The Fuchsia Breeders Initiative

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Issue 3, July 2014

Mild winters could create new opportunities

Contents of this issue:

Contributions for the next issue, which is scheduled for the end of December 2014, should be in the editor 's possession ultimately on 1 December 2014.

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

Photo on front page:
Fuchsia 'Whispering Dawn'
(De Cooker, 2003)

This year's winter has been extremely mild, which has both advantages and disadvantages.

Disadvantage is, of course, that if there should be a relationship with climate change, we should really start worrying. It could be a sign for another series of mild winters in the coming years.

Advantage is, that such mild winters offer opportunities for growing our Fuchsias in a way it has hardly ever occurred before in The Netherlands and several other countries. In The Netherlands, many fuchsias and pelargoniums, left outside the greenhouse last winter at a sheltered place, have survived the winter cold. And many magellanica type fuchsias have even retained their branches and foliage, and have set flowers in a very early stage of the season. And the grapes: they have produced flowers even 1 month ahead of last year. But

Fuchsia magellanica seedling, over 35 years old, in full bloom at 17 May 2014 in Mr. Jan Versteeg's (NKvF-Region 8) front yard. Such plant , 1.5 m high, at such early date is quite remarkable for The Netherlands, especially for the Eastern part of the country.

Editor of The Fuchsia Breeders Initiative

Mario de Cooker

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of course, last year was characterized by a long and cold winter and spring.

For exploring winter hardiness, last couple of winters have created conditions not frequently occurring in The Netherlands. Some experiences for *F. hatschbachii* with both type of winters: the first one very cold and the second one extremely mild, are described in this issue of The Fuchsia Breeders Initiative.

In this issue you will also find the second part of Mr. Edwin Goulding's contribution on the fertility of fuchsia pollen. Furthermore, he reflects on Nature vs. Nurture in hybridizing and growing fuchsias.

Of course, also attention is paid to new and older fuchsias and several other subjects worth paying attention to, such as the continuing search for the white *F. triphylla*.

Your contributions to The Fuchsia Breeders Initiative are of course more than welcome. To lower the threshold (if any), a **Comment** and **Questions & Answers** rubric will be started. Do you have a problem, a comment, an answer to a problem or something else worthwhile bringing forward, please send an e-mail, a letter or an article to the editor, and it will be published in the next issue.

I wish you a lot of success with your fuchsias in the coming summer months.

Mario de Cooker.

New fuchsia 'Pavilion Princess'

If weather conditions continue as they have been in the first part of this year, we are heading for the warmest year ever since temperature measurements have started. This has implications also for our Fuchsias. Several Dutch fuchsia hybridizers share in the yearly NKvF new fuchsia judgement days before releasing their new Fuchsias for a broader public. Normally, several new Fuchsias would have been presented in this July issue of The Fuchsia breeders Initiative. However, heavy rainfall and high temperatures have created far from optimal conditions for presenting new Fuchsias. Hopefully we have more new Fuchsias in the December 2014 issue.

***Fuchsia* 'Pavilion Princess'** (De Cooker, 2014) is a semi-trailing, very floriferous Fuchsia. Its parentage is [(*F.* 'Roger de Cooker' x ('Checkerboard' x 'Machu Picchu') x ('Checkerboard' x 'Machu Picchu')] x *F.* 'Blue Rebel'. Tube and sepals have a white/soft pink colour. The colour of the corolla (which remains closed, also upon ageing) is a subtle mixture if blue, white, pink and gray. It flowers continuously the whole summer through, and from mid August on the plant is literally covered with flowers.

The name of this new fuchsia was inspired by the BBC coverage of the Chelsea Flower Show 2014. One of the BBC's lead presenters in gardening is Carol Klein, who takes care of a lot of presentations from the flower displays in the Chelsea's Great Pavilion. She puts enormous flamboyancy and enthusiasm in her presentation, which makes her one of the most beloved presenters.

One day Carol was announced as ' *…. our Pavilion Princess…* '. And what better name could be imagined for the new Fuchsia, mimicking Carol with its floriferous flamboyancy.

A full description will be available at the end of August at http://www.nkvf.nl/data_cil/public/cil_zoeken.php

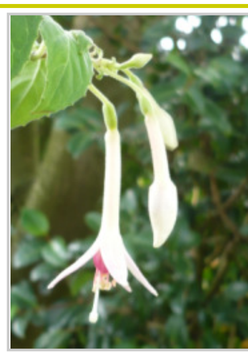

Photo: The Telegraph/Jonathan Buckley

Carol Klein


Photo: Mario de Cooker

***Fuchsia* 'Pavilion Princess'** stems from an unnamed seedling N 08-01 as the male, and *F.* 'Blue Rebel' as the female parent.

From experience it shows that F. 'Blue Rebel' (De Cooker, 1993, AFS 7637) is capable of creating long sepals in its prosperity. See seedling N 08-12 as an example. So if you are interested in breeding Fuchsias with long sepals, why not give it a try?


Seedling N 08-01


Fuchsia 'Blue Rebel'


Seedling N 08-12
Never released because of inferior root system

On the fertility of fuchsia pollen

By Edwin Goulding

Part II: Pollen charting

There are many different ways of charting information. Here is one example of the form used by me to form a meaningful database of pollen fertility results.

It is worth mentioning at this stage that a lack of pollen on a *Fuchsia* does not mean that it never carries grains, whether fertile or sterile. Keen observation will help greatly in finding some unexpected treasures.

The first, left hand column, gives each plant's name or code. In my own seedlings the year prefixes the seed bearer and the pollen donator; finally individual seedlings have their own letter. Thus - number/letters/number/letter.

The date of testing is given next. Careful recording will show that results are not identical even on the same plant. Some crosses, as we shall see, are impossible due to flowering at different times of the year.

Next, the approximate number of ►

Mr. Edwin Goulding is a renowned British specialist in fuchsia hybridization. His former nursery 'Gouldings Fuchsias' has introduced many beautiful own-bred triphylla hybrid fuchsias, for example the famous near white triphylla hybrid Fuchsia 'Our Ted'.

This article is the second in a series of three on the fertility of fuchsia pollen. The third article will be published in the 2014 December issue.

Fuchsia (♀ ♂)	Date	Grn.	Vis.	Stn.	2 ap.	3 ap.	4 ap.	>=5 ap.	Size	Loc.	Tem.	Hum.	Comments
Belize	14.08.12	200	Y	85%	0%	85%	0%	0%	L	G	34°C	30	Bright day
Blush of Dawn	12.09.10	30	Y	40%	2%	15%	23%	0%	V	G	30°C	25	Bright day
Daryn John Woods	16.12.10	500	Y	40%	40%	0%	0%	0%	M/L	G	U/K	U/K	Dark, cold & wet
F.cestroides	06.05.11	300	Y	99%	94%	4%	1%	0%	M/L	G	34°C	30	Bright day
F.cestroides	20.05.12	200	Y	50%	50%	0%	0%	0%	M/L	G	13°C	55	Bright & cloudy evening
F.cylindracea ♂	03.07.11	120	Y	97%	97%	0%	0%	0%	M	G	26°C	25	Bright & cloudy
F.cylindracea ♂	21.05.12	200	Y	50%	50%	0%	0%	0%	M	G	22°C	30	Bright & cloudy
F.decidua	08.03.11	20	Y	100%	100%	0%	0%	0%	M/L	G	34°C	30	Bright day after frosty night
F.encl. ssp. tetra. ♂	30.08.11	50	Y	80%	79%	1%	0%	0%	S/M	G	30°C	30	Bright & cloudy
F.fulgens	12.09.10	20	Y	40%	1%	36%	3%	0%	L/VL	G	30°C	25	Bright day
F.fulgens	18.09.10	60	Y	90%	70%	20%	0%	0%	M	G	35°C	15	Bright day
F.lycioides	11.11.10	200	Y	100%	0%	100%	0%	0%	M	G	13°C	35	Dark & cold
F.obconica	11.11.10	30	Y	98%	96%	2%	0%	0%	S	G	22°C	30	Dark & cold
F.obconica	21.05.12	50	Y	10%	10%	0%	0%	0%	M/V	G	22°C	30	Bright & cloudy
F.paniculata	12.09.10	30	N	30%	28%	2%	0%	0%	M/L	G	30°C	25	Bright day
F.paniculata	21.05.12	250	Y	30%	30%	0%	0%	0%	M/V	G	22°C	30	Bright & cloudy
F.ravenii	18.10.10	200	Y	99%	99%	0%	0%	0%	S	G	18°C	55	Dark & cold
F.ravenii	21.05.12	50	Y	60%	59%	1%	0%	0%	S/M	G	22°C	30	Bright & cloudy
F.splendens	27.12.11	300	Y	90%	2%	88%	0%	0%	L	G	16°C	60	Dark & cold
F.triphylla	17.09.11	50	Y	50%	10%	15%	15%	10%	S/M/L/VL	G	24°C	40	Bright & cloudy, thrips
Globosa	15.10.10	100	Y	65%	2%	59%	2%	2%	M/L/V	OD	U/K	U/K	Posted sample
Hof Popkensburg	14.08.12	200	Y	95%	0%	95%	0%	0%	L	G	34°C	30	Bright day
* Koralle	12.10.10	100	Y	90%	85%	5%	0%	0%	VL	G	24°C	50	Dark & cold
Loveliness	24.06.11	250	Y	40%	0%	40%	0%	0%	S/M/L/VL	G	20°C	20	Dull & cloudy
Lye's Elegance	04.09.11	35	Y	90%	0%	90%	0%	0%	L	G	24°C	45	Dull & cloudy
Lye's Own	24.06.11	100	Y	99%	0%	79%	30%	0%	M	G	20°C	20	Bright & cloudy
Lye's Unique	12.09.10	40	N	98%	0%	50%	48%	0%	L/V	G	30°C	25	Bright day
Maik Luijten	14.08.12	200	Y	80%	0%	40%	40%	0%	L	G	34°C	30	Bright day
Obcylin	21.09.10	40	Y	30%	28%	2%	0%	0%	S/V	G	40°C	25	Bright & hot
Our Ted	18.10.10	80	Y	90%	80%	8%	2%	0%	M/V	G	15°C	40	Dark & cold
12.EEX.875.A.	08.09.13	100	Y	60%	58%	2%	0%	0%	M	OD	20°C	30	Bright & cloudy

Notes on the chart

1. *F.encl.* ssp. *tetra.* = *F.encliandra* ssp. *tetradactylla.*
2. *F.fulgens*, *F.paniculata* and *F.splendens* charted here are tetraploids.
3. Koralle (Bonstedt) is the same plant that I used for many years as Thalia, to avoid confusion in recording.
4. ♀ This symbol has not been used in the chart. Where such plants are grown, this is also shown on my own records. (Sometimes single sex *Fuchsias* carry flowers that are heterosexual or even the opposite sex.)
5. The seedling shown last is a cross between *F.splendens* and *F.decidua.*
6. Where more than one entry is shown the same plant was re-tested.
7. Pollen grains have been estimated to the nearest 10.
8. Size of grain is given as follows:

   S = Small; M = Medium; L = Large; V/L = Very Large; V = Variable
9. G = Greenhouse; OD = Out of doors; U/K = Unknown. Greenhouse minimum temperatures are maintained around 4°C. Maximum summer greenhouse temperatures sometimes rise as high as 50°C.

F.encliandra ssp.*encliandra*

F.encliandra ssp.*encliandra* ♂

► grains tested shows that cultivars do not perform in identical ways and their fertility percentages vary. It is obvious that any anther carrying 300 grains cannot truly be assessed against another with only 2. Flexibility and understanding are required in interpreting all results.

We have already noted in the earlier article on *Presenting Pollen* that viscin threads are commonly present on the surface of grains. I have found no evidence that these affect pollination when carried out by hand under controlled conditions.

The percentage of grains absorbing stain, and thus appearing full and dense, is then given. As previously described, infertile grains frequently look empty or even shrunk and collapsed.

F.cestroides, a winter/ spring flowering species

The following four columns show what percentages of these fertile grains have 2, 3, 4, or 5 and more apertures.

Then, the approximate size of grains sampled shows that this can be variable within a single sample. Among my own recent seedlings some have had everything from very small to very large fertile grains. Size does not immediately appear relevant to success in *Fuchsia* hybridising.

When plants are grown in a greenhouse, their flowers almost invariably carry smaller amounts of less fertile pollen. This is in comparison with plants grown outside under ideal conditions.

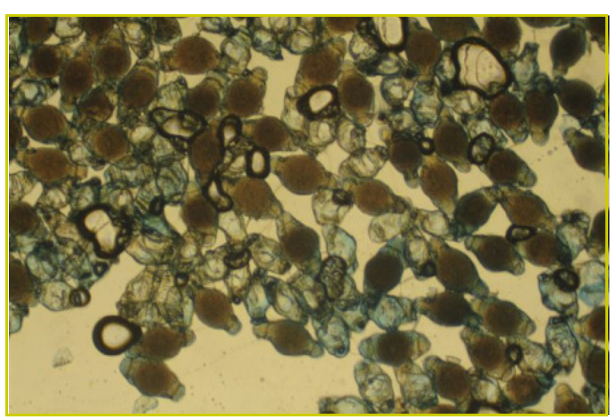
The Air Temperature, in which each plant is growing and flowering, when pollen is collected, is noted. So, too, is the Relative Air Humidity level. Where these two factors approach equality success is more likely, around 25°C – 25 humidity.

Finally, what seem like relevant comments are briefly given. Intensely hot and dry weather will give different results from dull, moist and warm conditions, in both pollen production and its fertility ratio. Thrip attacks can change things drastically for the worse.

If a *Fuchsia* has only 5% fertility in its pollen this does not mean that success is impossible. Perhaps twenty crosses will be required to give the same chance of success as another plant having 100% fertility in its grains.

Here as elsewhere in hybridising all is not as simple as we might first assume.

F.triphylla



Pollen from F.cestroides

On the winter hardiness of Fuchsia hatschbachii

By Mario de Cooker

Introduction

Winter hardiness refers to a plant's ability to survive all the stresses of a winter environment without injury [1] [2] [3]. It is generally regarded as a quantitatively inherited trait requiring expression of many genes. In many herbaceous and woody plants cold hardiness has been found to be inherited in a predominantly additive manner, the F1 being intermediate to parents. Or it is controlled by an additive-dominance system where hardiness is either a dominant or a recessive character. Only a few, or a large number of genes with small effects may be involved.

Estimation of plant hardiness can be performed in the field or under laboratory conditions. It is far from a straight forward exercise.

Plant survival during winter in the field depends on a far broader set of environmental conditions than just those found in winter. In addition to extremes of cold temperature, survival is linked to the amount and seasonal timing of precipitation, the intensity of light, the annual cycle of day length, the texture and fertility of soil, the consistency of temperatures, and the duration and degree of high temperatures.

Cold, heat, sun, clouds, drought, flood, early frosts, late ice storms, compacted soils, all can influence a plant's hardiness.

Within the genus *Fuchsia* the ability to withstand very cold temperatures varies widely. Especially species from the *section Quelusia* and cultivars originating form these species are known to be amongst the most winter hardy fuchsias.

In the past, extensive field trials have been performed on the genus *Fuchsia* by the DDFGG [4], RHS and BFS [5] and the NKvF [6], thereby building an extensive database on hardy fuchsias. Further information can be found in many books on fuchsias, e.g. [12].

The species was found in 1985 by Dr. Paul Berry in the State of Paraná in Brasil [7]. Consequently, it is in cultivation for only a relatively short time. It is named after Gert Hatschbach, Director of the Botanical Museum of Curitiba.

On its hardiness it is mentioned that it is tender [12], possibly hardy [8], almost hardy [9] and even completely hardy [10]. Over the years, more experience has been built. According to recent experiences, *Fuchsia hatschbachii* is among the most hardy fuchsias. It is now stated by Xera Plants [11] that it is even quite possibly one of the hardiest of all Fuchsias, the wood remaining unfrozen on this variety down to 15 °F (-9.4 °C). It is also mentioned that *F. hatschbachii* is resistant to Fuchsia gall mite [13].

Because of these qualities, *F. hatschbachii* might be an attractive perennial garden plant. It seemed therefore worthwhile further exploring the winter hardiness of *F. hatschbachii*.

►

F. hatschbachii

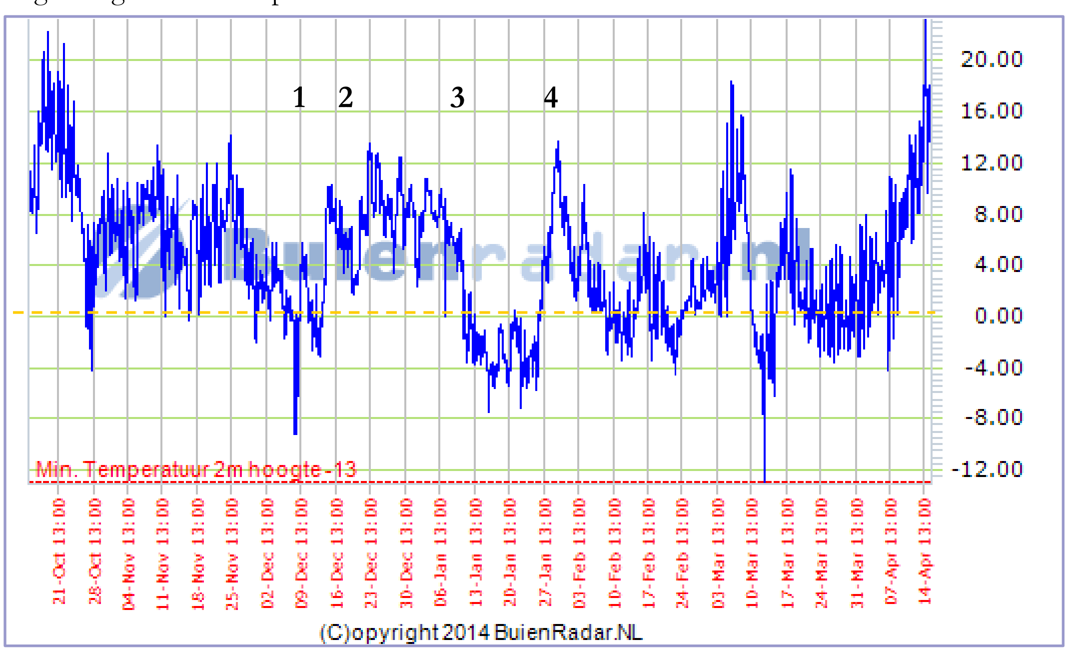


Figure 1: Temperature history of Dutch weather station 'Ell', **winter 2012-2013**.
The date is shown on the horizontal axis.
On the vertical axis the temperature is shown (degree Celsius).
The numbers refer to the date of the photos on page 6.

Experiments performed

Growing conditions

A 2 year old *F. hatschbachii*, grown in a pot, was planted early 2012 in normal garden soil near a yew hedge at the back end of the garden. Here it catches some morning sun. In the afternoon, the yew hedge provides some shade. During winter it forms the colder part of the garden at ground level.

A 2 year old *F. reitzii* was planted nearby *F. hatschbachii*. No protection was provided during the winter to neither fuchsias.

Frost hardiness was tested during 2 winters.

The first winter, the winter of 2012-2013, has been (at least as compared to normal weather conditions in The Netherlands) a long and relatively cold winter. The next one, the winter of 2013-2014, has been extremely mild.

Temperature measurement

The temperature in the garden was measured continuously at 2 places at a height of 1.5 m, avoiding direct sunlight. The digital max/min temperature measuring devices were checked against melting ice. Deviations amounted to +0.2 and +0.4 °C, respectively.

The prevailing temperature in the garden, as well the maximum and minimum temperatures, proved to match perfectly the temperatures from a nearby (10 km in a direct line) official Dutch weather station "Ell". These officially registered temperatures are therefore used throughout this paper as being representative for the garden temperatures.

Assessment of winter hardiness

The injury on leaves and stem sections was assessed visually.

Winter 2012-2013

Fig.1 shows the time-temperature history of the weather station "Ell".

Photos 1-4 are some representative pictures, showing *F. hatschbachii* during this winter. In some periods a relatively thin layer of snow was present, which however provided only little protection at the base of the plants for a short time.

The first periods of frost started at the end of October 2012, with a minimum temperature of -4 °C. On 9 December the temperature dropped for 24 hours below zero, with a minimum temperature of -9.2 °C. This hardly affected *F. hatschbachii*, which confirms the observation by Xera Plants that the branches remain unfrozen at temperatures down to about -9 °C …... at least during such short period of time. *F. reitzii*, however, lost all of its foliage, and its branches died back severely.

From the end of December

►

Photo 1: *F. hatschbachii* on 9 December 2012

Photo 2: *F. hatschbachii* on 18 December 2012

Photo 3: *F. hatschbachii* on 10 January 2013

Photo 4: *F. hatschbachii* on 28 January 2013

Photo 5: *F. hatschbachii* on 5 June 2013

Photo 6: *F. hatschbachii* on 16 October 2013

► onwards, *F. hatschbachii* started to loose part of its foliage.

On 10 January 2013, an extensive period of frost started, lasting until 27 January. During this fortnight period the temperature only once, and only for a few hours, rose above zero. *F. hatschbachii* 's condition clearly deteriorated. It lost another part of its foliage and its branches and remaining foliage became more and more brittle. The reason is not clear. It may have been caused by the long period of frost, but it could also very well be that it was caused by desiccation of the branches and foliage by the combination of frost, sun and wind, and not by the low temperature itself.

In February, many shorter periods of frost took place. On 13 March, temperature dropped to a low of even -13 °C, and this proved a too heavy burden even for *F. hatschbachii*. Branches and main stem died back to about 15 cm above ground level. Branches and stem of *F. reitzii* died back completely.

At the end of the winter, still many periods of frost occurred, the temperature dropping frequently to about -3 °C until about 10 April, when at last a very late spring took a start.

F. hatschbachii started shooting out only at the end of May at about 10 cm above ground level , and grew to a height of some 1.8 m during summer. It started flowering rather late, and produced only a small amount of flowers, probably because of the severe conditions during winter and spring time.

Winter 2013 – 2014

In comparison with average winter conditions in The Netherlands, this winter was extremely mild. As such it provided an excellent opportunity for exploring winter hardiness at conditions not frequently occurring in The Netherlands.

Fig. 2 shows the time-temperature history of weather station "Ell". Temperatures in the garden never dropped below -3 °C during this winter season. In December 2013, temperatures 4 times dropped to -2 to -3 degrC. In the period January - April 2014, temperatures 15 times dropped below zero, however never below -2.5 degrC, producing only a few centimeters of ice on the pond.

Photos 7-10 are representative pictures, showing *F. hatschbachii* during this period. Despite the extremely mild winter, *F. hatschbachii* ►

Photo 7: *F. hatschbachii* on 15 December 2013

Photo 8: *F. hatschbachii* on 3 January 2014

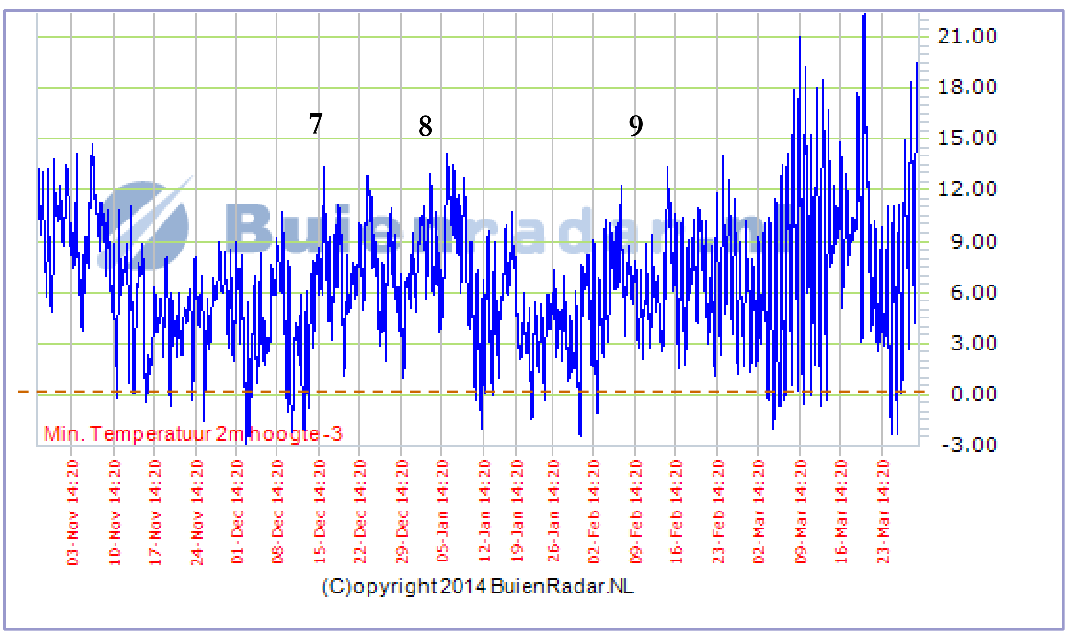


Figure 2: Temperature history of Dutch weather station 'Ell', **winter 2013-2014.**
The date is shown on the horizontal axis.
On the vertical axis the temperature is shown (degree Celsius).
The numbers refer to the date of the photos on page 6.

continually lost some of its foliage during the winter period. So in this respect it did not perform better, maybe even worse than in the first part of the previous cold winter. It however always kept at least part of its foliage, as did *F. reitzii*. As such, this is of cause not very special, as also many magellanica-type fuchsias in The Netherlands have easily survived this winter, and sometimes even retained part of their foliage.

Regrowth of *F. hatschbachii* has started early March 2014. First flowers were produced early May.

Conclusions on the winter hardiness of *Fuchsia hatschbachii*

F. hatschbachii has excellent winter hardiness properties, which could make it an attractive perennial Fuchsia garden plant.

Its branches and foliage are able to survive at least short periods of temperatures as low as -9 °C without being heavily affected. A fortnight period of continuous frost, with minimum temperature of -7.5 °C, seems however a too big burden for branches and stem, as they died back to about 15 cm above ground level. Survival as a perennial garden plant was however no problem at all. It easily withstood the low temperatures without any protection, although its regrowth after the cold winter 2012-2013 started rather late.

Photo 9: *F. hatschbachii* on 10 February 2014

Photo 10: *F. hatschbachii* on 21 April 2014

Photo 11: *F. hatschbachii and F. reitzii* on 26 June 2014

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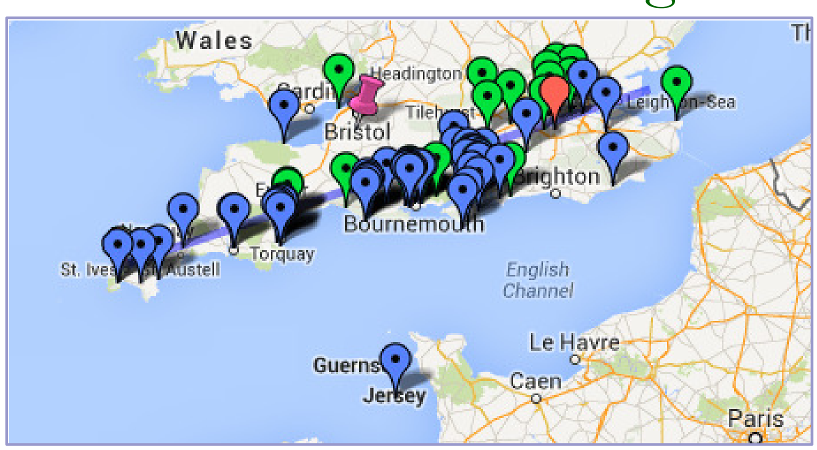
[12] John Nicolass, The Gardener's Guide to Growing Fuchsias; Lorenz Books, 2011.

[13] http://www.nwfuchsiasociety.com/resistent.htm

Information on Fuchsia Gall Mite outbreaks in England

The Fuchsia gall mite is still spreading in several regions, e.g. the Southern part of the United Kingdom. Mr. Manfried Kleinau (Euro-Fuchsia) has recently sent around an e-mail with information on the gall mite, which he received from Mr. Derek Luther. It is recommended not to take cuttings in Southern England, at the isle of Jersey, in the Brittany and the area of Versailles, as well as at the isle of Madeira.

Detailed information can be found on http://maps.google.com/maps/ms?ie=UTF8&dg=feature&hl=en&oe=UTF8&msa=0&msid=205046320417443722866.000



Outbreaks of Fuchsia Gall Mite that have been notified to Mr. Derek Luther. If you know of any outbreaks, then please send the postcode to derek.luther@virgin.net so that Mr. Luther can keep track of the spread.
Blue: up to 2012; Green: 2012; Yellow: 2013 (not visible); Red: 2014.

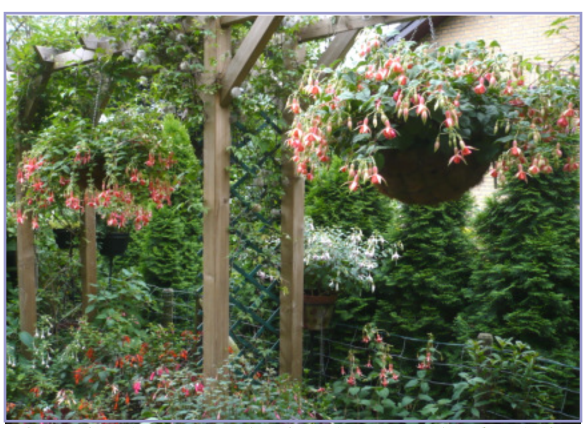
In the spotlight: Fuchsia 'Jac Damen'

Fuchsias in the spotlight: older fuchsias, which have proven their value over the years, but deserve to be put in the picture once again.

Fuchsia 'Jac Damen' (De Cooker, 2002, AFS 7647) originates from the crossing 'Sparkling Whisper' x 'Aurora Superba'. This Fuchsia is named after a beloved neighbour and Fuchsia friend: Jac Damen, who had an enormous collection of Fuchsias. This collection was often used in the author's hybridization work for 'borrowing' pollen for making certain specific crossings. Shortly after the introduction of this Fuchsia, Mr. Jac Damen sadly passed away.

F. 'Jac Damen' is a vigorously growing, very floriferous trailing fuchsia that needs a lot of space. Colour of flowers is a bright orange. Flowering starts early, and continues until the end of the season. It has an excellent performance as an older plant, 3 cuttings in a basket. Overwintering does not cause any problems. It should be pruned at the end of October at 1-5 cm above ground level. 2 to 3 times pinching the young shoots at the start of the season is an absolute must to obtain a well developed plant.

In the spotlight: Fuchsia 'Whispering Dawn'



A pergola in the Fuchsia 'nursery room' with F. 'Jac Damen' and F. 'Whispering Dawn'
6 July 2014

Fuchsia 'Whispering Dawn' (De Cooker, 2003, AFS 7662) originates from the crossing 'Sparkling Whisper' x 'Aurora Superba' and is a sister seedling of F. 'Jac Damen'. This proliferous Fuchsia is named after the crossing's pollen provider *Fuchsia* 'Aurora Superba', i.e., the 'Magnificent Dawn'. Also several of the author's other Fuchsias with F. Sparkling Whisper' in their parentage have some form of 'Whisper' in their name: F. 'Whisper', F. 'Careless Whisper' and F. Tiny Whisper'.

F. 'Whispering Dawn' is a vigorous grower, however makes not such long shoots as F. 'Jac Damen'. For the rest, its performance is highly comparable. Flowering starts early, and continues until the end of the season. It has an excellent performance as an older plant, 3 cuttings in a basket. Overwintering does not cause any problems. It should be pruned at the end of October at 1-5 cm above ground level. Pinching only once should normally be sufficient to obtain a well developed plant.

Nature vs. Nurture

By Edwin Goulding

During 1964 I became entranced by the beauties of *Fuchsia*. The attraction for me was shows, where cultivars could be surveyed as grown by a variety of different methods. Great efforts were made to observe, to measure, to list and to take this early fascination to a higher level. The range of cultivars at these competitions bore no relationship to the favourites primarily grown by the wider public whose principal interest was, and still is, in large doubles, carried in copious amounts and over long seasons.

I gradually became aware of variations in the techniques of different growers and in their choice and treatment of stock. One of the commonest hybrids in use at the shows, especially those held in the Royal Horticultural Society's Vincent Square halls, was 'Snowcap'. It was a staple competition plant. The strange thing was that some competitors showed it as a single, others as a semi-double, and yet more as a small but full double. Later, I saw the same phenomenon but on a lesser scale with 'Mieke Meursing'.

Fuchsia 'Obcylin' (Bije, 1997)
Axiliary blooming, flowers in low light levels, wide temperature range.

Fuchsia 'Brian Kimberley' (Goulding, 1999)
Axiliary blooming, flowers in low light levels, wide temperature range

Beauty and usefulness are in the eye of the beholder

This set me wondering how one cultivar could produce such a range of different flowers. In order to find out the intricacies involved I started to experiment. First, I chose cuttings of Snowcap from a nursery whose flowering plants were almost entirely semi-double. Over the next few years I propagated stock from branches carrying blooms with the fewest number of petals in each corolla. A second set of cuttings was produced carrying as many petals as possible in each corolla. Eventually, after about three years, two clear lines were established; one gave single flowers and the second produced small but dense double blooms.

Just what 'Snowcap' looked like when it first produced flower I don't know. In one sense it doesn't matter. What I had learnt was that culture played an important role in the quality and appearance of cultivars. The grower chooses and disposes at will. Yet, many variations were deemed to be faults; this was especially true where species were concerned; it reflected the view that there could be only one 'type' of species and that only experts with many years standing were able to judge on such minutiae.

Gradually, over many years, it has become accepted that variation is not only natural but to some extent necessary in evolutionary terms. This primary lesson for hybridists can be seen in the recent

Fuchsia magellanica var. globosa
Disease resistant, flowers in falling light levels, lower temperature range.

advances in breeding triphyllas; these were made possible by such variations exhibited in seedlings raised from *F.triphylla*. A secondary lesson is not quite so obvious. Where seed from several different parents is not available, selfing a plant can and should provide an alternative way to examine the range of inherent variation.

What we so often see and hear about is just one introduction with (perhaps) the correct parentage. It is easy to assume such seedlings were typical of all of those raised. It is also far too easy to think that variations thrown away must have been inferior if not identical. Not necessarily so. I have seen an outstanding basket type thrown away because a hybridist was trying to produce upright garden hardies. One, for me famous, double encliandra was destroyed because only 'Bonsai' plants (i.e. mini-mini-flowered) were wanted.

Beauty and usefulness are in the eye of the beholder. They are not necessarily the same, especially for *Fuchsia* hybridists. Another way of thinking is to say "It is all in the genes".

But, even this, as explained, is not quite true.

Fuchsia 'Pauline Devereux'
Multiple double pink flowers, basket, extended blooming season.

Pauline Devereux, a beautiful seedling from Edwin Goulding, was introduced by Chelmsford and District Fuchsia Society in 2014, in the United Kingdom, in order to raise funds for charity. It will be available from Fuchsia Nursery Van der Velde and from Lokhorst's Fuchsia Nursery in 2015.

Comment

New in The Fuchsia Breeders Initiative

Mario de Cooker

Sometimes people feel the need to **comment** on things they have seen, read or experienced. E.g. on something they have seen on TV, or observed at a fuchsia show, read in a paper or on a website, or experienced in the garden. Please feel free to write on subjects you feel worthwhile for sharing with other readers.

And please, don't let the fact that you are not an native English speaker become a too big hurdle. That's the consequence of choosing the English as the language for worldwide communication.

Some years ago I have experienced on a fuchsia show a nice example on using the English name of a well-known Fuchsia. Have you ever seen *F.* 'Daisy Bell' written as 'Deci Bel'? And still everybody understands what is meant by that name. Anyway, you can imagine that I have been in a very good mood for the rest of that day.

Questions & Answers

New in The Fuchsia Breeders Initiative

Mario de Cooker

'Questions & Answers' is the second new rubric in The Fuchsia Breeders Initiative.

A wealth of knowledge exists on breeding and growing fuchsias. However, this knowledge is often only known to a single person or a limited amount of people, because it has, for various reasons, never been shared.

And if it is never shared, it could eventually disappear, which would be a real pity.

So if you have a question, now here's the opportunity to put it forward, and get an answer, or start a discussion.

Just send an e-mail or letter to the editor of The Fuchsia Breeders Initiative, and challenge other readers to come up with their opinion.

In search of the white F. triphylla

By Mario de Cooker

Photos: Mario de Cooker

Part 2: Experimental set-up

In 2010 Mr. Hans van der Post, a Dutch fuchsia hybridizer, succeeded in creating a soft pink *F. triphylla* as a selfing from *F. triphylla* 'Herrenhausen'. A couple of years earlier, new seedlings of *F. triphylla*, the *F. triphyllas* "PB# xx", raised from seed provided by Dr. Paul Berry, became available for hybridization purposes. Together they provide the basis for creating a new series of (near) white *F. triphyllas.*

Introduction

In the December 2013 issue of The Fuchsia Breeders Initiative (TFBI) the first steps and results of the programme for creating a white *F. triphylla* have been described. In this issue, information will be provided on the experimental set-up and the results of the first part of the programme.

Photo 1: Fuchsia seedlings, growing under luminescent light during the winter season.

Planning and execution of the crossing programme.

In 2010, the soft pink *F. triphylla* 'HvdP', a selfing from *F. triphylla* 'Herrenhausen" became available for hybridization purposes.
F. triphylla 'HvdP' is a relatively weak, upright growing fuchsia. It produces no pollen, but it is moderately fertile as the berry provider.

An overview of the crossing programme for creating a white, vigorous and fertile white *F. triphylla* is shown in Fig 1 below.

First crossings of *F. triphylla* 'HvdP' with *F. triphylla* 'PB#7' as the pollen provider were planned and carried out in summer 2011. Because the main goal was making a white *F. triphylla* and not obtaining diversity, the original planning was creating the F1 and then in 2012 making back crossings with *F. triphylla* 'HvdP'.

2011	***F. triphylla* 'HvdP' x *F. triphylla* 'PB#7'**		
	↓		
2012	**TriMC-#**		**F1**
	TriMC-xx x TriMC-yy	**Arbitrary combinations**	
	↓		
2013	**TriMC-F2-#**		**F2**
	TriMC-F2-xx x TriMC-F2-yy	**Selfings or specific, selected combinations**	
	↓		
2014	**TriMC-F3-#**		**F3**
	TriMC-F3-xx x TriMC-F3-yy	Selfings or specific, selected combinations	
	↓		
2015	TriMC-F4-#		**F4**
	TriMC-F4-xx x TriMC-F4-yy	Selfings or specific, selected combinations	
	↓		
2016	TriMC-F5-#		**F5**

Fig. 1: Overview of the crossing programme. In red the steps are shown that have already been made.
In 2013, also successful back crossings of F. triphylla 'HvdP' with F. triphylla 'TriMC-F2-xx' have been carried out.

In 2012, a total of 14 F1 seedlings *F. triphylla* 'TriMC-xx' were obtained. These are all vigorous, upright growing fertile Fuchsias with orange flowers, however shaped very differently.

Making back crossings *F. triphylla* 'Herrenhausen' x *F. triphylla* 'TriMC-xx' in 2012 failed, as *F. triphylla* 'Herrenhausen' produced only 4 flowers for which however fertilization was not successful.

Making crossings between arbitrarily chosen seedlings from the TriMC-series were more successful in making an F2 series *F. triphylla* 'TriMC-F2-xx'.

The seeds were sown in October-December 2012. The seedlings were raised during the winter season for about 5 months under luminescent light at temperatures of 18-22 °C (see photo 1).

In May 2013, a total of 284 F2 seedlings were potted on in 9x9 cm pots and placed outside for hardening (Photo 2). No special protection against wind, cold or rain was provided. A first visual selection was made on basis of the color of the underside of the leaves (see photo 3), as it could be expected that seedlings with light green foliage (33 of a total of 284 seedlings) would create flowers, different from the seedlings with dark foliage. Only these 33 seedlings were protected against rain during the first month. As the 2013 spring season was very wet and cold (even by far the coldest spring in 50 years!), a relatively large amount of seedlings, 46 in total, did not survive the first months, most probably because of botrytis. During the remainder of the season and subsequent overwintering, some more seedlings died, partly because of botrytis and partly because of suffering from vine weevil.

Photo 4: Part of the pink F2 seedlings.

The flower most right is F. triphylla 'HvdP'

In September 2013 the first flowering seedlings with soft pink flowers were obtained. Until December 2013, a total of 65 seedlings had flowered, of which 13 with soft pink flowers (see photo nr 4). For a proper finalization of the F2-trial, the remaining seedlings have all been overwintered. As they were overwintered 'in the green', a number of the F2 seedlings produced flowers in a rather early stage. Indeed, older *F. triphylla* plants frequently flower rather early (see photo 5) if not pinched. To date, most F2 seedlings from last year have however flowered only from July

Photo 2: Part of the potted F. triphylla 'TriMC-F2'-seedlings 14 May 2013

Photo 3: TriMC-F2 seedlings with different color at the underside of the leaves.

Photo 5: F. triphylla "TriMC-10" (2012) on 19 June 2014
Note that for early flowering the seedling has not been pinched.

Photo 6: Abundantly flowering F. triphylla 'TriMC-F2' seedlings, eagerly waiting to be fertilized (4 July 2014).

onwards, so in fact this mode of overwintering delivered only little real value to the experiment.

First results

In the F2 some inbreeding depression most probably showed up, however not very alarming. A small number of seedlings exhibited some kind of virus-like appearance, some seedlings had very deviant foliage, and also some dwarfism occurred. As yet, such seedlings have all failed to flower.

According to expectations, the F2 seedlings with light green colored foliage have as yet all produced soft pink flowers in various shades of pink. Also, in the F2 a large variation in shapes and colors of flowers and foliage shows up. See photo 4 for a number of pink flowers produced in 2013.

The F2 seedlings with darker foliage have produced 2 types of flowers:

- tube, sepals and corolla all orange; various shapes.
- outside tube orange, inside tube pink, pink corolla in various shades of pink; various shapes.

The seedlings with orange tube and pink corolla can be recognized already in an early stage because of the light colored buds, which gradually turn into an orange tube and orange petals.

For the F3 seedlings it is expected that they will flower this year from August onwards. Results will be presented in the December 2014 issue of TFBI.

Next steps

A large number of F3 seedlings, some 1300, has been produced this year of which some 800 have been potted on. Amongst these are several F2 selfings. Therefore, within a couple of months, it should become clear whether creating a real white *F. triphylla* is genetically possible.

Creating an all-white *F. triphylla* from the available material is not a straightforward exercise, and might even be genetically impossible

This is however still questionable. Definitely, a clear overall influence exists of a genetic defect for producing anthocyanin pigments in the flower, the foliage, the stems and the berries simultaneously. On the other hand, many Fuchsia cultivars exist having a white tube, white petals, but a colored corolla. So evidently there are still other genes present, encoding for at least part of the color of the corolla. In such case, the most straightforward way of creating a white Triphylla might be via implementing the genetic defect for a white corolla by making crossings with white magellanica-type fuchsias, and subsequently transferring this defect to the pink *F. triphylla*. Creating an all-white, true *F. triphylla* via this route would be extremely laborious, even virtually impossible. Creating white triphylla-hybrids this way would be most probably not a major problem.

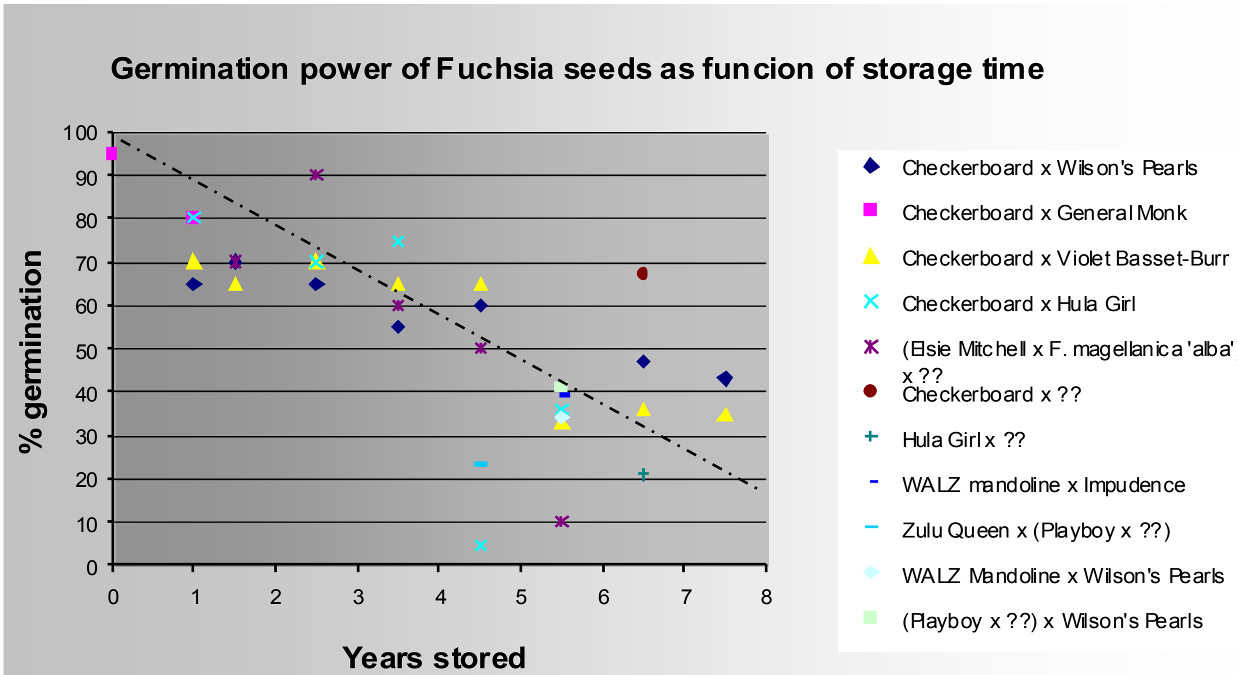
From the combined information of the F2 and F3 seedlings that have flowered in 2013 and 2014, an acceptable genotype of the pink/white *F. triphyllas* will be derived. More on this year's hybridization results will be published in the December issue of the TFBI.

Big challenge now is of course making a selection out of the available seedlings: which to release for a broader public, and which to discard of. Both within the orange and pink F2 populations, a large variation shows up as to growth, overwintering properties, flowering and color and shape of the flowers and foliage. And this year even better seedlings in the F3 might show up.

■

The germination power of stored Fuchsia seeds

Mario de Cooker



The trend line has been determined as a linear least squares approach with 100% as a fixed value for fresh seeds. A polynome gives a marginally better fit, with a 12.5%/year decrease in the first years.

The germination power of Fuchsia seeds, obtained form a number of different crossings as mentioned in the Figure above, has been investigated.

Ripe viable seeds were visually selected shortly after harvesting. They were packed in paper bags and stored in a plastic box , at room temperature at a dark place. Germination power of stored frozen seeds has not been investigated.

For such relatively 'simple' crossings, a germination barrier appears not to exist. The percentage of fresh seeds, germinating for the major part between 5 and 10 days, amounts to > 95%. For each data point some 20 seeds were sown.

On average, the Fuchsia seeds loose about 10% of their germination power per year. A small part of the seeds has been stored for 20 years; no germination took place anymore after such extended storage time.

It has been found that soaking of the stored seeds for 1-2 days sometimes increases the germination power appreciably. This has not systematically been investigated and has not been taken into account in this experiment.

The time needed for germination increases with increasing storage time to about 30 days or even more after 5 years. After such storage time, the growing power of the seedlings decreases appreciably. The young seedlings then grow to only some 5 mm within a few months, and most of the seedlings cease to grow any further.

Conclusion

Ripe viable Fuchsia seed can be stored for a couple of years at room temperature without loosing too much, i.e., not more than about 30%, of its germination power. It is advised to store fuchsia seeds not longer than for a period of 3-4 years, because after such period the growing power of the seedlings decreases dramatically.

Fuchsia "Wilson's Pearls"

Fuchsia "Hula Girl"

Being retired can really make a difference

Fuchsia **'Awake Sweet Love'** (De Cooker, 2011, AFS 7980), a white triphylla-type Fuchsia with a soft pink corolla, has been introduced in 2011. As an advise for growing this fuchsia I have mentioned in a letter that has been sent around some time ago to fuchsia growers and nurseries: *It is not recommended to grow this fuchsia as an older bush or standard as the result will be somewhat disappointing. Best results are obtained if grown from cuttings taken in January/February, 5 – 10 cuttings in a basket or container. The cuttings should be pinched twice or even three times, and protected from botrytis.*

Well, this has proven to be only partly the true story, it needs some nuance. I have been retired now for a couple of years, which has brought a lot of extra time for nurturing my fuchsias. And this is indeed what they need: a lot of nurturing and care. On the photo F. 'Awake Sweet Love' is shown, grown in this case as an older semi-trailing plant in a ceramic pot.

So, give it a try, and grow it as an older bush fuchsia.

Triphylla-type Fuchsia ***'Awake Sweet Love'****, grown as a semi-trailing older plant, makes a nice display in the evening light.*

Photo: Mario de Cooker, 2 July 2014.

Contents of the next issue

The next issue is scheduled for the end of December 2014.

Edwin Goulding: On the fertility of Fuchsia pollen. Part III: Pollen's Promise.

Examination of pollen does not give a "One shot fix all" solution. It adds another dimension in our armoury as hybridists.

Mario de Cooker: Frost hardiness of young fuchsia seedlings.

Can fuchsia seedlings survive winter conditions, being frozen like ice cubicles? Curious about the answer? Putting the question is already almost providing the answer! Read more about this in the December issue of The Fuchsia breeders Initiative.

Mario de Cooker: In search of the white *F. triphylla*.

Will it be genetically possible to create an all-white *F. triphylla*? Read about this year's results on the search for the white *F. triphylla,* and maybe the answer on this question, in the December issue.

So stay connected!

Your contribution to the contents of The Fuchsia Breeders Initiative is highly appreciated. Contributions for the next issue should be made available at the latest on 1 December 2014.

The Fuchsia Breeders Initiative

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Editor Dr. ir. Mario de Cooker
Graaf de Hompeschstraat 9
6109AK Ohé en Laak
The Netherlands
e-mail: fuchsia@decooker.nl
tel: +31 475 552227

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