‘Velluto Blue’: A New Late-cropping Rabbiteye Blueberry Cultivar

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There is an increased interest in late-ripening blueberry cultivars in New Zealand and other aspects the growers are looking for in a new cultivar are late flowering to overcome early spring frost, high yield, and adaptability to medium- to low-chill areas of the country. Rabbiteye blueberry (*Vaccinium virgatum* synonym *Vaccinium ashei*) in New Zealand offers an alternative to medium- to low-chill highbush cultivars; in particular, the late-cropping rabbiteye offers an extended harvest season, from February to April, compared with the early rabbiteye cultivars such as ‘Climax’, in which harvest occurs in early January.

‘Velluto Blue’ is a new rabbiteye blueberry cultivar released by The New Zealand Institute for Plant & Food Research Limited (Plant & Food Research) and derived from a cross between ‘Maru’ and ‘Briteblue’. The new cultivar ripens late compared with most rabbiteye cultivars available in New Zealand, has high yield, large fruit size, and has shown adaptability to different New Zealand environments. The extended fruit harvest window of ‘Velluto Blue’ does not make the cultivar suitable for machine harvest when this requires concentrated fruit ripening.

Origin

‘Velluto Blue’ was selected in 2000 at the Ruakura Research Center–New Zealand (lat. 37°48′ S, long. 175°17′ E) from a population of seedlings derived from crossing the blueberry cultivars Maru (New Zealand Plant Cultivar Rights Grant #843) and Briteblue (not patented). The new cultivar was created during the course of a planned plant-breeding program conducted by Plant & Food Research and was assigned the breeder code, F128. The pedigree of ‘Velluto Blue’ is shown in Figure 1.

The selection was tested in plot trials at the Ruakura Research Center for 12 years and in 2006 was evaluated in different locations in the Waikato, Hawkes’ Bay, and Nelson regions. Data collected over these years at the

Ruakura Research Center and evaluation in different locations in New Zealand indicated that ‘Velluto Blue’ performed well, in particular in the North Island where rabbiteye blueberries are successfully grown.

Description and Performance

Although the first blueberry cultivars arrived in New Zealand in the 1950s, commercial blueberry cultivation commenced in the mid-1970s with the introduction and field trialing of cultivars imported from the United States (Anonymous, 1973, 1975, 1979; Langford, 1982). Blueberry plantings have more than doubled from 2000 to 2009 with the total planted area increasing from 259 ha in 2000 to 522 ha in 2009 (HortResearch, 2000; Plant & Food Research, 2009).

Rabbiteye blueberry cultivars are becoming a popular choice among New Zealand growers because of their adaptability to medium- to low-chill areas, late flowering, good vigor, and high plant yield compared with many commercial highbush blueberry cultivars. In particular late-cropping rabbiteye cultivars offer an additional extended harvest season, from February to April, compared with the early rabbiteye cultivars such as ‘Climax’ (harvest in early January).

The results reported (Tables 1 and 2) are from a field trial established as a randomized complete block design with four replications of five plants each. The trial was established in Winter 2007 (between June and July) at the Ruakura Research Center–New Zealand (lat. 37°48′ S, long. 175°17′ E) and grown in soil

modified with additional organic material at pH ≈4.3. The site has a mean annual rainfall of ≈1200 mm with moderate temperatures (minimum/maximum 0/29 °C).

Berries were harvested from every single plant of the four plots for ‘Velluto Blue’ (Fig. 2) and then bulked per plot. Berries were harvested from every single plant of a single plot for ‘Centurion’ and ‘Rahi’ and then bulked per plot. The scores reported in Table 1 are averages from four consecutive years (Summers 2008–09, 2009–10, 2010–11, and 2011–12). Dates were estimated for 50% of flowering and ripening time. The rating system for yield, plant vigor, and fruit traits was based on a 1 to 9 scale with 1 being the poorest and 9 being the best and 6 was considered commercially acceptable.

For the yield assessment, fully ripe fruit was collected from each individual plant starting when ≈50% of the fruit on the plant per plot was estimated to be ripe and until the total crop was collected. Multiple harvests (four to six) were required to collect the total yield per plant.

For all cultivars in the trial, crop load in the first two years was found to be minimal, so the total yield records started in Year 3 after planting (2009–10 season).

During the last year of assessment (2011–12), ‘Velluto Blue’ produced an average of 5.8 kg of fruit per plant, whereas ‘Centurion’ produced 5 kg per plant and ‘Rahi’ 3.5 kg per plant. ‘Velluto Blue’ had the highest yield score over the entire evaluation (Table 1). ‘Velluto Blue’ plant vigor was high and overall similar to that of ‘Centurion’.

Growers in different areas of New Zealand affected by spring frost are interested in late-flowering cultivars such as the rabbiteye types. The average flowering time for ‘Velluto Blue’, ‘Centurion’, and ‘Rahi’ is considered overall late compared with highbush cultivars, with ‘Velluto Blue’ flowering an average of 5 d earlier than ‘Centurion’ and ‘Rahi’ (Table 1). The fruit harvest of ‘Velluto Blue’ occurs an average of 10 d later than that of ‘Centurion’, reaching 50% of the harvest in mid-February (Table 1). ‘Velluto Blue’ harvest is, on average, complete by the first week of April.

Fig. 1. Pedigree of ‘Velluto Blue’ rabbiteye blueberry.

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Table 1. Yield, plant vigor, flowering and ripening dates, and rating of fruit traits of ‘Velluto Blue’ and two comparator rabbiteye cultivars (Centurion and Rahi) at Ruakura, New Zealand.^z

Plant and fruit traits	‘Velluto Blue’	‘Centurion’	‘Rahi’
Plant yield	8.4 ± 0.2	8.0 ± 0.0	6.8 ± 0.2
Plant vigor	8.0 ± 0.0	8.0 ± 0.0	6.4 ± 0.2
Date of 50% flowering	22 Sept.	28 Sept.	28 Sept.
Date of 50% fruit ripening	15 Feb.	5 Feb.	6 Feb.
Fruit size	8.0 ± 0.3	6.0 ± 0.3	7.4 ± 0.2
Fruit pedicel scar size	7.0 ± 0.0	8.6 ± 0.2	7.8 ± 0.2
Fruit firmness	7.2 ± 0.2	7.4 ± 0.2	7.2 ± 0.2
Fruit flavor	7.0 ± 0.0	6.2 ± 0.2	8.0 ± 0.0
Fruit color	7.4 ± 0.2	6.2 ± 0.2	8.0 ± 0.0

^zResults are shown as mean values for a four-year period (2008–12) ± SE with n = 4. Dates were estimated for 50% of flowering and ripening time. The rating system was based on a 1 to 9 scale with 1 being the poorest, 9 being the best, and 6 was considered acceptable for a commercial blueberry cultivar.

Table 2. Fruit traits of ‘Velluto Blue’ and two comparator rabbiteye cultivars (Centurion and Rahi) over a four-year period (2008–12) at Ruakura, New Zealand.^z

Fruit and plant traits	‘Velluto Blue’	‘Centurion’	‘Rahi’
Fruit weight (g)	2.5 ± 0.1	1.6 ± 0.0	2.2 ± 0.1
Fruit diameter (mm)	18.4 ± 0.2	14.7 ± 0.6	17 ± 0.7
Soluble solid content (%)	13.4 ± 0.3	13.4 ± 0.4	14.2 ± 0.3
Titrateable acidity (mg.g ⁻¹ juice)	4.1 ± 0.4	3.6 ± 0.2	2.1 ± 0.3

^zResults are shown as mean values ± SE with n = 4.

Fig. 2. ‘Velluto Blue’ four-year-old plants growing at the Ruakura Research Center–New Zealand (lat. 37°48’ S, long. 175°17’ E).

In addition to the fruit yield, plant vigor, favorable flowering, and ripening times, ‘Velluto Blue’ was the cultivar with the largest fruit size (Tables 1 and 2) with an average weight of 2.5 g and 18.4 mm diameter.

For the fruit assessment, 50 uniform fruit were selected from the harvest at 50% of ripe fruit and the fruit assessments recorded within 2 h from harvest.

‘Velluto Blue’ showed good fruit quality traits during the evaluation with a medium to small pedicel scar size and good firmness similar to that of ‘Centurion’ and ‘Rahi’. It had flavor and a light blue fruit color (Fig. 3) intermediate between the two comparator cultivars.

‘Velluto Blue’ has not been tested for self-fertility and it is recommended to be planted with another rabbiteye cultivar with similar flowering window to ensure good pollination.

Plant Availability

‘Velluto Blue’ is a protected cultivar owned by Plant & Food Research. In New Zealand, the exclusive head licensee is Blueberries New Zealand Incorporated and in the European Union, the exclusive head licensee

Fig. 3. ‘Velluto Blue’ fruit during ripening.

is Wilhelm Dierking Beerenobst based in Germany.

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