'Razz' Highbush Blueberry: A Specialty Cultivar with Raspberry-flavored Fruit

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'Razz' is a midseason-ripening, tetraploid, highbush blueberry (*Vaccinium corymbosum* L.) with unique raspberry flavor overtones that has been released by the cooperative breeding program of the Agricultural Research Service of the U.S. Department of Agriculture (USDA). 'Razz' represents a distinct and novel flavor in highbush blueberry, and may represent a niche market alternative to raspberries for pick-your-own (PYO) growers and home gardeners. 'Razz' is recommended for specialty, culinary, PYO, and home use.

Origin

Dr. Frederick V. Coville was the founder of the USDA blueberry breeding program (which began in 1911) and he is credited for 15 cultivars developed from crosses made during his lifetime (Mainland, 2012). He has also been credited for 'Rubel', a notable cultivar release resulting from a plant selected from the wild. An additional 15 cultivars from Dr. Coville's crosses have been released since his death (Mainland, 2012). 'Razz', which also came from a Coville cross, was officially released in 2011, 64 years after Dr. Coville's death (1938) and 100 years after the start of blueberry breeding. In honor of his having generated this cross, Dr. Coville was designated as an official codeveloper on all release documents. 'Razz' marks what is most certainly the last cultivar that will be released from Coville's original crosses.

'Razz', tested for many years as 11-104, is a sibling of the cultivars Bluecrop (released in 1952) (Draper and Hancock, 1990; USDA and NJAES, 1952) and Blueray (released in 1955) (Darrow et al., 1956), and is a progeny of the cross GM-37 × CU-5 (two USDA selections from the early history of the USDA blueberry breeding program) (Coville, 1937) (Fig. 1). The cross was made in 1934 by F.V. Coville (USDA) and selected in 1941, presumably by G.M. Darrow (USDA) and J.H. Clark (NJAES).

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Despite its long history, 'Razz' was maintained only as a numbered selection for many years, because it was considered too soft for commercial production (and probably also considered too atypical of what a blueberry should be). It continued to be maintained however, because various researchers took a personal interest in it, and found its raspberry overtones interesting and unique. In the 2000s, an impetus to name 'Razz' developed after several nurseries inquired about the possibility of release as a specialty cultivar for home gardens and PYO. 'Razz' was released in 2011 to propagating nurseries.

'Razz' was subsequently evaluated for this publication by M.K. Ehlenfeldt and Robert B. Martin Jr. in a long-established plot at the Marucci Center for Blueberry and Cranberry Research and Extension, at Chatsworth, NJ. These workers evaluated 'Razz' from 2012 to 2014 in a test block consisting of five rows of vegetatively propagated plants that were planted in alternating groups of three 'Bluecrop' and two 'Razz'. In this block, we harvested five randomly selected plants of 'Razz' and 'Bluecrop'. The trial was located in USDA Plant Hardiness Zone 6, on soils that are mostly Atsion Berryland sand containing 3% to 15% organic matter. Cultural practices included the use of solid set irrigation for irrigation and frost protection.

Description

A yield comparison of 'Razz' and 'Bluecrop' from 2012 to 2014 shows 'Razz' to possess yields that are ≈78% of 'Bluecrop' (Table 1). 'Razz' has the same flowering period as 'Bluecrop', and has essentially the same ripening season as well. Across 2012 to 2014, the estimated date for 50% ripe fruit for 'Razz' ranged from 25 June to 9 July, and averaged 30 June. This date is just 2 d earlier than the 50% ripeness estimate for 'Bluecrop' (which exhibited a similar 50% ripe range) (Table 1).

Numerical rating data were collected between 2012 and 2014 on clonally propagated plants of 'Razz' and 'Bluecrop' (Table 2). Comparisons showed that 'Razz' fruit, as compared with 'Bluecrop' fruit, was comparable in color (28.8 vs. 29.0 L; in the L*a*b* color coordinate system) and berry weight (1.9 g).

'Razz' rated slightly lower for scar (6.5 vs. 7.2 rating), and exhibited a firmness value ≈14% lower than 'Bluecrop' (135 vs. 157 g·mm⁻¹ deflection). 'Bluecrop' itself is not considered particularly firm by modern standards, thus 'Razz' might be considered relatively soft by commercial standards. 'Razz', however, is notable for its organoleptic characteristics. The fruit of 'Razz' is sweet, subacidic, and mild-flavored with pronounced raspberry overtones. The soluble solid levels of 'Razz' are slightly higher than 'Bluecrop' (11.8 vs. 10.7 °Brix), and its titratable acidity is slightly lower than 'Bluecrop' (0.70 vs. 0.78 citric acid equivalents). The flavor of 'Razz' is so distinctive that we did not assign rating values for this character. The distinct raspberry overtones coupled with the slightly greater sweetness and lower acidity produce a delightful flavor impression. The raspberry flavor is most pronounced early in the ripening process when berries still possess a moderate amount of acidity. As the berry continues to mature the perceivable raspberry overtones decrease somewhat, but the berry still retains an excellent flavor profile.

In limited postharvest storage studies, 'Razz' stored only moderately well. Whereas some cultivars increase their firmness in storage, that was not the case for 'Razz'. Thus, 'Razz' is recommended only for fresh consumption, because its firmness is only average at best and it continues to soften after picking, and therefore is not suitable for commercial harvest or shipping without extraordinary effort.

'Razz' is a vigorous and robust plant that is upright and less willowy than 'Bluecrop'. The flowers of 'Razz' possess a distinct creamy coloration, unlike most highbush cultivars other than 'Patriot' (Fig. 2), and its immature foliage has less anthocyanin pigmentation than its siblings 'Bluecrop' and 'Blueray'. 'Razz' is also unusual in having a nearly direct transition from green fruit to blue fruit with very little pink phase in between (Fig. 3). This is a trait that has been observed in only a few other cultivars and selections.

'Razz' is suitable for production in areas where highbush is typically grown. It may

Fig. 1. Pedigree of 'Razz' highbush blueberry.

Table 1. Yield values and ripening dates for 'Razz' and 'Bluecrop', 2012–14.

	Yield $\pm$ sd (kg)				50% ripe date and range
	2012	2013	2014	3-yr avg	3-yr avg
Razz	4.6 $\pm$ 1.7	1.9 $\pm$ 0.5	4.5 $\pm$ 1.0	3.6 $\pm$ 1.0	30 June (25 June to 9 July)
Bluecrop	4.4 $\pm$ 0.8	3.5 $\pm$ 0.7	6.0 $\pm$ 1.8	4.6 $\pm$ 1.0	2 July (25 June to 12 July)

Table 2. Fruit quality parameters for 'Razz' and 'Bluecrop', 2012–14.

	Color (L) ^z	Berry wt (g)	Scar (1–9) ^y	Firmness (g·mm ⁻¹) ^x	Soluble solids (°Brix) ^w	Titrateable acidity (% citric acid) ^w
Razz	28.8 $\pm$ 2.8	1.9 $\pm$ 0.4	6.5 $\pm$ 0.4	134.6 $\pm$ 11.9	11.8 $\pm$ 0.4	0.70 $\pm$ 0.09
Bluecrop	29.0 $\pm$ 1.2	1.9 $\pm$ 0.5	7.2 $\pm$ 0.4	157.3 $\pm$ 8.9	10.7 $\pm$ 0.4	0.78 $\pm$ 0.08

^zColor in the L*a*b* color co-ordinate system as defined by the Commission Internationale l'Eclairage (CIE). L co-ordinate indicates lightness; higher numbers indicate lighter color. Color meter aperture, 50 mm.

^y1 = worst, 9 = best.

^xGrams of force needed to produce 1 mm of deflection, averaged across 30 intact fruit.

^wSoluble solids and titrateable acidity were determined on a blended one cup sample of fruit.

Fig. 2. Flowers of 'Razz' highbush blueberry.

Fig. 3. Fruit of 'Razz' highbush blueberry.

have broad climatic adaptation like 'Bluecrop', but has not been tested outside of New Jersey. It is a consistently good performer in New Jersey, with very good resistance to mummy berry blight caused by the fungus *Monilinia vaccinii-corymbosi* Reade (Honey) (Stretch et al., 1995), and average resistance to mummy berry fruit infection stage of the same disease (Stretch

and Ehlenfeldt, 2000). It is similar to 'Bluecrop' and 'Blueray' in being relatively susceptible to anthracnose (Polashock et al., 2005). 'Razz' represents a distinct novelty flavor in highbush blueberry, and may represent a niche market alternative to raspberries. 'Razz' is recommended for specialty, culinary, PYO, and home use.

Availability

This selection is released unconditionally with no warranty given regarding its performance or adaptation under specific environmental or cultural conditions. Plants of 'Razz' have previously been distributed to commercial propagators; neither the USDA nor NJAES currently has plants for distribution. Nurserymen and researchers may request information on plant sources by contacting M.K. Ehlenfeldt, USDA-ARS, Marucci Center for Blueberry & Cranberry Research and Extension, 125A Lake Oswego Road, Chatsworth, NJ 08019. Genetic material of this release has been deposited in the U.S. National Plant Germplasm System at Corvallis, OR, since 28 Feb. 1981 as PI 554841, where it is available for research purposes, including the development and commercialization of new cultivars.

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