

The Fuchsia Breeders Initiative

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Don't mention it!

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Contributions for the next issue, which is scheduled for the end of December 2018, should be in the editor's possession ultimately on 15 December 2018.

Please send your contribution in Word, with the photographs attached separately. Large contributions can be transferred by uploading the file by e.g. 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:

Fuchsia 'Sound The Trumpet'
(De Cooker, 2018)

Don't mention it! *Excuse me...?* **DON'T MENTION THE HEAT!**

But because weather conditions are so extreme for already a couple of months now, we could hardly go around it. In the South of The Netherlands, where I live, draught has never been so severe and temperatures have never been continuously so high as this year. But let's not start with addressing all the negatives, let's talk about the positives.

Advantage of such high temperatures for hybridization is that a relatively large number of unreduced gametes might be produced. Although the conditions for making crossings are very unfavourable, still opportunities might arise for creating interesting new seedlings having unexpected properties.

Furthermore, not all fuchsias feel unhappy at these high temperatures. 'Aphaia', as an example, seems to feel quite comfortable, and also 'Scarlet Jester' has again proven its value. Already for several months now it's in full sun without being damaged. Also 'Frans Boers' is in full sun for a large part of the day without suffering too heavily. We'll wait and see what happens now temperatures have reached exceptionally high values these weeks.

In fact, many more fuchsia cultivars perform well at these high temperatures if



Editor of The Fuchsia Breeders Initiative

Mario de Cooker

they are grown at a sheltered position. For preventing too much damage I have rearranged my fuchsia pots in the front yard, which is facing North. A number of big pots has been moved to a more shaded area. They get some early sun for several hours, and the light they receive during the day seems to be sufficient for a healthy growth. Indeed, the fuchsias in these pots seem to feel perfectly happy.

Part of my new seedlings is now also positioned at a shaded area in my front yard. Problem could be overwatering as the seedlings are very diverse, having all different water requirements. Sometimes it's therefore somewhat difficult to judge whether a new plant is just a poor grower by itself or is suffering from overwatering or heat. On the other hand, advantage is that many blooms can now be judged on their behaviour at high temperatures. Some performances are really surprising.

Fingers crossed!

Mario de Cooker

Apomixis-a rare case

By Edwin Goulding

Photographs by Edwin Goulding and Hans van Aspert

Introduction

There is only one known case of apomixis occurring in the Genus *Fuchsia*. It is found in Section *Fuchsia* in a single variant of *F. boliviana* called *F. boliviana* var. *luxurians* 'Alba'. *F. boliviana* var. *boliviana*, the form most frequently found in cultivation, is a plant of moderate vigour that bears large terminal panicles or corymbs of dark red, long tubed, flowers. *F. boliviana* var. *luxurians* is rather more vigorous and carries brighter red flowers on paler and has more hirsute foliage. *F. boliviana* var. *luxurians* 'Alba' is usually indistinguishable from *F. boliviana* var. *luxurians* prior to flowering; the blooms themselves are striking bi-colours with long white tubes, short white sepals, and scarlet petals.³

Now, the strange thing is that both *F. boliviana* var. *boliviana* and *F. boliviana* var. *luxurians* produce seeds and seedlings in what appears to be the normal, sexual, way. They also produce viable pollen. *F. boliviana* var. *luxurians* 'Alba' alone of the three produces seeds apomictically. This one is the subject of our discussion.

Defining apomixis

Flowering plants are characterised by double fertilisation in which the fertilised egg gives rise to an embryo. Fertilisation of the central cell results in the formation of the endosperm which supplies nutrients to the embryo or seedling. The majority of apomicts are pseudogamous, requiring fertilisation of the central cell for the generation of a viable endosperm. Autonomous apomicts develop both embryo and endosperm in the absence of fertilisation.⁶

The vast majority of *Fuchsias* produce their seeds sexually, by pollen from their own anthers or those of other cultivars.⁵ Sexual development becomes deregulated and meiosis is circumvented in a process called apomeiosis. Apomixis is asexual reproduction; i.e. without fertilisation. Eggs are activated without fertilisation and this is often referred to as parthenogenesis. Functional endosperm also is created.



F. boliviana var. *boliviana*

In this process clonal progeny are produced which are identical to the mother plant in their genotype and in their phenotype. (It is important to realise that cuttings, in which offspring are produced vegetatively, and therefore are like clones of their parent plant, are not included in the definition of apomixis.)

Causes of apomixis

Gametophytic apomixis occurs when the megagametophyte has the same number of chromosomes as the mother plant because meiosis was not completed. This is sometimes described as diploid parthenogenesis.^{4,7}

Apomictic species often have a hybrid origin and are usually polyploid.⁷

F. boliviana var. *luxurians* 'Alba' has been shown, by flowcytometric measurements, to have virtually the same chromosomal weight as its two red progenitors.^(a) From this it can be seen that gametophytic apomixis has oc-

curred and there is no drop in chromosome numbers to the haploid level. Equally, it can be seen that it does not result from a cross between a diploid species and a polyploid *Fuchsia*. In this case the chromosomal count would be expected to rise.²

Is apomixis obligate?

The majority of apomicts retain some degree of normal sexuality.⁷ This also appears to be the case with *F. boliviana* var. *luxurians* 'Alba'. As far back as 1981 John Wright produced a cross between *F. boliviana* var. *luxurians* 'Alba' and its closest relative that he called 'Pink Cornet'.¹

Hans van Aspert has also produced some seedlings using this variant as a seed parent crossed with *F. triphylla* as the pollen parent, they are 'Jaspers Red Ruby' and 'Jaspers Snoepje'.^(b)

Sources of information

The majority of research into apomixis has been related to the main food crops where it has been thought there would be distinct benefits, financial and otherwise, if the condition could be created artificially. There has so far been no success among commercial crops. We know that various types of apomixis occur and it seems probable that some occur naturally as the result of a single genetic change. Other examples could be caused by a quantitative ratcheting of genetic alterations.⁵ There is currently no way of telling which is the more likely option in our example, *F. boliviana* var. *luxurians* 'Alba'.

Conclusion

In the sixty or so years in which I have grown and observed *Fuchsia* characteristics, habits and preferences, a few things are noteworthy:-

The first of these is that *F. boliviana* var. *luxurians* 'Alba' often exhibits virus-like symptoms in its leaves. These changes do not appear to be connected to any particular feed regimes nor to some stock but are general and rather spasmodic in their appearance.

Large numbers of seedlings have been raised from



F. boliviana var. *luxurians*



F. Jaspers Red Ruby
(Van Aspert, 2012)



F. Jaspers Snoepje
(Van Aspert, 2012)

the self-fertilised pods and these have all been visually identical to their mother plant. Flowering itself is rather unpredictable and certainly less frequent than that of our other two red examples, *F. boliviana* var. *boliviana* and *F. boliviana* var. *luxurians*. Such things as the age of the plant or the size of the pot appear to play no part in this process.

Most of the cultivars released to date result from crosses in which *F. boliviana* var. *luxurians* 'Alba' was used as the seed parent. A single example exists of its use as a pollen parent; 'Straat Kobe' = 'Sparkling Whisper' x *F. boliviana* var. *luxurians* 'Alba'. It was bred by Jan de Boer and released in 2004; another example of this innovative hybridist's output.

There is also the possibility that only pollen taken from plants with polyploid chromosome counts will be able to produce effective out-crosses. This could introduce one significant new possibility into the hybridising gene pool for triphylla types, bi-colour blooms.

Notes

- (a) Personal communication from Gerard Rosema, 07.26.10.
- (b) The Fuchsia Breeders Initiative, Issue 7, July 2016, Page 6.

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F. boliviana var. *luxurians* 'Alba'

Poor sowing soil may destroy fuchsia seedlings

By Mario de Cooker

Fuchsia breeders are busy throughout the year with making crosses, harvesting the seeds, then sowing and finally growing the new seedlings.

Last year, in November, I had harvested many hundreds of Fuchsia seeds, and for sowing these I had purchased a new bag of sowing soil. I thought making a good choice by buying Pokon, a renowned brand, at least in The Netherlands.

I always sow my Fuchsia seeds in the winter season under artificial light, and over many years I have never had any negative experiences with this. However, when using the new bag of Pokon potting soil, I clearly experienced huge difficulties with growing the new seedlings.

At first I had not any serious suspicion. Many of the crossings made had never been carried out before, and it's therefore impossible predicting whether the seeds would germinate easily and whether the seedlings would grow well after germination. After a while, however, I got suspicious because several batches of very different crosses were all lagging far behind as compared with what

would normally be expected. For making a comparison, seeds of identical *Fuchsia* crossings were sown in Pokon sowing soil and a standard potting soil.

The differences were really dramatic. On the photograph below the young Fuchsia seedlings, sown on 17 January 2018, are shown on 7 March 2018. The Pokon sowing soil turned out to be pure poison for the fuchsias.

Subsequently a series of experiments was carried out using commercially purchased *Cosmos* and *Calendula* seeds and different types of sowing soil, including a newly acquired batch of Pokon sowing soil. The 'old' and 'new' Pokon batches showed large differences, so evidently something had gone dramatically wrong in the production process of the 'old' batch. And even the 'new' Pokon batch had a slightly worse performance as compared to other sowing soils.

Of course, the Pokon company was informed about the dramatically poor performance of their sowing soil, but unfortunately not any response has been received.

A pity, and not really elegant!



Fuchsia seedlings after 7 weeks of growth.

At the right the Pokon sowing soil.



***Calendula* seedlings after 7 weeks of growth.**

At the left the Pokon sowing soil.

New Fuchsia 'SOUND THE TRUMPET'

By Mario de Cooker



Fuchsia 'Sound The Trumpet'

Fuchsia 'Sound The Trumpet' (De Cooker, 2018) is a triphylla cultivar originating from the crossing 'Touch The Lute' x (Playboy x unknown).

It's a vigorous *Fuchsia* cultivar with an excellent root system. Because its growth is rather stiff upright, for growing it as an older plant it has to be carefully shaped. It can be grown both as a bush or a standard.

Overwintering is without any problems. The older plant starts growing already very early in the season in the cold greenhouse.

Its name is -as the fourth in a row, following 'Strike The Viol', 'Wake The Harp' and 'Touch The Lute'- based on a part of the British composer Henry Purcell's music piece *Come, ye sons of art*, an ode, written in 1694 in honour of Queen Mary II of England's birthday.

**Fuchsia 'Sound The Trumpet',
grown as a standard.**

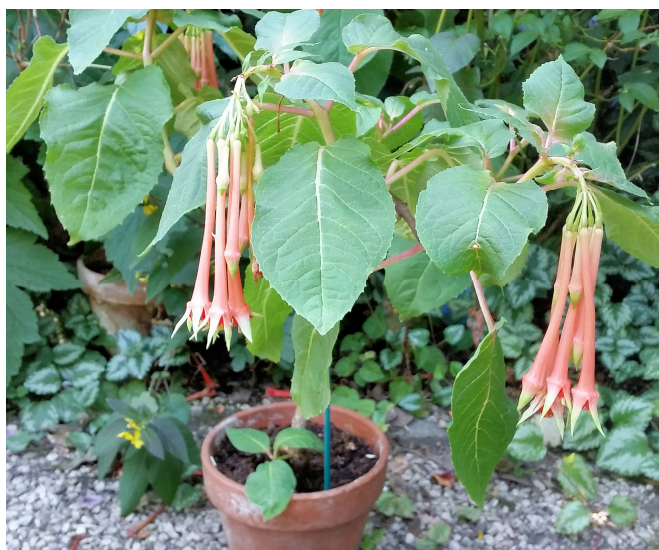


New Fuchsia 'DOUBLE GLOW'

By Mario de Cooker



F. fulgens var. *miniata*
'Double Glow'
(tetraploid with double corolla)



F. 'Double Glow' on 16 July 2018

Fuchsia 'Double Glow'

Fuchsia 'Double Glow' (De Cooker, 2018) is a tetraploid *F. fulgens* var. *miniata*. Its background has previously been described in The Fuchsia Breeders Initiative, Issue 7, July 2016, p. 17.

The name of this cultivar speaks for itself. 'Double' is based on the four sets of chromosomes ($2n = 44$), which is twice the number of chromosomes of the diploid species. 'Glow' has been derived from *fulgens*, which means shiny.

The cultivar has some male and female fertility, but it has so far never been used successfully in *Fuchsia* hybridization.

Growing this cultivar as a well shaped plant will be difficult. 'Double Glow' is more a kind of curiosity than it will ever develop into a nice show plant. Nevertheless, its appearance amidst other fuchsias can be impressive because of the long shiny tube of the blooms. At high temperatures and in full sun the tube gets a little shorter and will develop a pale orange hue.

Flowers appearing early in the season will not be at their best. Normally, best blooms having long tubes and a real double corolla are obtained at higher temperatures later in the season. Frequently, several blooms have five sepals.



F. 'Double Glow' (tube length 95 mm) in comparison to *F. fulgens* var. *gesneriana* (in the middle) and *F. fulgens* var. *gesneriana* tetraploid (at the right).

Some alternative routes for creating multi-flowering fuchsias

By Mario de Cooker

Introduction

Multi-flowering is an attractive trait in *Fuchsia*. Where large numbers of developing buds are present and plants are well cared for, continuity of flowering can be really impressive. Multi-flowering manifests itself in different forms. Well-known examples are the many triphylla and triphylla-derived cultivars as developed by e.g. Edwin Goulding, often showing their flowers in large racemes, and the paniculate/triphylla cultivars (pantris) as developed by Hermann de Graaff on basis of *Fuchsia* 'Gerhardas Panache', showing their blooms in large paniculates.

In this article, following Edwin Goulding's article on multi-flowering in the previous issue of the Breeders Initiative (Issue 10, p. 2-7) some alternative routes will be explored which could offer new opportunities for introducing multi-flowering characteristics in fuchsia cultivars.



F. Brian Kimberley (Goulding, 1999)

Creating multi-flowering fuchsias starting from *Fuchsia decidua*

Fuchsia decidua is one of the three species in the section Ellobium of the genus *Fuchsia*. It is in cultivation only since a relatively short time. As part of the EuroFuchsia meeting programme in Paris in June 2009, the participants have visited the *Fuchsia* species collection of the Arboretum National de Chevreloup. At the closure of the EuroFuchsia meeting, all meeting participants have received a *F. decidua* seedling as a gift from the organizing party SNHF. They were carried home carefully, and raised for producing their first blooms in 2010. *F. decidua* is an easy to grow *Fuchsia* species, having beautiful foliage. It's a short-day flowering species, producing its blooms on bare wood in the cold greenhouse in the winter season. Its raceme/paniculate-like flower display is impressive. For this reason it was decided by the author to explore *F. decidua*'s hybridization potential, aiming at transferring the multi-flowering trait to new fuchsia cultivars.



F. decidua

Based on the availability of fuchsia blooms of other fuchsias flowering in the winter season as well, 'Sparkling Whisper' was chosen as one of the crossing partners. Advantage of using 'Sparkling Whisper' is its excellent fertility both as the male and the female parent and its tendency of producing flowers in a sort of raceme-like structures in its progeny. *Fuchsia* 'Jac Damen' may serve as an example.

'Sparkling Whisper' x *F. decidua* seedlings produced their first blooms at the end of 2012 and beginning of 2013, N 12-35 and N 13-01 being examples.



F. 'Sparkling Whisper' (De Cooker, 2001)

Flowers are produced in paniculate/raceme-like structures. From the series of seedlings, only N 12-35 has been retained as it seemed the most promising within the bunch of siblings. It is a vigorous plant, producing flowers from January till June/July.



F. 'Jac Damen' (De Cooker, 2002)



Seedling N 12-35



Seedling N 13-01



Seedling N 13-05, mid January

Also N 11-02, a fertile sport of 'Sparkling Whisper' (for a description, see the Breeders Initiative, issue 8, p. 4-5)) was used for making crossings, yielding amongst others seedling N 13-05 = N 11-02 x *F. decidua*. It produces its flowers in a kind of panicle structure. Evidently, this is also a fruitful combination for producing multi-flowering progeny. It may have been helpful that both 'Sparkling Whisper' and N 11-02 have, via *F. 'First Success'*, *F. paniculata* in their ancestors.

Because of other priorities, specifically those of developing the series of (near) white triphyllas, work on producing multi-flowering cultivars has progressed only slowly. Additional hurdle to be taken is the winter-flowering properties of both seedlings N 12-35 and N 13-05.

First result of the trials performed on producing multi-flowering seedlings starting from N 12-35 has shown that the seedling is indeed capable of transferring its panicle-like flowering trait to its progeny. Seedling N 17-02 serves as an example (a non-multi-flowering seedling was used as the male parent).

The real potential of both seedlings N 12-35 and N 13-05 has still to be explored further. N 12-35's multi-flowering traits might show up also in another project, aiming at the development of a yellow fuchsia as described in the article on p. 12 - 15 (this issue).



Seedling N 13-05



Seedling N 11-02



Seedling N 17-02

A number of the 'Sparkling Whisper' x *F. decidua* seedlings has been tested on winter hardiness. They have survived several winters in pots above ground. None of the seedlings has however been retained because of the rather unsatisfactory flowering properties as compared to seedling N 12-35.

Creating multi-flowering fuchsias starting from *Fuchsia* 'Spray'

Fuchsia 'Spray' has been made by Dutch hybridist Jan de Boer on basis of the crossing (*F. encliandra* x (*F. procumbens* x *F. paniculata*)) x (*F. fulgens* (tetraploid) x *F. 'Alaska'*).

Fuchsia 'Spray' has been described in The Fuchsia Breeders Initiative, Issue 6, p. 12. From only one leaf axil, flowers keep appearing throughout summer and autumn. In some cases more than 20 flowers per axil are produced. No seeds have been obtained so far from *F. 'Spray'*, but in rare occasions it produces fertile pollen.

Fuchsia 'Spray' 's multi-flowering characteristics originate presumably from both of its parents. However, its male parent seedling (in this article referred to as MPS) *F. fulgens* var. *gesneriana* (tetraploid) x *F. 'Alaska'* is capable of producing multi-flowering progeny on itself as well. First seedling of De Boer's multi-flowering series has been introduced as 'Tjimenteng' (De Boer, 2014), followed by 'Tidel Wave' (De Boer, 2017) = (*F. magellanica* 'Arauco' x (MPS x ('Prosperity' x *F. magellanica*))) x 'Spray' and soon after by 'Caitlin de Boer' = ('Pauline Devereux' x MPS) x MPS.

Photographs on this page by Jan de Boer



F. 'Tjimenteng' (De Boer, 2014)

Several more multi-flowering seedlings have been produced by Jan de Boer, but these have however never been released. Especially worth noting amongst these are seedlings originating from *F. triphylla* x *F. 'Spray'*. An example is seedling JBA as shown on the photograph.



Seedling JBA = *F. triphylla* x *F. 'Spray'*



F. 'Caitlin de Boer' (De Boer, 2017)

In search for the yellow Fuchsia

By Mario de Cooker

Introduction

Yellow has already for long been an intriguing colour to pursue in Fuchsia hybridization. But actually, a really satisfying yellow colour is still non-existing in any Fuchsia cultivar. Many Fuchsia hybridists have made serious attempts for obtaining a yellow fuchsia, and many more will have undoubtedly made some loose undirected crossings as a gamble, however without any serious believe in a positive outcome.

General approach for obtaining a yellow fuchsia is making use of the greenish corolla of *F. splendens* and the yellow tube of *F. procumbens*. In its early days, Herman de Graaff has produced 'Space Shuttle' by crossing 'Speciosa' with *F. splendens*. Another Dutch hybridist: Martin Beije has produced several cultivars having better yellowish hues, amongst which 'Martin's Choice', 'Martin's Choice Improved' and 'Martin's Yellow Surprise', the latter two having *F. pilaloensis* in their parentage.

Alternative approach is using *F. apetala* and possibly *F. inflata* for producing yellowish hues, but this has as yet not been explored intensively.

Whatever approach has been chosen for in the past, still no real milestones have been achieved so far for producing a fuchsia having satisfying yellowish hues. An alternative, and at first sight a less obvious approach, might however provide some serious progress as will be described in this article.

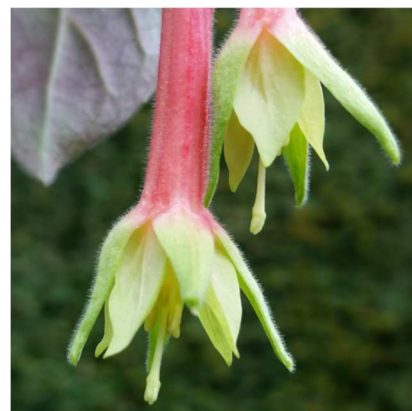
Crossings with *Fuchsia decidua*

In search for multi-flowering fuchsias it became clear that starting from seedling N 12-35 = 'Sparkling Whisper' x *F. decidua* yellowish hues could be produced in the blooms (see p. 9, this issue, for further details of seedling N 12-35).

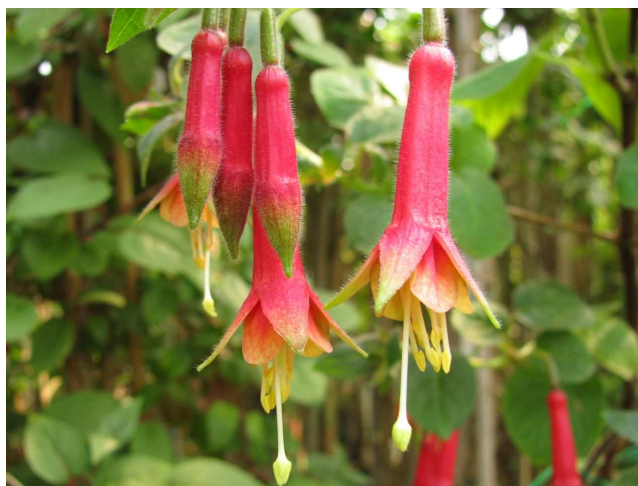
From the crossing N 12-35 x 'Sparkling Whisper' seedling N 16-01 has been obtained, having clear yellowish hues.



F. 'Martin's Choice'



F. 'Martin's Choice Improved'



F. 'Space Shuttle'



F. 'Sparkling Whisper'

lowish hues in the corolla (8C or 154D on RHS Colour Chart).

Seedling N 16-01 is a short-day flowering fuchsia, however producing some blooms in the summer season as well. It has excellent male and female fertility. Using this seedling for further intensifying the yellow hues of the corolla, while simultaneously improving also the appearance of sepals and tube seems therefore rather obvious.

When using seedlings such as N 16-01, getting rid of the rather dominant red colour of the tube (which has been inherited from *F. splendens*) is clearly one of the biggest challenges. As argued before (the Breeders Initiative, issue 8, p. 4) it could be beneficial using the phenotypic plasticity of the ‘Sparkling Whisper’ sport N 11-02 for obtaining yellowish/greenish hues in the tube, at least in the summer season at higher temperatures, while maintaining the yellowish corolla.

Crossings have been made for exploring this possibility, and first results are quite promising. The tube of seedling N18-04 = N 12-35 x N 11-02 as an example, has a brownish/greenish colour, quite different from the more reddish tube of seedling N 12-35. It has however lost part of N 12-35’s better yellowish corolla. Moreover, seedling N 18-04 does not produce blooms in the summer season,



Seedling N 16-01

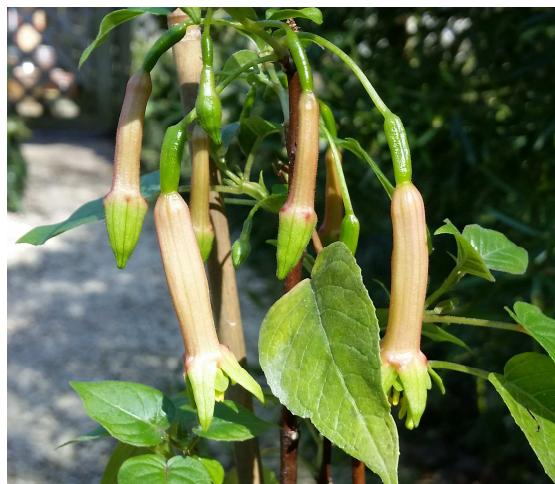
nor do other seedlings resulting from the same crossing, which makes these less attractive for further investigations. Nevertheless, mutual crossings have been made for not missing hidden opportunities in a too early stage.

A series of seedlings originating from various crossings is shown on p.14. It illustrates the diversity of seedlings (mainly flowering in the winter season) as created in the ‘Yellow Fuchsia’ program.

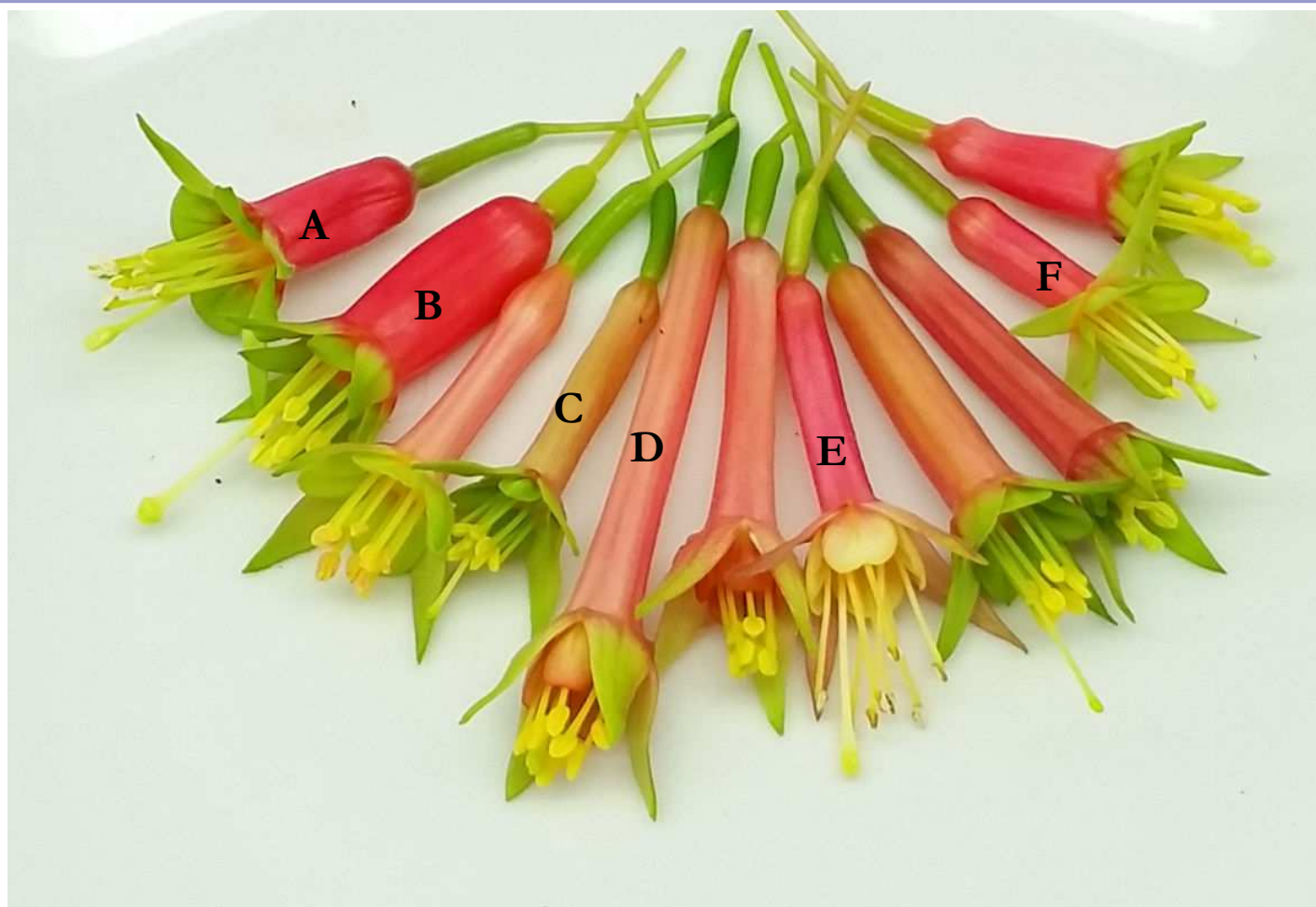
Crossings with seedling N 97-01

Seedling N 97-01 has been used for creating ‘Sparkling Whisper’ via the crossing N 97-01 x ((*F. splendens* x *F. procumbens*) x *F. splendens*). N 97-01 is a vigorous plant, however producing flowers only at the end of the winter season. It resembles ‘Sparkling Whisper’, but the latter produces flowers also in the summer season, which makes it better fit for being used in a crossing program.

Female parent of N 97-01 is *F. ‘First Success’* = *F. splendens* x *F. paniculata*. The male parent is a seedling derived from the



Seedling N 18-04



Large variation in greenish/yellowish hues.

Photograph has been taken on 29 March 2018.

A = 'Sparkling Whisper'

C = seedling N 18-04

E = seedling N 16-01

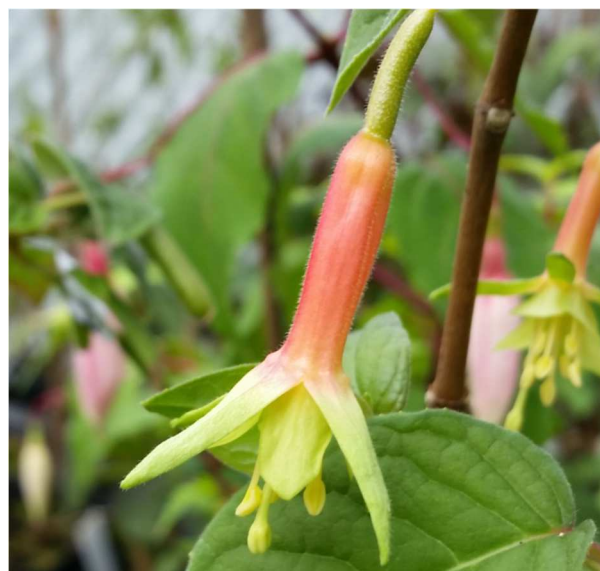
B = *F. splendens*

D = seedling N 13-05

F = seedling N 97-01

crossing (*F. 'Speciosa'* x unknown) x *F. splendens*. So, from the crossings it appears that at least three species have been involved in creating N 97-01: *F. splendens*, *F. fulgens* (via *F. 'Speciosa'*) and *F. paniculata*. The 'unknown' could well be *F. procumbens*, as in the early nineties of last century I have made several crossings *F. 'Speciosa'* x *F. procumbens*, but this is of course speculation.

Following the interesting outcome of the N 12-35 x *F. 'Sparkling Whisper'* crossings, it seemed only natural also involving N 97-01 in the 'Yellow Fuchsia' program. Three seedlings were raised, of which one has flowered in June this year. The outcome was rather surprising, as results according to N 12-35 x *F. 'Sparkling Whisper'* crossings were expected. One of the seedlings, N 18-07,



Seedling N 97-01

started flowering in June, and produced blooms as shown on the photographs on p. 15. This seedling could well be the start of a step forward in developing a next generation of yellowish/greenish fuchsia cultivars.

As yet, no information is available as regards the seedling's male or female fertility. Weather conditions in June this year were extremely unfortunate for making crossings, as temperatures were excessively high for an extended period. Unripe seeds were obtained from a couple of seed pods, but these did not germinate.

Additional crossings using N 18-07 will be made in the next flowering period, which could only be at the beginning of next year. Furthermore, additional N 97-01 x N 12-35 crossings will be made early next year, as well as crossings N 97-01 x *F. decidua*, however depending upon availability of *F. decidua* flowers.

Conclusion

By involving *F. decidua* in the 'Yellow Fuchsia' hybridization program small steps are being made in creating a yellow fuchsia. Especially seedling N 18-07 - if it would prove to have some fertility - could be at the onset of new routes for improving the greenish into better yellowish hues in tube, sepals and corolla of the fuchsia bloom. Improving the yellowish hues of the corolla and sepals would then most probably not be the most difficult step. Biggest challenge would be in retaining the greenish/yellowish hues of the tube and extending the range of fuchsia flower phenotypes.

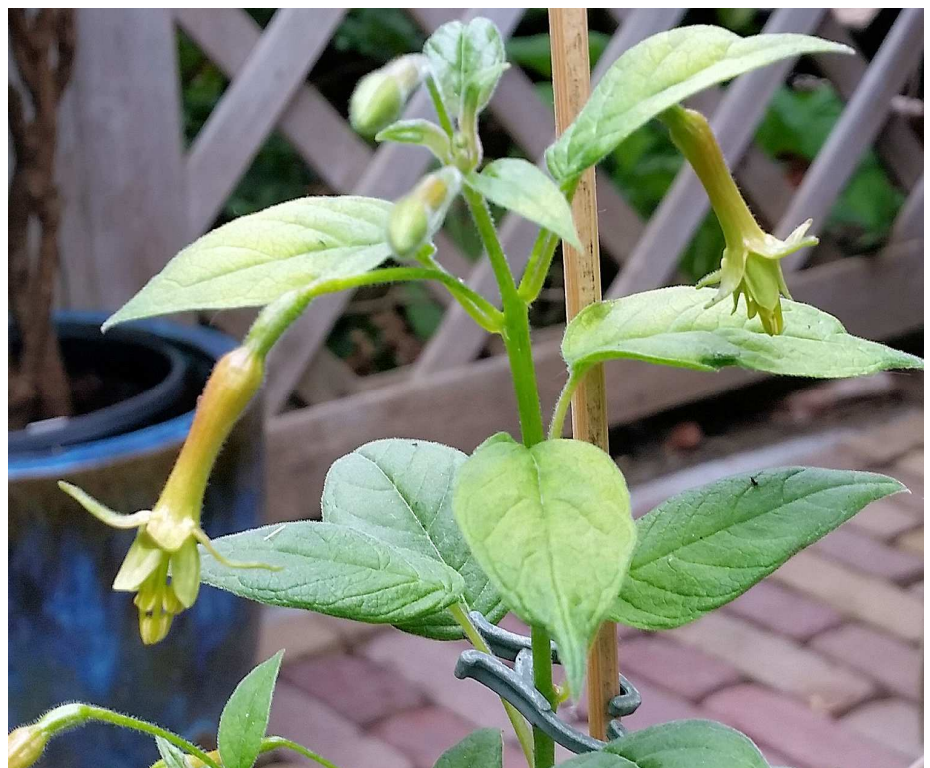
Photographs by Mario de Cooker

F. 'Space Shuttle' courtesy of Mrs Sigrid Stengelin

F. 'Martin's Choice' courtesy of Mr. Edwin Goulding



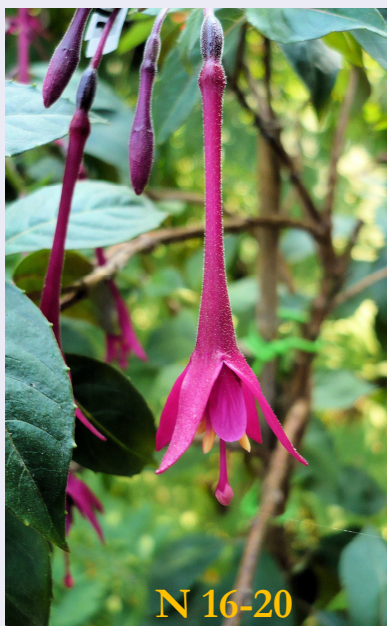
Seedling N 18-07



Prima ballerina

Fuchsia seedling **N 16-20**, a presumably hexaploid specimen, originates from the crossing *F. 'Daryn John Woods'* x *F. triphylla 'Purcellian Elegancy'*. It has excellent fertility, both as the male and the female parent, and is at the basis of a series of new purple triphylla hybrid cultivars. It produces large seeds, which readily germinate already within 2-4 days. The germinating seeds show themselves as real 'Prima ballerinas', bowing for their public.

Photographs Mario de Cooker



Contents of the next issue

The next issue is scheduled for the end of December 2018.

Evolutionary Niche (by Edwin Goulding)

An amplified version of Darwin's theory of evolution has been proposed by Kevin Laland. It has been called the "*Expanded Evolutionary Synthesis*". Four key areas of differentiation are listed: developmental bias, developmental plasticity, inclusive inheritance and niche construction. The last of these concepts will be explored on the basis of a special evolutionary niche found among the South American *Fuchsia* species.

Creating purple triphylla hybrid fuchsias

(by Mario de Cooker)

Purple triphylla hybrid fuchsia seedling N16-20 is at the basis of a series of new purple triphylla hybrid cultivars. From various crossings a large variety of phenotypes has been obtained. Examples of crossings will be given, illustrated by data obtained from flow cytometry measurements.

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 made available at the latest on 15 December 2018.

The Fuchsia Breeders Initiative

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