

Vaccinium ovatum ‘Cascade Jewel’

Ryan N. Contreras

Department of Horticulture, Oregon State University, 4017 Agricultural and Life Sciences Building, Corvallis, OR 97331, USA

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Vaccinium ovatum (evergreen or box huckleberry), a relative of cultivated blueberry (*Vaccinium corymbosum*), is an evergreen shrub native to the Pacific Northwest that produces small edible berries and red or reddish stems that are used in the florist industry (Oregon State University 2024). Evergreen huckleberry can be found on the edges of mixed conifer forests as well as frequently in the salt spray zone in fast-draining, sandy soils [US Department of Agriculture, National Resource Conservation Service (USDA, NRCS) 2024]. Evergreen huckleberry generally prefers moist to slightly dry soils and tolerates full shade to full sun, but benefits from some shade (USDA, NRCS 2024). There is growing interest in native plants and edible landscapes, which, combined with box huckleberry’s evergreen foliage, makes it an attractive option for modern gardens. For example, recently installed landscapes on the Oregon State University Corvallis campus have included designs that specify mass plantings of box huckleberry—a trend this particular design firm has used in other designs in western Oregon. Unfortunately, available plants are generally of poor growth form with long, erect shoots that can reach 3 m and many plants are still grown from seed, as there are few cultivars in the trade. ‘Thunderbird’ is rarely available in the trade, and details are difficult to find on its merits but seems to have been named for heavier flowering and fruiting. Scarlet Ovation™ (*V. ovatum* ‘Vacsid1’ USPP25067P2) was derived from ‘Thunderbird’ as a branch sport and is grown for its compact habit (maximum height 1 m) and bright red stems. Initial breeding work was initiated in 2012 with the first goal of developing larger, better-tasting fruit on a more compact and uniform branching shrub. ‘Cascade Jewel’ does not have notably improved fruit traits but was selected and released for its improved growth habit, vigor, and performance in production as evaluated by a commercial nursery.

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R.N.C. is a Professor.

R.N.C. is the corresponding author. E-mail: ryan.contreras@oregonstate.edu.

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Origin

In 2012–13 seedlings derived from seed collected from a single plant of unknown origin located on Orchard Avenue, near the Horticulture Crops Research Laboratory in Corvallis, OR (lat. 44°34′4.2″N, long. 123°17′20.5″W) were treated to induce polyploids. Seedlings were grown in a peat-based soilless substrate (Sunshine#4 Sun Gro Horticulture, Agawam, MA, USA) and sprayed daily with an aqueous solution of 150 µM oryzalin (applied as Surflan AS; United Phosphorus, King of Prussia, PA, USA) and 0.1% Triton™ X-100 (Sigma-Aldrich Inc, St. Louis, MO, USA) for 20 d using a standard spray bottle, beginning when they were at the cotyledon stage. For the duration of treatment, seedlings were grown under humidity domes to maintain high relative humidity to help droplets persist on meristems as long as possible. Leaves were tested using flow cytometry analysis of 4′,6-diamidino-2-phenylindole (DAPI)-stained nuclei in 2014 and we confirmed the population included diploid, mixoploid (cytochimera), and tetraploid seedlings (Neill and Contreras 2022). ‘Cascade Jewel’ was originally accessioned as 12-0018-124 and had a 2C DNA content of 2.52 pg compared with a mean of 1.22 pg for diploids, which confirmed ‘Cascade Jewel’ was tetraploid. The whole population of 2x, 2x+4x, and 4x plants, including 12-0018-124 (‘Cascade Jewel’), was field grown for 2015 to 2017 in full sun, irrigation field plots, and then a selection of genotypes was propagated from stem cuttings and original field plants were dug and “re-canned” for continued evaluation.

During evaluation in 2017–19, we identified several selections with more uniform shape and had better more vigorous, upright growth habit than others (Fig. 1A illustrates ‘Cascade Jewel’). During 2020, we narrowed selection to three accessions based on industry input that focused on growth form. These accessions were propagated from stem cuttings, among them were 12-0018-124 and 12-0018-064. Both accessions were characterized as upright and vigorous growers, which were traits that had been identified as critical by a nursery industry representative. During early propagation tests, we observed that both accessions produced an acceptable number of cuttings on a small plant (22 cuttings each from #3 container) and rooted acceptably well from 5- to 6-cm semihardwood cuttings treated with 3000 ppm auxin talc at 95% for 12-0018-124 and 91% for 12-0018-064. Replicates of these two accessions were sent to Briggs Nursery in Elma, WA, for production evaluation under a material transfer

agreement during Feb 2021. They attempted to put both accessions in micropropagation for production evaluation; however, all 12-0018-064 plants died before collecting material. The reason is unknown; however, ‘Cascade Jewel’ plants were growing in the same area thus would have received the same treatment and been exposed to any potential pests or pathogens. Feedback from the sales team at Briggs Nursery was favorable and they indicated there would be strong interest and commercial potential due to their superior vigor and foliage color. ‘Cascade Jewel’ was observed to be amenable to micropropagation and has outperformed other genotypes in commercial tests by producing larger plants quicker during acclimation (Fig. 2).

Description

‘Cascade Jewel’ is an evergreen shrub with compact, dense growth that is broadly upright. In comparative studies it was more compact than wild-type diploids (Neill and Contreras 2022). During the 2017–18 growing season ‘Cascade Jewel’ was 28 cm tall × 41 cm wide compared with 44 cm × 53 cm for diploids. Estimated mature height and width is ~85 cm × 100 cm, although this will vary based on environment. Extensive trials across locations were not conducted but we have observed it to be hardy to at least USDA Zone 7a, which is consistent with the species. Its growth rate is moderate to fast for the species; however, it remains more compact despite being vigorous in production, and we expect that it will respond well to shearing. The species is relatively pest free,

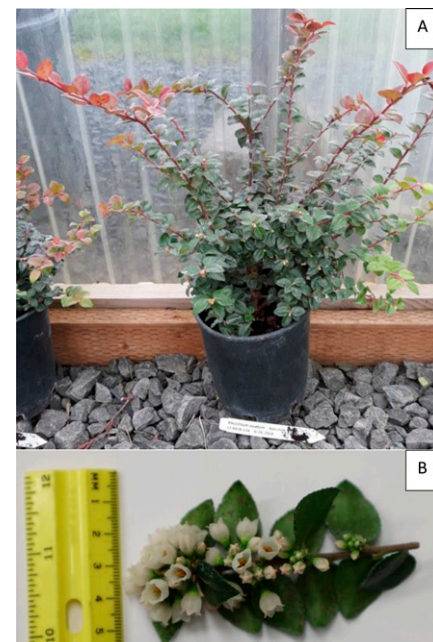


Fig. 1. An unpruned container-grown plant of *Vaccinium ovatum* ‘Cascade Jewel’ grown in an outdoor nursery ~2.5 years old propagated from a stem cutting (A). Branch of ‘Cascade Jewel’ illustrating clusters of campanulate flowers produced in the axils of the seven terminal nodes (B).



Fig. 2. Superior performance of *Vaccinium ovatum* 'Cascade Jewel' from micropropagation (right) compared with plants of a different (diploid) genotype that are the same age (left). All plants were handled the same and none have received supplemental fertilization since acclimation to the greenhouse environment.

and no exceptional resistance, nor susceptibility to pests or disease have been noted for 'Cascade Jewel'. 'Cascade Jewel' is easily

propagated from stem cuttings (95% success) or micropropagation.

Leaves for the species are alternate and simple. 'Cascade Jewel' leaves are 2.8 cm long \times 1.6 cm wide, ovate, with broadly acute apex, rounded or cordate base, crenate-serrate margins, and smooth to slightly glossy surface. Mature adaxial surface color RHS 139A; mature abaxial surface color RHS 146A (Royal Horticulture Society 2007). New foliage color is RHS 179A adaxial and abaxially.

Although we have not conducted a replicated and comparative study of flowering of 'Cascade Jewel' to other selections, we noted that it is extremely floriferous and produces large pendulous clusters of six to 17 (mean of 10) flowers at the terminal seven (five to nine) nodes (Fig. 1B). The plant flowers for \sim 6 weeks in spring, with individual flowers lasting 7 to 10 d, which are campanulate and 1 cm long including pedicle. Inside and outside corolla color is RHS NN155B with RHS 62C for the corolla lob at its terminus. Its fruit are medium to large for the species at 8 mm; they are globose, glossy, smooth, and glabrous. Skin color is a mix of RHS 95A, RHS 99A, and RHS 103A. A voucher was collected on 12 Apr 2023, and deposited in

the Oregon State University Herbarium and accessioned as OSC-V-269238.

Availability

Vaccinium ovatum 'Cascade Jewel' was released in 2023 by the Oregon Agricultural Experiment Station and a US plant patent application was submitted. Plants are available exclusively from Briggs Nursery (<https://www.briggsnursery.com/>) and/or its retail distributors.

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