'Yumeilan' Northern Highbush Blueberry

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'Yumeilan' (CNPVP 20190405) is a new northern highbush blueberry (*Vaccinium corymbosum* L.) cultivar developed by Dalian Pushilan Agriculture Technology Co., Ltd., Dalian, China. 'Yumeilan' is an early-to-mid-season cultivar that is suitable for the processing market. The average fruit weight is 2.83 g (maximum of 3.56 g). It has the characteristics of medium fruit size, oblate shape, medium blue color, small dry picking scar, medium firmness, thick fruit wax, high sweetness, thick skin, pleasant fragrance, and good flavor. The plant is vigorous and the growth habit is semi-spreading. It can be planted commercially in the high-chilling areas of northern China (0600–1200 HR) and offers enhanced opportunities to compete in the local early maturing fresh fruit market.

Origin

'Yumeilan' was selected from seedlings produced by open pollination of 'Bluejay'. 'Bluejay' was derived from a cross of 'Berkeley' × 'Michigan 241' ('Pioneer' × 'Taylor') released by Michigan State Agricultural Experiment Station (Johnston, 1956). The fruit shape of 'Bluejay' is oblate. The fruit wax is thick and uniform in texture. The average fruit weight is 0.94 g (maximum of 1.45 g), and the picking scar is large and wet. It has a good flavor, good firmness, sweet taste, pleasant fragrance, and good yield (Strik and Vance, 2017; Xu et al., 2021).

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In July 2010, H. Wang collected open-pollinated seed of the blueberry cultivar Bluejay from Dalian Senmao Modern Agriculture Co., Ltd. In Spring 2011, 247 seedlings were grown at Dalian Senmao Modern Agriculture Co., Ltd., and in Spring 2012, the seedlings were moved to the experimental station of Dalian Pushilan Agriculture Technology Co., Ltd. In July 2015, G. Xu evaluated and selected from these progenies. Among them, a selection subsequently named 'Yumeilan' showed excellent performance, with vigorous plant growth, medium fruit size, oblate shape, medium blue color, small dry picking scar, medium firmness, thick fruit wax, high sweetness, thick skin, pleasant fragrance, and good flavor. The comprehensive traits of the dominant lines and their asexual progenies were evaluated during 1 year, and the specific traits were stable. In Dec. 2019, this selection was certificated by the Plant Cultivar Rights Certificate of the National Forestry and Prairie Bureau and was named 'Yumeilan'.

Description

In this experiment, a single-factor randomized design was used. Three plants of the same age with no pests and diseases were selected as test plants for both 'Yumeilan' and 'Bluejay' and tagged for experimental observation and evaluation. From 2019 to 2021, the plant yield, bloom, and ripening dates were observed and measured (Table 1). The plant growth habit and fruit cluster density were evaluated subjectively. The comparison showed that the yield

of 'Yumeilan' was 6% higher than that of the control cultivar Bluejay. The blooming and ripening dates of 'Yumeilan' were later than those of 'Bluejay'. Across 2019 to 2021, the estimated date for 50% ripe fruit for 'Yumeilan' ranged from 2 July to 9 July (average, 5 July). This date was 9 d later than the 50% ripeness date estimated for 'Bluejay'. That of 'Bluejay' ranged from 23 June to 30 June (average, 26 June). Observations indicated that 'Yumeilan' was a vigorous plant with a semi-spreading growth habit, whereas 'Bluejay' was upright. The flower shape of 'Yumeilan' was urceolate and colored white when in bloom (Fig. 1). The fruit cluster density of 'Yumeilan' was denser than that of 'Bluejay' (Fig. 2).

From 2019 to 2021, the numerical rating data of clonally propagated plants of 'Yumeilan' and 'Bluejay' were collected during the fruit harvest period, including berry size, color, picking scar, firmness, soluble solids (°Brix), and titratable acidity (% citric acid) (Table 2). Berry size was determined by weighing 30 berries of each cultivar and calculating the average berry weight. The results showed that the berries of 'Yumeilan' were larger than those of 'Bluejay'. The average berry size of 'Yumeilan' was 1.90 cm × 1.57 cm, the average berry weight was 2.83 g, and the maximum berry weight observed was 3.56 g. For 'Bluejay', the average berry size was 1.09 cm × 1.69 cm, the average berry weight was 1.95 g, and the maximum berry weight was 2.29 g. We collected 30 berries from each cultivar and used the Royal Horticultural Society Color Chart to determine fruit color. Berry color of 'Yumeilan' was medium blue (102-B measured value), and that of 'Bluejay' was light blue (101-B measured value). It was observed that 'Yumeilan' berries were covered with a thinner waxy layer than 'Bluejay' when ripe. Regarding the picking scar, 'Yumeilan' showed a better score than 'Bluejay' (7.3 vs. 6.1). The picking scar of 'Yumeilan' was small and dry, whereas the scar of 'Bluejay' was large and wet. Berry firmness measurements were performed for 30 berry samples using the GY-4 Digital Fruit Sclerometer (Edburg Instruments Corp., Zhejiang, China). Compared with 'Bluejay' (3.4 N), 'Yumeilan' had a medium firmness (2.9 N), which is suitable for fresh market. Soluble solids and titratable acidity were determined by using a blueberry pocket Brix acidity meter (PAL-BXACID7; Atago Corp., Tokyo, Japan). The soluble solids levels of 'Yumeilan' were lower than those of 'Bluejay' (11.4 vs. 14.5 °Brix), and its titratable acidity was higher than that of 'Bluejay' (0.59 vs. 0.36% citric acid).

The prominent attributes of 'Yumeilan' are high plant vigor, medium fruit size, small

Table 1. Yield values and fruit ripening dates of 'Yumeilan' and 'Bluejay', 2019–21.

Cultivars	Yield (kg/plant ± sd)				50% fruit ripening date (range)
	2019 (4 yrs) ^z	2020 (5 yrs) ^z	2021 (6 yrs) ^z	3-yr avg	3-yr avg
Yumeilan	3.2 ± 0.1	3.4 ± 0.4	3.6 ± 0.3	3.4 ± 0.3	5 July (2 July–9 July)
Bluejay	3.3 ± 0.2	2.9 ± 0.3	3.5 ± 0.5	3.2 ± 0.3	26 June (23 June–28 June)

^zThe age of the test plants during 2019–21.

Fig. 1. Flowers of 'Yumeilan' northern highbush blueberry.

Fig. 2. Fruit of 'Yumeilan' northern highbush blueberry.

dry picking scar, medium firmness, and a long storage period after picking. It is an early-to-midseason cultivar that matures more than 9 d later than 'Bluejay'. It has the characteristics of high sweetness, thick skin, pleasant fragrance, and good flavor. It should be a commercially valuable cultivar for the local fruit

Table 2. Fruit quality attributes ($\pm$ SD) of 'Yumeilan' and 'Bluejay' (the age range of the tested plants was 4 to 6 years), 2019–21.

Cultivars	Berry wt (g) ^z	Scar (1–9) ^y	Firmness (N) ^x	Soluble solids (°Brix) ^w	Titrateable acidity (% citric acid) ^w
Yumeilan	2.83 $\pm$ 0.6	7.3 $\pm$ 0.2	3.1 $\pm$ 0.1	11.4 $\pm$ 0.4	0.59 $\pm$ 0.06
Bluejay	1.95 $\pm$ 0.3	6.1 $\pm$ 0.1	3.4 $\pm$ 0.4	14.5 $\pm$ 0.8	0.36 $\pm$ 0.07

^zAverage berry weight of 30 berries sampled.

^y1 = worst; 9 = best.

^xThe firmness was measured in Newtons (N) as the force value (kg) of 1 cm², with an average of 30 intact fruits.

^wSoluble solids and titrateable acidity were determined using one blended cup of the sample fruit.

Availability

'Yumeilan' was authorized by the National Forestry and Prairie Bureau in Dec. 2019, under certificate number 20190405. The cultivar is owned by Dalian Pushilan Agricultural Technology Co., Ltd., Dalian, China. Propagation rights have been offered to Dalian Pushilan Agricultural Technology Co., Ltd. Growers may request information about how to obtain propagules by contacting H. Wang and G. Xu at Dalian Senmao Modern Agriculture Co., Ltd., Xinshi Village, Huajia Street, Jinzhou New District, Dalian. This published genetic material has been deposited at Dalian Pushilan Agricultural Technology Co., Ltd., and it is available for research purposes, including the development and commercialization of new cultivars.

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