. triphylla*, it is plausible that of the four chromosome sets in *F. triphylla*, at least one (indicated as Tw) codes for white, thus blocking the formation of anthocyanins [7]. The nearly white flower and green leaf in the phenotype of 'Our Ted' therefore probably result from a double reduction that occurred in such a *F. triphylla* chromosome in 'Thalia' during the formation of the 'Thalia' gametes.
Analogous to what's observed in the alba forms of *F. triphylla*, where the combination TTwTwTw produces a flower with a white tube and a light pink corolla, as found, for example, in *F. triphylla* 'Purcellian Elegancy', the possible genotype of 'Our Ted' can be further refined to T TwTwTw + 14f. Here, Tw represents a set of *F. triphylla* chromosomes coding for white, while T represents a regular set of *F. triphylla* chromosomes coding for an orange flower.
It is not clear how the 14 individual *F. fulgens* chromosomes in the genome contribute to the phenotype. However, as the phenotype shows, the shape of the flower does indeed seem to be influenced by them.

The genome of seedlings N 02-14 and N 02-16

Fuchsia 'Our Ted' has very limited fertility, both as the male and the female parent. Due to the unique character of this cultivar -it was, after all, the first nearly white triphylla- crosses were made with it in an attempt to expand the range of white triphyllas.
These crosses have produced a number of interesting offspring. Among these offspring, seedlings N 02-14 and N 02-16, dating from 2002 from the cross 'Göttingen' x 'Our Ted', have been preserved over the years. They are very fertile both sides.

Another seedling, N 03-01, originating from the same cross, with which several interesting later crosses were



1. Göttingen 2. N 02-14
3. N 03-01 4. N 05-31

made, has unfortunately been lost. No 2C value is available for it either, meaning that the genome of later crosses with this seedling can be estimated with less certainty. The cultivar 'Our Ophelia' (De Cooker, 2023), with a colour scheme similar to that of 'Our Ted', and with clear influences of *F. fulgens*, is an example of one of the descendants of seedling N 03-01 [8,9].

N 02-14

N 02-14 originates from the cross 'Göttingen' x 'Our Ted' = TTTTF x (TTTT + 14f). The expected outcome of this cross is the average genome TTTT + 13f.
The measured 2C of N 02-14 amounts to 6.33 pg, which corresponds to a genome TTTT + 16f. This value matches the expectation well. Some f chromosomes can occur in duplicate or even triplicate. In that case, however, they are not necessarily homozygous, as they originate from a different source.

N 02-16

N 02-16 also originates from the cross 'Göttingen' x 'Our Ted' = TTTTF x (TTTT + 14f). The expected outcome of this cross is the average genome size TTTT + 13f.
The measured 2C of N 02-16 amounts to 5.91 pg, which corresponds to a genome TTTT + 13f. This value matches expectations perfectly.

Seedling N 02-16 as well as 'Our Ted' make a much smaller plant than N 02-14.
The genotypes of seedlings N 02-14, N 02-16, and 'Our Ted' differ only slightly. However, the phenotype of 'Our Ted' differs dramatically as regards flowers and leaves from the N 02-14 and N 02-16 phenotypes.

From the cross 'Göttingen' x 'Our Ted', a colour difference of the phenotype can be easily explained.
'Göttingen' has a genome that can be described as TTTTwF or TTTwTwF [10]. The chance that T gametes, coding for orange, play a role in the outcome of the cross 'Göttingen' x 'Our Ted' is significant, resulting in a seedling with an orange or orange/red coloration.
Besides possible (significant) differences in the genetic traits for the flower shape of the individual homologous f-chromosomes present in the seedlings, the flower shape can be influenced by the large variability in the genetic traits for the flower shape in the *F. triphylla* chromosomes [11].

As far as fertility is concerned it's unclear why seedlings N 02-14 and N 02-16, with a quite similar genome to 'Our Ted', have much better fertility. Any suggestion of this would be highly speculative.

Crosses of N 02-16 with *F. fulgens*

In the years 2014 - 2016, a program was carried out to create mini-triphylla using seedling N 02-16. This seedling has the characteristic, when crossed with *F. fulgens* (in this case *F. fulgens* 'Gesneriana) of producing offspring with a significantly shorter tube length than the average tube length of both parents. Apparently, the expression of the genes coding for the tube length is significantly suppressed in these polyploid seedlings. Altered gene expression compared to the parents is a known phenomenon in neopolyploids.

N 02-14 = 'Henry Purcell'

Seedling N 02-16

An overview of the crosses performed can be found in [12]. Flow cytometric measurements were performed on some of the seedlings pro-

duced, which now allows for a re-assessment of the genome. For all seedlings produced from the cross N 02-16 x *F. fulgens* 'Gesneriana' = (TTTT + 14f) x FF, an average genome TTF + 7f is expected. Due to the participation of *F. fulgens* in the cross, the F in the genome in this case indeed represents a full set of 11 *F. fulgens* chromosomes. The f, again, represent the individual single *F. fulgens* chromosomes. Note that in this case the number of duplicate *F. fulgens* chromosomes will be significant.

Seedling **N 14-20** = N 02-16 x *F. fulgens* 'Gesneriana' = (TTTT + 14f) x FF.
The measured 2C is 4.41, corresponding to a genome TTF + 6f, which is in excellent agreement with the expected mean value.

Seedling **N 14-38** = N 02-16 x *F. fulgens* 'Gesneriana' = (TTTT + 14f) x FF.
The average genome as expected from this cross is TTF + 7f . The measured 2C value is 4.42, which corresponds to a genome TTF + 6f, and is therefore in excellent agreement with the expected mean value.

Seedling **N 15-13** = N 02-16 x *F. fulgens* 'Gesneriana' = (TTTT + 14f) x FF.
The measured 2C is 4.25, corresponding to a genome TTF + 5f, in excellent agreement with the expected mean value.

Seedling **N 15-24** = N 02-16 x *F. fulgens* 'Gesneriana' = (TTTT + 14f) x FF.

N 14-38 = 'Silence is Golden'

N 15-13 = 'Skyward Dwarf'

Male and female parent and crossing products.
Female parent: N 02-16 = 'Göttingen' x 'Our Ted'
Male parent: *F. fulgens* 'Gesneriana'.

A large difference exists between the smallest mini-triphyllas and the male parent *F. fulgens* 'Gesneriana'.

N 15-24 = 'Claire Marie McManus'

The measured 2C is 4.17, corresponding to a genome TTF + 4f, a good agreement with the expected mean value.

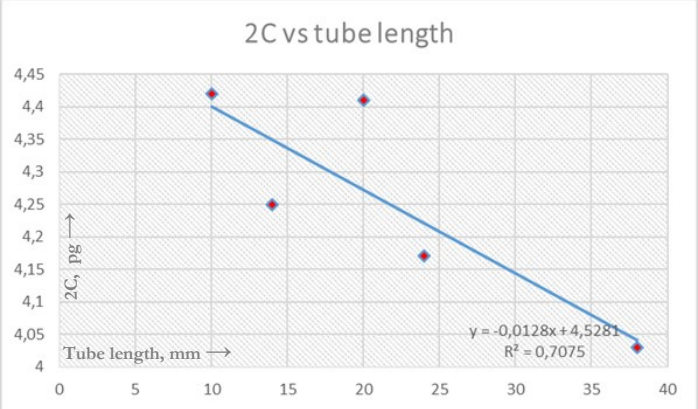
Seedling **N 16-52** = N 02-16 x *F. fulgens* 'Gesneriana' = (TTTT + 14f) x FF.
The measured 2C is 4.03, corresponding to a genome TTF + 3f, a good agreement with the expected mean value.

As expected for triploid specimens, no fertile individuals were found in the aforementioned seedlings.

An overview of the genomes of the discussed seedlings from the cross N 02-16 x *F. fulgens* 'Gesneriana' and the corresponding 2C values, measured by flow cytometry, is shown in the table below.

There appears to be a good, statistically significant relationship between the length of the flower tube and the 2C value. The details of this are unknown.

As regards the statistical distribution of the individual f chromosomes in this type of cross, it should be noted that the aforementioned seedlings, for which the 2C value was measured, are part of a larger number of seedlings resulting from the crosses. They are a selection of the



phenotypically most interesting plants. The 2C values therefore do not provide a general picture of the distribution of the individual f chromosomes across the gametes.

Subsequent crosses.

Subsequent crosses were performed with various seedlings as mentioned above. It is difficult to estimate the genomes of the resulting seedlings based on the crossing plus 2C value. We will usually have to make a "best guess". A complicating factor in these crosses is that after a number of crossing steps, some

Table: 2C-values of fuchsias as mentioned in the article

Fuchsia	2C, pg	Genome, derived from 2C	Genome, expected from cross	Remarks
F. triphylla	4.10	TTTT		2C is average value of several *F. triphylla* species forms; tetraploid
F. fulgens	3.10	FF		2C is average value of several *F. fulgens* species forms; diploid
Göttingen	5.31	TTTTF		
Thalia	5.48	TTTTF		
Koralle	3.49	TTF		Triploid variety
Our Ted	6.05	TTTT + 14f	TTTT + 11f	First near white triphylla (Goulding, 1987)
N 02-14	6.33	TTTT + 16f	TTTT + 13f	Fertile seedling, introduced as 'Henry Purcell' (De Cooker, 2025)
N 02-16	5.91	TTTT + 13f	TTTT + 13f	Interesting fertile crossing partner.
N 14-20	4.41	TTF + 6f	TTF + 7f	
N 14-38	4.42	TTF + 6f	TTF + 7f	Introduced as 'Silence is Golden' (De Cooker, 2016)
N 15-13	4.25	TTF + 5f	TTF + 7f	Introduced as 'Skyward Dwarf' (De Cooker, 2016)
N 15-24	4.17	TTF + 4f	TTF + 7f	Introduced as 'Claire Marie McManus' (De Cooker, 2020)
N 16-52	4.03	TTF + 3f	TTF + 7f	

Legend

T = full set of 11 *F. triphylla* chromosomes
F = full set of 11 *F. fulgens* chromosomes
f = single *F. fulgens* chromosome

Note that this overview does not distinguish between T and Tw because this is unknown for most seedlings.

of the single f chromosomes will find a partner in meiosis. These will then distribute evenly among the gametes, while the remaining single f chromosomes without a mating partner will distribute randomly. It is not unlikely that this will ultimately result in 11 single f chromosomes forming a complete set of 11 chromosomes as in the original species, designated here for *F. fulgens* as F. This cannot, however, be determined unambiguously by flow cytometry.

Formation of new species.

It is interesting to note that with this type of aneuploid cross, based on pentaploid fuchsias of the AAAAB type, open-pollinated fuchsia varieties can be obtained in relatively few steps through targeted selection of the seedlings involved in the cross.
In effect, these fuchsias are quite similar to new fuchsia species. But they will be significantly different from the species as we know them today. They will have an increased number of chromosome sets as regards the tetraploid parent A species, with a minimum of 6 (i.e., 4 sets of A type chromosomes and 2 sets of the B type), and a varying number of chromosomes per B set, with a minimum of 1. An (arbitrary) example of such TTTTF'F' genome, for which there are numerous possible combinations, is shown below.

T	T	T	T	F'	F'
t1	t1	t1	t1	f2	f2
t2	t2	t2	t2	f5	f5
t3	t3	t3	t3	f6	f6
t4	t4	t4	t4	f6	f6
t5	t5	t5	t5	f8	f8
t6	t6	t6	t6	f11	f11
t7	t7	t7	t7		
t8	t8	t8	t8		
t9	t9	t9	t9		
t10	t10	t10	t10		
t11	t11	t11	t11		

Arbitrary example of a genome out of the numerous possible genomes of a new open-pollinated fuchsia variety. In this example the fuchsia has a total of 56 chromosomes, namely 4 sets of 11 *F. triphylla* chromosomes and 2 sets of 6 homologous *F. fulgens* chromosomes. The individual chromosomes are shown in lower case letters.

Such speciation could also occur in nature. An example is an interspecific cross, if habitats overlap, of tetraploid species such as *F. triphylla* and *F. pringsheimii*. A hexaploid bridge TTTTPP or TTPPPP, resulting from a cross between the two species with an unreduced gamete involved, can easily lead to the pentaploid forms TTTTP and PPPPT. These can then produce aneuploid seedlings, such as TTTT + xp and PPPP + yt. In overlapping habitats, such aneuploid seedlings would virtually disappear after a few generations. In a new, isolated habitat, these seedlings could develop into new species (allopatric speciation).

Conclusion

Based on 2C values measured over the years by flow cytometry, a re-evaluation of the genomes of the fuchsias discussed in this article suggests that they are all aneuploid plants. The genomes of these seedlings consist of various combinations of complete sets of *F. triphylla* and *F. fulgens* chromosomes, supplemented by single *F. fulgens* chromosomes in varying numbers. The number of single *F. fulgens* chromosomes in these genomes, derived from the cross plus flow cytometry 2C values, corresponds very satisfactorily with the expected average statistical random distribution of these single chromosomes across the gametes.
A chromosome count of, for example, 'Our Ted' will ultimately be decisive in confirming or excluding certain genomes.

The pentaploid fuchsias of the AAAAB type have the potential to produce open-pollinated lines of type AAAAB'B' through targeted crossbreeding. This will be further investigated.

***F. triphylla* 'PB7760#6'**

References and remarks

[1] J. Joidl, F. Ehrendorfer and D. Schweizer, EM analysis of meiotic chromosome pairing in a pentaploid *Achillea* hybrid, *Heredity* 65 (1990), p.11-20.

[2] The origin of the cultivar 'Our Ted' is described in the literature by Mr. Edwin Goulding as a self of 'Thalia'. He later corrected this to a self of 'Koralle'. The 'Koralle' cultivar, present in the Netherlands is a triploid form with the TTF genome and a DNA 2C value of 3.49. Such type of plant is generally very infertile. It is therefore highly unlikely that a seedling like 'Our Ted' with a 2C value of 6.05 would develop from it. A pentaploid 'Koralle' with a 2C value equal to that of 'Thalia' could perhaps be in circulation in the United Kingdom. During the 125 years that these triphyllas have existed and been traded, exchange could easily arise between 'Thalia', 'Göttingen', and 'Koralle', all three originating from the same cross and having a very similar phenotype.

[3] The Fuchsia Breeders Initiative, Issue 10, December 2017, p. 14-15.

[4] The purpose of flow cytometry measurements is to establish the absolute amount of DNA in a non-dividing cell nucleus. This means the size of the full undivided genome in picograms (pg). This DNA measurement is referred to as the 2C-value. For a diploid plant the 2C-value corresponds to two sets of chromosomes For a triploid plant the 2C-value corresponds to 3 sets of chromosomes, for a tetraploid plant to 4 sets etc.

[5] For genome assessment, it is assumed that no crossing-over occurs between the homeologous F and T chromosomes during meiosis.

[6] These two genomes have approximately the same number of chromosomes and the same 2C value. However, the TTTFF genome has significantly more *F. fulgens* chromosomes than the TTTT + 14f genome. Because the chromosomes of *F. fulgens* are much larger than those of *F. triphylla*, a chromosome count plus visual assessment of the chromosomes can significantly assist in definitively confirming or excluding a particular genome.

[7] The Fuchsia Breeders Initiative, Issue 5, July 2015, p. 2-6.

[8] Seedling N 03-01, originating from the cross 'Göttingen' x 'Our Ted', clearly has more *F. fulgens* influences in its phenotype than seedlings N 02-14 and N 02-16.

[9] The cross N 02-16 x N 03-01 produced several seedlings with a relatively long tube. One of these is seedling N 05-31 (2C = 6.47), which was regularly used in the subsequent breeding program. On basis of the cross, best guess for the genome of seedling N 05-31 is TTTT + 17f. For the subsequent cross N 05-31 x *F. triphylla* f. *alba* = 'Our Ophelia', a genome TTTT + 8f is then expected, corresponding to a 2C value of 5.23. 'Our Ophelia' measured a 2C = 5.19, which is an excellent match. 'Our Ophelia' is very fertile as both male and female.

Seedling N 05-31

'Our Ophelia'

[10] The Fuchsia Breeders Initiative, Issue 8, December 2016, p. 14-18.

[11] The Fuchsia Breeders Initiative, Issue 4, December 2015, p. 11-15.

[12] The Fuchsia Breeders Initiative, Issue 7, July 2016, p. 11-15.

All photographs are from Mario de Cooker.

In July of this year, Irish Terrier Aphaia passed away at the age of 12.
As is customary, we always name a fuchsia after our dogs. This double triphylla shaped fuchsia 'Aphaia' originates from the crossing {'Roger de Cooker' x ('Checkerboard' x 'Machu Picchu') x ('Checkerboard' x 'Machu Picchu')} x 'Blush of Dawn'. It can best be grown as a semi-trailing fuchsia or a (lash) bush, both as an older plant or from young cuttings. If grown from autumn cuttings it makes a nice floriferous pillar if it is left unpinched. Overwintering does not cause any problems and regrowth and flowering starts early in the season.

Irish Terrier and Fuchsia 'Aphaia'

Contents of the next issue

The next issue is scheduled for the end of July 2026.

Seedling assessment
(by Edwin Goulding)

Charts can provide ways to store documentary and pictorial information, which can then be accessed subsequently to aid the planning of further Fuchsia hybridising projects. In the next issue of TFBI we will explore this aspect using examples already in use. Be prepared.

Creating new triphylla fuchsias
(by Mario de Cooker)

An overview of 15 years of research, part 3.
We continue our journey through 15 years of triphylla research. We'll focus on bicolored and multi-flowering triphyllas. Significant progress is being made in the latter area, resulting in seedlings with a vast number of flowers.

Want to learn more about all this? Then stay connected!

Your contribution to the The Fuchsia Breeders Initiative is highly appreciated.
Contributions for the next issue should be available no later than July 10, 2026.

The Fuchsia Breeders Initiative

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