

# Auckland Botanic Gardens *Begonia* trial, 2016–2017

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## Introduction

Begonias are a diverse group of plants with various growth habits, many leaf shapes and sizes, leaf colours and patterns.

All begonias prefer a light, loamy, free-draining soil, high in organic matter and low in fertiliser. Most species come from tropical regions, so their hybrids and cultivars require relatively warm temperatures.

Bedding begonias are of the *Semperflorens* group<sup>2</sup> which were included in the trial. These fibrous-rooted, tender perennial begonias are usually grown as annuals. Their flowers can be white, pink or red and are produced throughout the summer. They are mainly grown for their floral displays when planted in mass beds, and are also excellent grown in containers and hanging baskets. Most bedding begonias have green leaves but some cultivars have attractive shiny, bronze foliage. *Semperflorens* begonia are offered commercially as seed mixes although additional plants are easily propagated from cuttings.



Fig. 1 *Begonia* trial at Auckland Botanic Gardens, Summer 2016/17. Photo: Jack Hobbs.

At Auckland Botanic Gardens (ABG) we plant annual display beds twice a year, unlike some other gardens which plant annual beds three times a year. We therefore require high performing annuals that have long flowering periods. We use trials to indicate the highest performing plants for our high profile annual beds and to inform recommendations to the public.

High performing *Begonia* for summer bedding at ABG must flower profusely for 5–6 months, with flowers that do not fade noticeably and do not need deadheading. The plants must provide effective ground cover, have 100% survival rate (excluding mishaps), and be low maintenance and pest and disease resistant.

This report details the results of a *Begonia* trial undertaken at ABG to identify the top performing cultivars for Auckland conditions. *Begonia* cultivars not previously grown in our display beds were compared with *Begonia* 'Dragon Wing Red', the known star performer that ABG regularly uses in annual bedding displays. We assessed all cultivars on the following criteria:

- Plant size
- Flowering period
- Flower colour and fade
- Susceptibility to pests and diseases such as powdery mildew.

## Methods

Twenty two *Begonia* cultivars were included in our trial and were all raised from seed (Fig. 1) with one cultivar that ABG knew was a star performer, *Begonia* 'Dragon Wing Red' (Fig. 2). Each cultivar had 10 replicate plants except *B. 'Super Olympia Mixed'* which had 30 plants due to having three colours in the mix. The trial was planted in late November 2016 and concluded mid-April 2017. Plants were deadheaded, and soil was composted and fertilised at the time of planting out. Weekly flowering records were collected noting buds, flowers and

old flowers. Monthly assessments of flower colour (using the Royal Horticultural Society colour charts), percentage of plants with powdery mildew, and percentage of flowers scorched by sun were collected. Scorching of blooms was recorded by the percentage of flowers scorched using the scale: 1 = no obvious scorching; 2 = 25% of flowers on plant scorched; 3 = 26–50% scorched; 4 = 51–75% scorched; 5 = 76–100% scorched. Flower sun scorch was not measured during November as plants had not started flowering. Plants were exposed to all day full sun. At maturity, flower size, height and spread of the plants was measured. Plants were watered weekly.



Fig. 2 Bedding display of *Begonia* 'Dragon Wing Red', down Pohutukawa Walk at the Auckland Botanic Gardens, Summer 2016. Photo: Jack Hobbs.

## Results

In Table 1 we present the results of our *Begonia* trials.

Those cultivars recorded with "slight powdery mildew" (Table 1) had 10% or less of the plant affected by powdery mildew. Cultivars with "powdery mildew" (Table 1) had 20% or more powdery mildew affecting the plant which is not an acceptable level to be included as recommendations. Most cultivars in this trial did not display significant levels of scorching, i.e., less than 25% of the flowers affected by scorch (Fig. 9). No cultivar had more than 50% flower scorch. It should be noted that all plants trialled at AGB were grown in full sun, despite some references stating that most *Begonia*

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<sup>2</sup> Also referred to as *Begonia* × *semperflorens-cultorum* hort.

**Table 1** Summary results of *Begonia* trial with an overall performance rating. Cultivars with an overall rating of 8 or higher are recommended as a star performer and indicated by an asterisk.

Name	Flowering	Habit/form/vigour, size (height by width cm)	Pests and Disease	Overall rating
<i>Begonia</i> 'Big Pink'	Mid-Dec to end of April.	Large green foliage similar to <i>B.</i> 'Dragon Wing Red'. Open habit. 32 x 44	Clean.	8*
<i>Begonia</i> 'Big Red'	End of Dec to end of April. Very slight flower scorching.	Large foliage similar to <i>B.</i> 'Dragon Wing Red'. 25 x 42	Clean.	6
<i>Begonia</i> 'Big Rose'	End of Dec to end of April. Self-grooming.	Large foliage similar to <i>B.</i> 'Dragon Wing Red'. 28 x 46	Clean.	6
<i>Begonia</i> 'Nightlife Blush'	Mid-Dec to end of April. Flower colour fades.	Bronze foliage. 24 x 26	Powdery mildew.	5
<i>Begonia</i> 'Nightlife Deep Rose'	Mid-Dec to end of April.	19 x 24	Slight powdery mildew.	5
<i>Begonia</i> 'Nightlife Pink'	Mid-Dec to end of April. Holds old flowers.	Compact. 21 x 23	Powdery mildew.	5
<i>Begonia</i> 'Nightlife Red'	Mid-Dec to end of April. Colour fades.	Untidy foliage. 20 x 28	Powdery mildew.	5
<i>Begonia</i> 'Nightlife Rose'	Mid-Dec to end of April. Holds old flowers.	Compact. 23 x 26	Powdery mildew.	3
<i>Begonia</i> 'Nightlife White'	Mid-Dec to end of April. Holds old flowers.	Very bronze foliage. 21 x 29	Clean.	5
<i>Begonia</i> 'Sprint Plus Appleblossom'	Mid-Dec to March.	Compact. 16 x 27	Clean.	5
<i>Begonia</i> 'Sprint Plus Blush'	Mid-Dec to end of April. Lots of flower scorching.	Compact. 18 x 23	Slight powdery mildew.	5
<i>Begonia</i> 'Sprint Plus Deep Pink'	Mid-Dec to end of April.	20 x 30	Clean.	6
<i>Begonia</i> 'Sprint Plus Rose' (Fig. 3)	Mid-Dec to end of April.	20 x 32	Clean.	5
<i>Begonia</i> 'Sprint Plus Scarlet' (Fig. 4)	Mid-Dec to end of April. Faded flowers.	Compact. 22 x 25	Powdery mildew.	5
<i>Begonia</i> 'Sprint Plus White' (Fig. 5)	Mid-Dec to end of April. Lots of flower scorching.	Compact, holds old leaves. 20 x 25	Clean.	6
<i>Begonia</i> 'Sprint Plus Orange'	Mid-Dec to end of Jan. Holds old flowers till April.	16 x 26	Powdery mildew.	3
<i>Begonia</i> 'Stara Pink'	Mid-Dec to end of April.	Slightly open habit. 29 x 41	Clean.	7
<i>Begonia</i> 'Stara Rose' (Fig. 6)	Mid-Dec to end of April.	Compact habit. 26 x 33	Clean.	7
<i>Begonia</i> 'Stara Scarlet'	Mid-Dec to early Feb. Tiny flowers. Holds old flowers till April. Some flower scorching.	26 x 38	Clean.	7
<i>Begonia</i> 'Stara White' (Fig. 7)	Mid-Dec to end of April. Medium white, clean flowers.	Green leaf, red stem. 31 x 35	Clean.	8*
<i>Begonia</i> 'Super Olympia Mixed'	Mid-Dec to end of April. Flowering not consistent. Mix of red, white and pink flowered plants.	Green leaf. 26 x 34	Clean.	5
<i>Begonia</i> 'Dragon Wing Red' (Fig. 8)	Late Dec to April. Large flowers, later flowering than other cultivars, no flower fade.	Vigorous growth, less formal. 25 x 35	Clean.	9*

\*NB: some of these cultivars would have continued flowering after April, but that month was when the trial was removed.



**Fig. 3** *Begonia* 'Sprint Plus Rose'. Photo: Emma Bodley.



**Fig. 4** *Begonia* 'Sprint Plus Scarlet'. Photo: Emma Bodley.



**Fig. 5** *Begonia* 'Sprint Plus White'. Photo: Emma Bodley.



**Fig. 6** *Begonia* 'Stara Rose'. Photo: Emma Bodley.

selections prefer partial shade and indirect sunlight, especially in the afternoon. The horticultural literature also states that the bronze-leaved cultivars are the most tolerant of full sun conditions.

*Begonia* 'Dragon Wing Red' puts on more vigorous growth compared to the other cultivars trialled. This provides a good groundcover and minimises the need for weeding between plants. Other cultivars in this trial showed a moderate level of vigorous growth including *B.* 'Stara Rose', *B.* 'Stara White' and *B.* 'Super Olympia Mixed'.

### Conclusions

Star performers are *Begonia* 'Big Pink', *B.* 'Stara White' and *B.* 'Dragon Wing Red'. These scored 8 or higher in the overall rating (Table 1). They were free of powdery mildew, had profuse long flowering periods and had the lowest flower scorch of the cultivars trialled (Fig. 9). These three cultivars are recommended for annual bedding situations as the plants create a good groundcover and therefore require minimal weeding, so meet our requirements for a good annual bedding plant. The cultivars that scored 7 or above could be used as suitable plants for garden borders rather than in high profile mass plantings.

Our trial of 22 Semperflorens selections, from the range that are currently available commercially, is a small number compared to the numerous seed mixes and cultivars of *Begonia* that have been available in the New Zealand nursery trade.

### Acknowledgements

We would like to acknowledge Jonathan Parr for collecting data and Egmont Seeds for recommending cultivars for trial and donating the seeds.



Fig. 7 *Begonia* 'Stara White'. Photo: Emma Bodley.

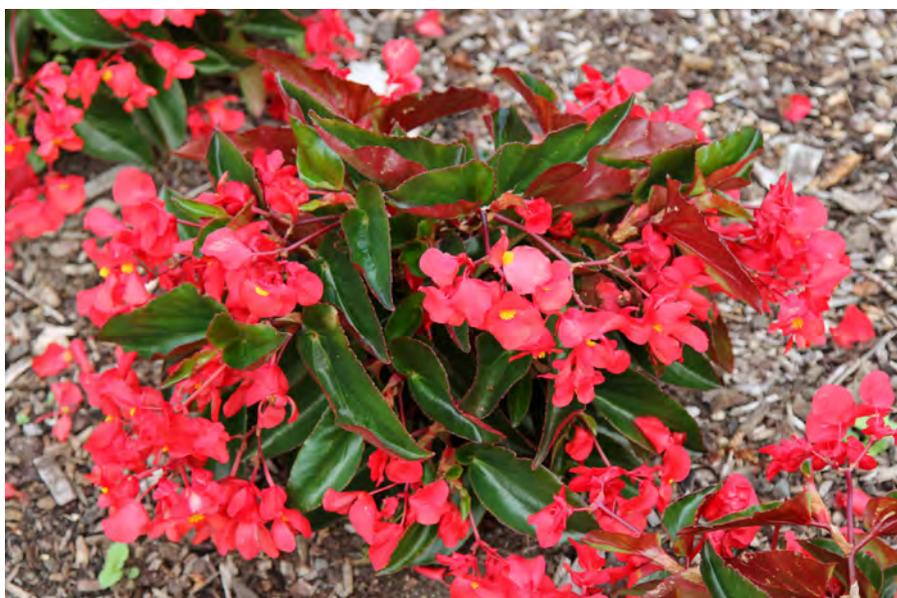


Fig. 8 *Begonia* 'Dragon Wing Red'. Photo: Emma Bodley.

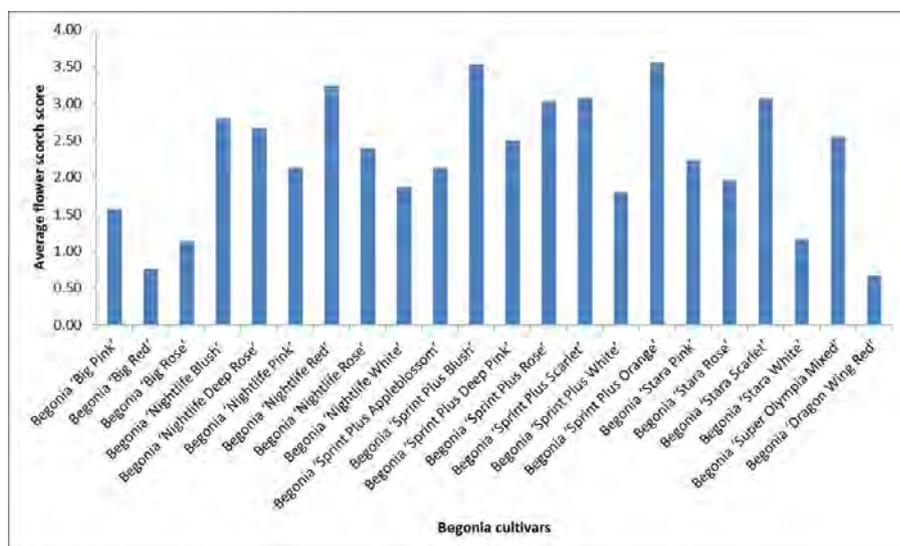


Fig. 9 Average flower scorch score during trial.

