

Auckland Botanic Gardens

Hemerocallis rust trial, update 2015–2018

Emma Bodley¹, Jeffery Jones, Yvonne Baker and Jack Hobbs

Introduction

Daylilies (*Hemerocallis* species and cultivars) can suffer severely from rust, *Puccinia hemerocallidis* (Fig. 1), and this fungal pathogen is spreading worldwide. With more than 1,000 cultivars of *Hemerocallis* recorded in New Zealand, it is important to regularly assess those cultivars that are readily available in the market, including new introductions, and provide up-to-date information on the cultivars' resistant to rust and therefore best suited to Auckland growing conditions. As with our other trials, results may be applicable to other regions of New Zealand.



Fig. 1 Severe *Puccinia hemerocallidis* (daylily rust) infection. Photo: Jack Hobbs.

This is the second trial of *Hemerocallis* that Auckland Botanic Gardens (ABG) has reported on to evaluate which cultivars are resistant to daylily rust. The aim of the latest trial was to re-evaluate top performing *Hemerocallis* for Auckland conditions which are rust resistant and profuse flowering. This trial has included several cultivars not formally trialled in the earlier ABG trial (Bodley et al., 2015). The top performers of the previous trial were included in this current trial for

comparison when determining overall rating of performance. This trial will update the top 12 performers listed by Bodley et al. (2015) to ensure the best rust resistant daylilies assessed to date are recommended. The cultivars in this trial came from plants used in a breeding programme at ABG during 2014, initially selected for breeding based on international research. However, Auckland conditions differ to the USA and other countries; therefore ABG assessed the performance of these new cultivars specifically for Auckland conditions.

Methods

This trial commenced in April 2015 and was completed in January 2018. Three plants of each cultivar and of two *Hemerocallis* species were planted on the 23rd April 2015, except *H.* 'Flaming Nora' which was planted on the 3rd July 2015. Plants were not watered (as there were frequent summer showers), and they received full sun and were fertilised at the time of planting. Plants were all cut back to ground level each autumn. Weekly flowering records were kept along with recording the number of flowers produced in the first two years of the trial. Observations of plant habit and flower colour using the Royal Horticultural Society (RHS) colour charts were made during peak flowering. Percentage of each plant infected by rust was recorded weekly in the first two years, then monthly in the third year. Other pest and disease issues were noted as they were observed with the percentage of the plant affected recorded. At plant maturity, the height and width (cm) of foliage and height of flower spikes was measured. Six evaluations with external horticultural experts took place during the trial period where an overall assessment and rating was given to each cultivar. The overall rating (1 = poor performer and 10 = excellent performer) was used to

determine the list of top performers (Table 1). Cultivars that scored 8 or more were considered top performers and would be recommended for Auckland based on the results of these trials. These methods are similar to those followed in our previous *Hemerocallis* trial (Bodley et al., 2015).

Results

Hemerocallis 'Study in Scarlet' was removed in March 2016 because it was heavily infected with rust with almost the entire plant covered in rust.

Hemerocallis "Great Barrier yellow form" was collected from a garden on Great Barrier Island, New Zealand, and looked to have promise. However, it was removed in May 2016 because it was not resistant to rust under Auckland conditions and was a poor overall performer.

Plants named *H.* 'Oriental Ruby' and *H.* 'Oriental Beauty' were initially included in the trial, however they looked identical and further identification determined they were both *H.* 'Oriental Ruby'.

The cultivar in this trial named *H.* cf. 'Monet's Garden' is in fact not correctly named but similar to one seen at Monet's garden in Giverny, France. However the true identity of this cultivar in the trial was unable to be determined. This plant might also be better suited to shady areas as in other gardens it has been seen doing better in some shade than in the open sunny site of the trial garden at ABG.

Despite producing impressive floral displays *H.* 'Dancing Dwarf', *H.* 'Mini Pearl', *H.* cf. 'Monet's Garden' (incorrectly named), and *H.* 'Pixie Parasol' were marked down in their overall ratings because their foliage became untidy and unattractive after flowering. The qualities of these cultivars were not consistent throughout the year.

¹ Auckland Botanic Gardens, 102 Hill Road, Manurewa 2105, Auckland, New Zealand; emma.bodley@aucklandcouncil.govt.nz

Table 1 Results of the 29 previous best and new *Hemerocallis* cultivars trialled at Auckland Botanic Gardens. Information includes flowering period, flower colour using the RHS colour chart, habit, plant size, resistance to rust and overall rating. Flower position is described where the flowers are held above (A), below (B), or level (L) with the foliage.

<i>Hemerocallis</i> species and cultivar	Flowering period and flower colour	Flower position	Habit, height × width of foliage × height of flower (cm)	Average percentage of rust (%)	Overall rating
<i>H.</i> 'Baby Betsy'	Nov to Dec. Red-purple Group 60A with yellow eye.	A/L	Deciduous. 40 × 75 × 60	9.2	7
<i>H.</i> 'Cade Stewart' (Fig. 2)	Dec to March, June to July. Orange-red Group N34A, Yellow Group 13A (centre).	A	Evergreen. 65 × 80 × 110	6.6	9
<i>H.</i> 'Chicago Apache' (Fig. 3)	Nov to Feb. Red Group 46A.	A	Semi-deciduous. 60 × 80 × 90	6.7	8
<i>H.</i> 'Chosen One'	Nov to June. Yellow Group 8B with green eye.	A	Evergreen. 35 × 50 × 60	5.4	7
<i>H.</i> 'Dancing Dwarf'	Oct to Feb. Orange-red Group N34A fading at edges of petals.	A	Deciduous. 45 × 80 × 70	3.7	7
<i>H.</i> 'Flaming Nora'	Oct to March, May to June. Orange-red Group N34A, Yellow-orange Group 23A (centre).	A	Evergreen. 80 × 90 × 130	13.6	6
<i>H. fulva</i> (Fig. 4)	Nov to March. Orange-red Group 34A.	A	Evergreen. 70 × 50 × 110	6	8
<i>H.</i> 'Glitter' (Fig. 5)	Dec to Jan, May to June. Yellow-orange Group 21A.	A	Deciduous. 60 × 100 × 80	3.5	8
<i>H.</i> "Great Barrier yellow form"	Oct to Dec, May to June. Yellow flowers.		Evergreen. Size not measured.	6	5
<i>H.</i> 'Green Flutter'	Nov to Dec. Yellow Group 9A with green centre.	A/L	Deciduous. 50 × 60 × 50	10.1	7
<i>H. lilioasphodelus</i>	Nov to Dec, Feb to July. Yellow Group 13B to 13A in centre.	A	Evergreen. 50 × 100 × 85	2.6	7
<i>H.</i> 'Little Grapette'	Nov to Dec. Red-purple Group 59B with small green centre.	A	Deciduous. 35 × 45 × 40	14.7	5
<i>H.</i> 'Lullaby Baby'	Oct to Dec. Orange Group 27A with green centre.	A/B	Deciduous. 50 × 60 × 70	5.1	7
<i>H.</i> 'Memories'	Oct to Jan. Orange-red Group 34A, Yellow-orange Group 23A (centre).	A	Evergreen. 70 × 80 × 90	11.2	6
<i>H.</i> 'Mini Pearl'	Nov to May. Orange Group 29C with darker throat.	A/B	Deciduous. 30 × 50 × 30	6.6	7
<i>H.</i> cf. 'Monet's Garden' (NB: not correct name)	Nov to Jan. Grey-orange Group 172A with slightly darker halo and yellow centre.	A	Deciduous. 40 × 50 × 80	7.9	6
<i>H.</i> 'Moon Goddess'	Dec to Jan. Yellow Group 9A.	A	Deciduous. 60 × 80 × 80	17.5	6
<i>H.</i> 'My Peggy'	Nov to Dec, March to May. Yellow Group 4D with darker centre and green in centre.	A	Evergreen. 55 × 70 × 80	8.1	7
<i>H.</i> 'Nashville' (Fig. 6)	Nov to June. Orange-red Group N34A and Yellow-orange Group 14A.	A	Evergreen. 50 × 80 × 65	6.5	8
<i>H.</i> 'Oriental Ruby'	Nov to May. Red Group 53A.	A	Semi-evergreen. 60 × 80 × 90	20	6
<i>H.</i> 'Pandora's Box'	Nov to Jan. Yellow Group 11D with Purple Group N77D halo and yellow centre.	A/B/L	Deciduous. 50 × 80 × 65	8.5	7
<i>H.</i> 'Peek-A-Boo Eyes' (Fig. 7)	Nov to June. Yellow Group 2D with ring of Red-purple Group 59B and green centre.	A/L	Evergreen. 60 × 70 × 60	9.2	8
<i>H.</i> 'Pixie Parasol'	Nov to June. Yellow-orange Group 23B.	L	Deciduous. 45 × 60 × 45	10.3	5
<i>H.</i> 'Raspberry Wine'	Nov to Jan. Red Group 50C with yellow to green centre.	A	Deciduous. 50 × 70 × 55	8.8	6
<i>H.</i> 'Rose Emily'	Nov to Jan. Red Group 50C with yellow to green centre.	A/L	Deciduous. 50 × 70 × 60	10.2	7
<i>H.</i> 'Squeaky' (Fig. 8)	Nov to May. Yellow-orange Group 14A.	A/B/L	Semi-evergreen. 50 × 80 × 70	4.1	9
<i>H.</i> 'Stella Bella'	Oct to May. Yellow-orange Group 15C.	A/L	Evergreen. 40 × 50 × 40	11	6
<i>H.</i> 'Stella d'Oro'	Nov to May. Yellow-orange Group 17B.	A/B/L	Deciduous. 40 × 60 × 45	8.3	7
<i>H.</i> 'Study in Scarlet'	Oct, March to April. Red flowers.	–	Not recorded.	34.6	1



Fig. 2 *Hemerocallis* 'Cade Stewart'. Photo: Jack Hobbs.



Fig. 5 *Hemerocallis* 'Glitter'. Photo: Jack Hobbs.



Fig. 3 *Hemerocallis* 'Chicago Apache'. Photo: Jack Hobbs.



Fig. 6 *Hemerocallis* 'Nashville'. Photo: Emma Bodley.



Fig. 4 *Hemerocallis fulva*. Photo: Emma Bodley.



Fig. 7 *Hemerocallis* 'Peek-A-Boo Eyes'. Photo: Jack Hobbs.



Fig. 8 *Hemerocallis* 'Squeaky'. Photo: Jack Hobbs.

In contrast, *H.* 'Glitter' has sustained performance throughout the season with attractive foliage even after flowering has finished.

Hemerocallis lilioasphodelus doesn't produce a lot of flowers, but does have very clean and tidy foliage.

In June 2017, we noticed many *Hemerocallis* put out new flower buds only to have them washed off with the extremely heavy rain. Some of the flower buds also became infested with aphids. During autumn, some aphids were noticed on almost all the plants; however the infestations (number of insects per plant) were very low and unlikely to have impacted the plants performance.

The top five cultivars ranked in order of greatest number of flowers were:

1. *H.* 'Baby Betsy'
2. *H.* 'Mini Pearl'
3. *H.* 'Dancing Dwarf'
4. *H.* 'Pandora's Box'
5. *H.* 'Nashville'.

Conclusions

The star performers (a top 7), recommended on the basis of this trial and updating previous information from the 2014 ABG *Hemerocallis* trial, are:

- *H.* 'Cade Stewart'
- *H.* 'Chicago Apache'
- *H. fulva*
- *H.* 'Glitter'
- *H.* 'Nashville'
- *H.* 'Peek-a-Boo Eyes'
- *H.* 'Squeaky'.

These scored an 8 or higher in our evaluations, had less than an average of 10% rust infection and long flowering periods with an abundance of flowers.

There are some changes between the star performers recommended between this trial and the previously published trial (Bodley et al., 2015). For example, this time *H.* 'Little Grapette' showed high levels of rust infection and was therefore rated low. Some of the other recommended cultivars from the 2015 daylily trial, including *H.* 'Mini Pearl', *H.* 'Moon Goddess' and *H.* 'Rose Emily', scored

lower in this updated trial because although the flowering was prolific and sustained, the foliage was variable throughout the season and at times was untidy. They might be used in displays but require more frequent maintenance than those star performers in our updated list presented here. It is not uncommon for newly assessed cultivars to supersede the performance of older ones, hence reinforcing the importance of regular and ongoing evaluations of plants.

Acknowledgements

We would like to thank Terry Hatch, Lindsey Hatch and Fiona MacDonald for helping evaluate the plants in this trial.

Reference

Bodley, E.; Green, R.; Jones, J.; Hobbs, J. (2015). Auckland Botanic Gardens *Hemerocallis* rust trial. *New Zealand Garden Journal* 18(2): 2–4.

Website

(accessed June 2018)

The American Hemerocallis Society online daylily database: www.daylilies.org/DaylilyDB/