

# 'Misty' Southern Highbush Blueberry

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'Misty' is a southern highbush blueberry cultivar with a chilling requirement of 100 to 300 h below 7 °C. It was released by the Univ. of Florida in 1992 and is now in commercial production in Florida and Chile. Smaller commercial plantings of 'Misty' have recently been made in southeastern Georgia, in southern Spain, and in eastern Australia. 'Misty' is principally of interest for early-season blueberry production in areas where winter chilling is insufficient for cultivation of northern high-chill cultivars of *Vaccinium corymbosum*.

## Origin

Tested as FL72-1, 'Misty' was a seedling from the cross FL67-1 x 'Avonblue'. The pedigrees of the parents are given in Sherman and Sharpe (1977) and in Fig. 1. FL61-7 was an open-pollinated seedling in which the maternal parent was US39 selfed x (NHB x d), where NHB was one of the following: 'Earliblue', 'Bluecrop', 'Berkeley', 'Angola', or 'Ivanhoe' and d was one of the following *V. darrowi* Camp selections: FL4A, FL4B, FL6A, or FL34. The *V. darrowi* clone was collected from its native habitat in the central Florida peninsula.

In terms of species composition, the pedigree of 'Misty' indicates that it is mostly northern highbush but has some genes from *V. ashei* Reade, *V. darrowi*, and *V. tenellum* Ait. (Fig. 1).

The cross that gave rise to 'Misty' was made by Ralph Sharpe, and the plant was propagated for clonal testing in 1972. A 10-plant plot was planted on the farm of the late Arthur Elliott in Earleton, Fla. (lat. 29.7° N, long. 82.1° W) in 1974. Four hundred plants of FL72-1 were planted on a commercial farm in Inverness, Fla. (lat. 28.9° N; long. 82.3° W), in 1981. An 18-plant plot planted at the Univ. of Florida Horticultural Unit, near Gainesville, in 1986 was the basis for the data on flowering and ripening presented in Table 1. Other observations have been made in Earleton, Inverness, and commercial blueberry plantings throughout the Florida peninsula.

## Description

Based on observations in the field after mild and cold winters since 1972 in Florida, 'Misty' appears to have a chilling requirement

between 100 and 300 h. The chilling requirement of 'Misty' is about equal to that of 'Sharpblue', which is currently the cultivar most commonly planted for cross-pollination of 'Misty' in north and central Florida. 'Misty' is adapted to zones where the mean tempera-

ture for the period 1 Dec. through 28 Feb. is between 14 and 17 °C. 'Misty' may be grown in higher-chill zones in areas where cool winters prevent flowering until the danger of killing freezes is past. In north-central Florida (Ocala to Gainesville) 'Misty' flowers at about the same time as 'Sharpblue' and 'Flordablue' (Table 1). In Florida, in situations where the plants have leafed well and are not bearing an excessive fruit load, the date of 50% fruit ripening for 'Misty' averages ≈7 d later than for 'Sharpblue' (Table 1). The normal harvest season for 'Misty' in northeast Florida is 1 May through 20 May, and in central Florida from 15 Apr. through 15 May.

If 'Misty' has sufficient leaves and is not carrying an excessive crop load, it produces

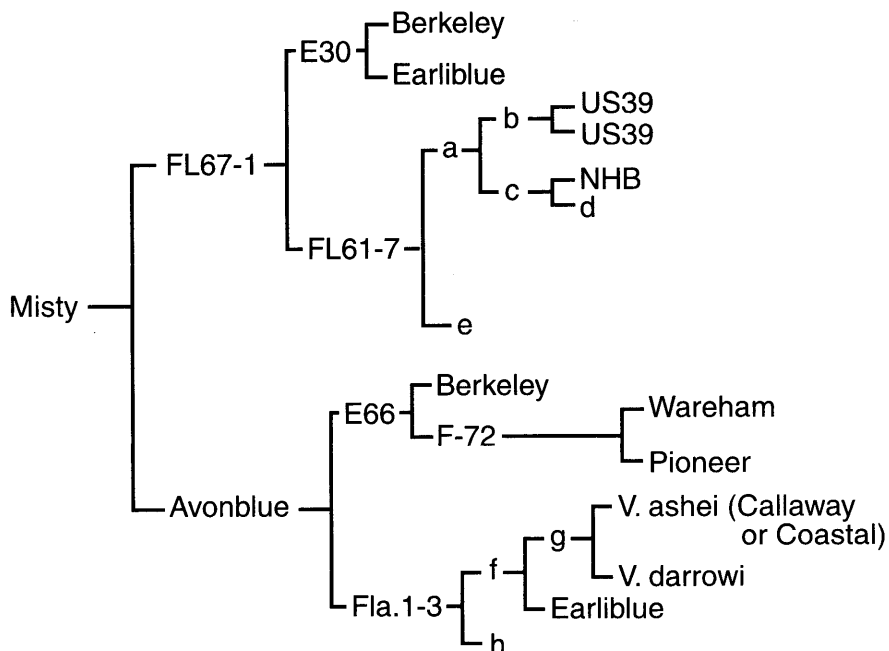


Fig. 1. Pedigree of 'Misty' blueberry. a, b, c, f, and g were unnamed selections. d was one of the following *V. darrowi* selections: FL4A; FL4B; FL6A; or FL34. e was the pollen source when a was open pollinated. h was a Michigan-USDA highbush selection. NHB was one of the following northern highbush cultivars: 'Earliblue', 'Bluecrop', 'Berkeley', 'Angola', or 'Ivanhoe'. US39 is Berkeley x (*V. tenellum* x 'Callaway').

Table 1. Dates of 50% anthesis and 50% ripe fruit for some southern highbush cultivars at Univ. of Florida Horticultural Unit, Gainesville, Fla., based on frequent observation of 1 to 20 plants of each clone throughout the flowering season.

Cultivar	Year								
	1988	1989	1990	1991	1992	1993	1994	1995	Mean
	<i>Date of 50% anthesis</i>								
Misty	11 Mar.	4 Feb.	15 Feb.	---	22 Feb.	4 Feb.	21 Feb.	4 Mar.	20 Feb.
Sharpblue	28 Feb.	30 Jan.	15 Feb.	---	22 Feb.	6 Feb.	21 Feb.	25 Feb.	17 Feb.
O'Neal	12 Mar.	4 Feb.	25 Feb.	---	16 Mar.	18 Feb.	23 Feb.	12 Mar.	28 Feb.
Flordablue	4 Mar.	6 Feb.	14 Feb.	---	---	---	---	---	---
Avonblue	5 Mar.	6 Feb.	15 Feb.	---	---	20 Feb.	---	8 Mar.	---
Georgiagem	22 Mar.	12 Feb.	22 Feb.	---	20 Mar.	---	---	---	---
Gulf Coast	---	---	13 Feb.	---	22 Feb.	14 Feb.	21 Feb.	4 Mar.	---
	<i>Date of 50% ripe fruit</i>								
Misty	15 May	11 May	9 May	8 May	10 May	---	8 May	5 May	9 May
Sharpblue	4 May	8 May	23 Apr.	1 May	4 May	---	4 May	2 May	2 May
O'Neal	8 May	9 May	21 Apr.	5 May	3 May	---	6 May	---	---
Floradablue	6 May	8 May	26 Apr.	---	---	---	---	---	---
Avonblue	---	12 May	2 May	8 May	---	---	---	---	---
Georgiagem	9 May	9 May	30 Apr.	---	---	---	6 May	12 May	---
Gulf Coast	---	---	28 Apr.	3 May	2 May	---	6 May	---	---

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large, high-quality berries. Scar, firmness, and color are all better for 'Misty' than for 'Sharpblue' and 'Flordablue' (Table 2). Berry size is similar to that for 'Sharpblue' and 'O'Neal'. In samples gathered in 1989 from Gainesville, from plants that were leafy and not overcropped, 'Misty' averaged 2.6 g per berry, compared with 2.2 g for 'Sharpblue' and 1.6 g for 'O'Neal' (Table 2). In 1994, 'Misty' averaged 1.9 g per berry; 'Sharpblue' 1.8 g; 'Gulf Coast' 1.6 g; 'Southmoon' 2.3 g; and 'Star' 1.5 g. 'Southmoon' and 'Star' are two low-chill highbush cultivars patented by Florida Foundation Seed Producers, and released by the Univ. of Florida in 1995. The standard errors for these means were 0.1 g or less. 'Misty' is much less prone than 'Sharpblue' to retain the dried corolla on the ripe fruit. The pedicels are retained by the plant during harvest and seldom remain attached to the fruit. In an organoleptic test in which 10 evaluators rated six southern highbush cultivars for flavor on a 1 (unacceptable) to 9 (excellent) flavor scale, Misty received an average score of 7.2, compared with 'O'Neal' (7.3), 'Marimba' (6.2), 'Sharpblue' (5.7), 'Avonblue' (5.2), and 'Flordablue' (5.0).

'Misty' is similar to 'Sharpblue' in being relatively easy to propagate from softwood cuttings under mist. It grows vigorously in the nursery in peat or ground pine bark.

Based on many years of observations at many locations, 'Misty' appears to be somewhat more resistant than 'Sharpblue' to phytophthora root rot (*Phytophthora cinnamomi* Rands). However, 'Misty' plants can be damaged or killed by phytophthora on poorly drained or heavy soils. So far, cane canker [*Botryosphaeria corticis* (Demaree and Wilcox) Arx and Muller], a potentially serious blueberry disease in the southeastern United States, has not been a problem on 'Misty', and 'Misty' has had fewer problems than 'Sharpblue' with leaf diseases, although many fungal pathogens do attack 'Misty' leaves and can sometimes be serious. Blueberry bud mite (*Acalitus vaccinii* Keifer) has not caused serious problems on 'Misty' in Florida, although some flower buds have been damaged, especially in unpruned plantings. Blueberry gall midge (*Dasineura oxycoccana* Johnson) has not damaged 'Misty' flower buds when many rabbiteye blueberry cultivars in the same field were severely damaged.

In Florida, 'Misty' frequently produces a heavy load of flower buds in the fall. 'Misty'

Table 2. Fruit characteristics of selected highbush clones averaged over 3 years, Gainesville, Fla.<sup>z,y</sup>

Cultivar	Size	Color	Firmness	Scar	Fruit mass (g/berry) <sup>x</sup>
Misty	8	7	8	8	2.6 ± 0.1
Sharpblue	8	5	7	6	2.2 ± 0.0
Flordablue	8	6	7	6	1.5 ± 0.1
Avonblue	7	7	8	9	1.5 ± 0.0
O'Neal	8	5	7	9	1.6 ± 0.1
Georgiagem	7	8	6	7	---

<sup>z</sup>Based on fruit from 1 to 20 typical plants of each clone evaluated each year.

<sup>y</sup>Rated on a 9-point scale with 9 = excellent and 1 = very poor.

<sup>x</sup>Means plus/minus standard errors of the means. From 100-berry samples, Gainesville, Fla., 10 May 1989.

plants that lose their leaves during the winter often flower heavily in the spring before the leaf buds break dormancy. In many years in Florida, heavy flowering appears to inhibit foliation of 'Misty', and the berries may begin development while the plants remain essentially leafless. When this happens, 'Misty' becomes highly susceptible to stem blight, caused by *Botryosphaeria dothidia* [(Moug. ex Fr.) Ces. and deNot.]. The flowering canes die and the necrosis moves rapidly down the stem. Young plants can be killed quickly by this disease in the early spring. Because this syndrome of heavy flowering, delayed leafing, and stem blight can be so destructive in 'Misty', the plants must be managed to prevent its occurrence. Plants should not be allowed to fruit before they have been growing at least 2 years in the field and are at least 1 m tall. Plants bearing excessive numbers of flower buds in the winter must be pruned to reduce flowering and fruiting to a level that can be supported by the plant. In central Florida, if leaf diseases are controlled and if the plants are pruned severely in the summer and fertilized throughout the summer and fall, 'Misty' may retain functional leaves through the winter and spring. The presence of these leaves can help support the spring crop and reduce the need for winter pruning.

'Misty' is vigorous and upright in growth habit. It is equal to 'Sharpblue' in vigor, but is much more upright. 'Misty' produces fewer sprouts from the base than either 'Sharpblue' or 'Flordablue'. 'Misty' is more evergreen than 'Sharpblue' and 'Flordablue' and will retain its leaves through the winter on fertile, irrigated soils if not defoliated by leaf diseases or by temperatures below -5 °C. 'Misty' sets fruit well if interplanted with 'Sharpblue' or other suitable pollinizers. 'Misty' should not be planted in solid blocks without other cultivars for cross-pollination. Because it flowers

Table 3. Percentage of flowers killed by late freezes in Gainesville, Fla., in 1991 and 1996, based on observation of 1 to 20 plants of each clone.

Cultivar <sup>z</sup>	1991 <sup>y</sup>	1996 <sup>x</sup>
Misty	60	90
Sharpblue	40	70
O'Neal	10	40
Avonblue	0	---
Star	---	0
Southmoon	---	40
Magnolia	---	0
Climax	90	90

<sup>z</sup>All southern highbush except for 'Climax', which is rabbiteye.

<sup>y</sup>-4.5 °C sheltered air temperature on 16 and 17 Feb. 1991.

<sup>x</sup>-7 °C sheltered air temperature on 5 Feb. 1996.

early in the season, 'Misty' flowers and fruit are vulnerable to late freezes. In north Florida, 'Misty' is about equal to 'Sharpblue' in freeze vulnerability (Table 3). In areas subject to frequent spring freezes, overhead irrigation or some other form of freeze protection is necessary with 'Misty'. At Gainesville, in two years with severe late freezes, unprotected 'Misty' lost a larger fraction of its flower buds than 'Sharpblue', 'O'Neal', or 'Climax' (Table 3). Because 'Misty' flower bud production is often excessive, partial bud loss to late freezes does not always reduce yield.

#### Availability

A list of nurseries propagating plants of 'Misty' is available from P.M.L. The Univ. of Florida has no plants for sale or distribution.

#### Literature Cited

Sherman, W.B. and R.H. Sharpe. 1977. 'Avonblue' blueberry. HortScience 12:510.