

Selecting Blueberries for Residential Production in Tennessee

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Blueberries can be an excellent crop for residential areas because they are a long-term and productive small fruit crop with moderate management requirements. However, proper selection of blueberry type and cultivar will be essential to ensure the crop is well suited to the climate. Likewise, site selection and preparation are crucial and can even be more important over the life of the residential blueberry than cultivar selection. A blueberry planting is a long-term investment that can thrive for many years with proper preparation, selection and care.

Selecting the Best Site

Site selection and preparation are the first crucial steps in successful blueberry growing. Blueberries grow best in soils with pH levels between 4.5 and 5.5 and will fail when planted in high pH soils. Coarse- to medium-textured soils are preferred, and good soil drainage is essential for blueberries. Blueberry plants have a fine, thread-like root system that grows densely near the soil surface and mostly within the dripline of the bush. Blueberry roots are sensitive to low soil oxygen levels, which is another reason good drainage is important.

If soil on the site is poorly drained, shallow or low in organic matter, raised beds can be used to provide better growing conditions. Raised beds can be made of native soil, which can be amended with peat, pine bark and other organic materials. When amending, make sure that amendments support good drainage and do not increase pH (some composts and wood chips can increase pH). Raised beds can also be filled with an organic growing mix, such as composted pine bark, which will provide excellent drainage.

Irrigation will be important for the establishment and production of blueberries in soil sites and especially in raised beds with organic substrates that drain rapidly. Blueberries are not deeply rooted and lack root hairs, so they are not very efficient in taking up water and require more management of moisture than many other woody plants.

Selecting Blueberries for Tennessee Climates

A wide range of blueberry types and cultivars can be grown in Tennessee. The state's climate is often referred to as transitional because it has similarities to both northern and southern sites. It is important to select blueberries for this transitional climate that have moderate chilling hour requirements, as growing conditions in Tennessee are not identical to northern or southern blueberry production areas that require exclusively high or low chill cultivars, respectively.

Chilling hours are used to describe the time needed for a perennial plant to reach winter dormancy requirements. When chilling hours are reached, spring growth can begin. Because chilling requirements can impact spring flowering and potential for freeze losses, plant requirements need to be matched with climate to prevent fruit losses that could result from bloom that is too early or too late. In Tennessee, blueberries that fall in the broad range of 500-1,000 chilling hours are suitable for most regions of the state.

The three main types of blueberries (see Table 1) commonly grown in Tennessee are northern highbush (*Vaccinium corymbosum*), rabbiteye (*Vaccinium virgatum* syn. *V. ashei*) and southern highbush (*Vaccinium* hybrids). Rabbiteye are often more successfully established and grown in residential spaces in Tennessee climates. Rabbiteye blueberries are often more versatile as far as heat and drought tolerance and soil conditions, so they are more likely to survive and be productive over the long-term. Rabbiteyes have a more vigorous growth if left unpruned and can reach up to 20 feet, meaning they are actually often taller than highbush (a term used in comparison to lowbush blueberries, a species that is not generally recommended for Tennessee production.)

While some growers prefer the early harvest of highbush types, more care is required in site selection and soil and plant management. Northern highbush blueberries natively grow in areas that are moist or bog-like and prefer high organic matter sites. In Mid-South Tennessee locations, they often perform best in cooler regions and generally require irrigation. They can be more disease prone and have a shorter lifespan in Mid-South locations versus rabbiteye. Genetics from both the northern highbush and native blueberry species have been used to breed southern highbush hybrids for areas that require lower chilling due to shorter and warmer winters. Southern highbush blueberries require much of the same attention to pH and soil moisture management as northern highbush but are more suitable for warmer locations to produce early summer blueberries.

A fourth minor type of blueberries on the market are *Vaccinium* hybrids that contain lowbush blueberry (*V. angustifolium*) genetics. Many of the dwarf or container blueberries marketed to homeowners owe their compact habit and short stature to this lowbush influence. Lowbush blueberries do also tend to have smaller fruit size, so some of the dwarf cultivars may retain this characteristic.

Table 1. Comparison of different attributes of Northern Highbush, Southern Highbush and Rabbiteye blueberries.

	Northern Highbush	Southern Highbush	Rabbiteye
Winter Hardiness <ul style="list-style-type: none"> • These hardiness levels are accurate when plants are healthy and fully dormant. • During dormancy, fruit buds are less hardy than leaf buds. 	More hardy (-20 to -30 F)	Less hardy (0 to -10 F)	Less hardy (0 to -10 F)
Chilling Requirement <ul style="list-style-type: none"> • Southern Highbush and Rabbiteye varieties listed in this publication have chilling requirements appropriate for Tennessee. Varieties that have lower chilling requirements than 450-550 hours (rabbiteye) or 600-800 hours (highbush) are often poorly suited to some locations in Tennessee due to danger of spring frost damage to bloom. 	Longest (800-1000 hours or more)	Mid (600-800 hours) These chill hours are suggested for Tennessee conditions. Many have lower chill hours and will likely perform poorly in many regions of Tennessee.	Mid (500-plus hours) These chill hours are suggested for Tennessee conditions. Many cultivars have lower chill hours and will likely perform poorly in many regions of Tennessee.
Bloom Time	Latest	Early to Mid	Earliest (so largest chance of crop loss by late spring frost/freeze)
Cross Pollination Requirement <ul style="list-style-type: none"> • All types and varieties of highbush and rabbiteye blueberries will yield larger crops with bigger berries with cross pollination. Bees (bumblebees, native bees) are crucial for pollination. • Each type of blueberry needs to be cross-pollinated by a variety or varieties of the same type and same bloom time. 	Recommended	Recommended	Necessary for many varieties
Management <ul style="list-style-type: none"> • All types and varieties of blueberries require careful early pruning to establish a good structure and ongoing pruning to maintain productive fruiting area. • Weed control is essential and can be addressed through natural mulches or woven plastic ground covers. 			Larger plants, so may require wider spacing
Harvest Period <ul style="list-style-type: none"> • Actual time and duration of harvest will depend on the type of blueberry, varieties being grown and the location of the planting. 	Late spring – early summer beginning in early June and lasting for about 4 weeks	Late spring – early summer beginning in early June and lasting for about 4 weeks	Mid- to late summer beginning in early to mid-July and continuing for about 6 to 8 weeks
Fruit Characteristics	Tend to have larger fruit		Fruit is often smaller and can contain more seeds

Blueberry Cultivars for Tennessee

Cultivars included here were selected from those with a history of success in Tennessee and the Mid-South and from newer cultivars that could perform well in the state. Descriptions include fruit and plant attributes as well as information to assist residential growers select the most suitable types and cultivars. As trials continue, these suggestions will be updated. Because newer cultivars can be harder to find, a list of potential suppliers is included at the end of this publication. While certainly not exhaustive, these suppliers did provide access to all listed cultivars at the time of publication.

Rabbiteye

Due to their wider adaptability in terms of soil and management, rabbiteye blueberries are a good choice for residential growers in Tennessee. Rabbiteye cultivars listed here should have sufficient chilling requirements for all regions of Tennessee, with the exception of higher elevation areas of East Tennessee where northern highbush may perform better. Many cultivars with lower chilling requirements were not included here due to the risk of freeze damage and crop loss in many areas of the state. However, this does not eliminate the risk of flower and fruit loss due to spring frost/freeze events. Keep in mind that early season rabbiteye will be later than early season highbush as harvest seasons are not exactly comparable. Most rabbiteye varieties have resistance to anthracnose fruit rot and Phomopsis twig blight.

Name	Cultivar Description	Chill hours	Harvest season	Pollinator suggestions
<i>Cultivars demonstrated to perform well in Tennessee</i>				
Premier	Berries are large in size with good color and flavor, a dry stem scar and medium yield. Upright, vigorous plants. Tolerant to higher soil pH levels. This an older cultivar that has been proven to be productive with good fruit quality. It is more susceptible to early spring damage due to early bloom time.	550	Early	Brightwell, Columbus
Brightwell	Upright, vigorous plant that has a wide ripening window. It has large fruit with good flavor and quality and is productive. This cultivar has a lower chilling hour requirement than other cultivars on this list, but blooms with higher chill hour cultivars.	Estimated 400	Mid	Premier, Tifblue
Tifblue	Vigorous, upright plants having small- to medium-sized berries with average color and good firmness and flavor. Can have some fruit cracking during wet weather. This is an older cultivar released by University of Georgia in 1955 that has been shown to be durable and long-lived in many Tennessee regions. It is widely grown in Tennessee gardens and widely available.	650	Mid-Late	Brightwell, Premier
Powderblue	Berries are medium-sized, very light blue in color, have a small stem scar, average firmness and flavor. Less susceptible to fruit cracking during wet weather than similar cultivars but can overcrop. Upright and spreading plants often grown with Tifblue cultivar for cross pollination. This cultivar was released by NC State University in 1978.	600	Late	Ocklockonee, Tifblue
<i>Newer cultivars of interest that have not been extensively trialed to date</i>				
Titan	Plants are upright with narrow crowns. The berry size is larger than other rabbiteyes and the yield is high. Fruit color and taste are good and ripening is similar to Premier. Wet conditions may lead to fruit cracking. This cultivar was released by the University of Georgia in 2010. The large fruit size will likely be of interest to gardeners who prefer the larger fruit more typical of highbush types. Trials are underway in Tennessee to evaluate Titan.	500-550	Early	Premier, Columbus
Vernon	Vigorous plant that has good yields. Large berries with favorable fruit attributes, such as dry fruit scars and good firmness. Flowering is reported to be later than Premier, but with similar harvest time, which can be a protection for gardeners against spring frost damage. This cultivar was released in 2004 by the University of Georgia.	550	Early	Brightwell, Premier, and Titan
Columbus	Berries have good fruit color, are somewhat soft and seem to have fewer issues with rain splitting the berries. Due to large fruit size, it needs to be picked by hand and is reported to have good shelf life. NC State University cultivar.	600	Early to mid	Vernon, Premier, Brightwell, and Titan
Yadkin	Berries are medium sized, dark blue, with average picking scar and firmness. They have good flavor and aroma. Fruit mostly grows on the tips of the stems, so it can be quick and easy to pick. Small bush size (smaller than Tifblue). This cultivar was released from NC State University in 1997.	500-600	Mid	Tifblue
Ochlockonee	Late season berries have good color, firmness and flavor. Vigorous and upright plants with higher yields and larger fruit reported than Tifblue, which blooms and bears within a week or so of Ochlockonee. Released in 2002 by University of Georgia. Late blooming may be an asset in protecting from spring frosts. Trials are underway in Tennessee to evaluate Ochlockonee.	700	Mid-Late	Powderblue

Northern Highbush

Northern highbush blueberries are more challenging than rabbiteyes to grow. Cultivars listed here have sufficient chilling requirements for all regions of Tennessee. However, they are most commonly grown in cooler or higher elevation eastern Tennessee regions and/or those with higher levels of organic matter in the soil. Keep in mind that early season highbush will be earlier than early season rabbiteyes, and harvest seasons are not comparable between types.

Name	Cultivar Description	Chill hours	Harvest season	Pollinator suggestions (expect wide overlap in bloom times)
Duke	Blooms relatively late but is one of the first varieties to ripen. Berries are firm, large and light blue with a mild flavor. Plants are upright in shape and have a medium to high yield potential. Plants are susceptible to stem canker and maintaining vigorous plants in older plantings can be a challenge. Phomopsis twig blight resistance. Needs a good growing site.	900	Early	Blueray, Patriot, Spartan
Blueray	Large, firm fruit have excellent flavor. Upright, vigorous plants are relatively tall and open with consistent production. Reported to do well in hot summer and can withstand cold winters but needs to be pruned properly to prevent over-producing.	800	Early to mid	Duke, Patriot, Spartan
Patriot	Large fruit are light blue with excellent flavor. Vigorous, upright and productive plants are short and have a spreading habit. Reported to be adaptable in terms of soil preferences.	950	Early to mid	Duke, Blueray, Spartan
Spartan	Berries are large, light blue and have excellent flavor. Plants are moderately vigorous and productive with an upright growing habit. Prefers lighter soils and can be sensitive to higher pH levels.	800	Early to mid	Duke, Blueray, Patriot
Bluecrop	Mid-season fruiting of large, light blue berries with good firmness, flavor (can be tart) and yield. Plants are vigorous, upright, productive and well adapted in that they have been widely planted with few management issues. Pruning will likely be needed to prevent over-cropping.	800	Mid	Bluegold, Toro
Bluegold	Large clusters of medium to large, flavorful, firm, light blue berries. Vigorous spreading plants with yellow fall foliage makes this compact plant a good landscape option as well.	1000+	Mid	Bluecrop, Toro
Toro	Plants have a rounded, spreading habit of growth. Medium blue fruit are mild in flavor, firm and very large. Berries grow in large clusters that make for easy hand picking.	800-1000	Mid	Bluecrop, Bluegold
Chandler	Plants are vigorous and tend to have a spreading growth habit. Fruit have good flavor and are very large, which is the trait of most interest in the market.	900	Mid to late	Bluecrop, Bluegold, Toro, Jersey
Jersey	The berries are medium in size, light blue and have a mild flavor. Vigorous, upright and productive plant that is reported to establish well because of tolerance of a range of soils. This is a well-known, reliable and widely adaptable cultivar released in 1928.	800	Late	Bluecrop, Bluegold, Toro

Southern Highbush

Southern highbush blueberries are more challenging than rabbiteyes to grow. And since this type is newer, nuances of location, soil, climate and longevity are not very well known. Gardeners should be aware of these newer types because they are becoming more common in trade. However, cultivar recommendations for southern highbush are more challenging because fewer long-term trials have been conducted. Most southern highbush cultivars are susceptible to Phomopsis twig blight with the exception of Reveille, which has some disease tolerance. Cultivar trials are underway, and UT Extension researchers will update publications as performance becomes better known.

Name	Cultivar Description	Chill hours	Harvest season	Pollinator suggestions
Sweetheart	Vigorous plants that grow rapidly and have shown high yields. Berries are light blue and large with good flavor. This 2010 release from the USDA is a highbush cross between northern and southern to target a more noncommercial market. It has been reported to sometimes bear a second late summer crop of blueberries and is widely available from mail order suppliers.	Estimated 750-800	Early	Ozark Blue, Reville
Ozark Blue	Semi-upright and fairly vigorous plants that can have heavy fruit loads that bend canes. As far as fruit quality, they are reported to be high in flavor and firmness with a large size. This cultivar was bred and released by the University of Arkansas and the USDA in 1996. It has been shown in trials to be winter hardy and vigorous in climates similar to Tennessee, so it should be considered by gardeners with interest in southern highbush types.	Estimated 800-1000	Early-mid	Sweetheart, Reville
Reville	Plants have a narrow-upright habit and are vigorous and productive. Berries are small to medium in size and a light blue color with good flavor. Fruit cracking has been an issue when seasons are rainy. This is a relatively high-chill cultivar released by NC State University. Phomopsis twig blight resistance.	Estimated 700-1000	Early-mid	Ozark Blue, Summit
Legacy	Upright and productive bush with medium to large light blue berries that have good flavor. Plants are reported to grow well on some sites with finer textured soil. This cultivar has been productive in UTIA trials over the past several years, so it is the southern highbush most well-known in Tennessee. It has also been reported to be relatively adaptable at other sites and has good resistance to anthracnose fruit rot.	Estimated 500-600	Mid-late	Summit
Summit	Semi-upright plant with medium vigor. The fruit are firm with excellent color and flavor and performed well in terms of lack of cracking and picking scars. This was a cultivar cooperatively released by NC State University and the USDA. Reported to be a consistent, high-yielding cultivar.	Estimated 800	Mid-late	Ozark Blue, Legacy

Dwarf/Container

These blueberry hybrids were developed for small-scale and generally noncommercial growing, and some are found in trade under series or trademarked names. Their short stature is better suited to container cultivation and can serve both edible and ornamental roles in the residential landscape. Chill hour needs vary widely in these container blueberries, so use caution when purchasing to ensure the cultivar is well suited to the Mid-South region. There are few known cultivar trials, so cultivars listed here were selected for climatic suitability. Their listing here does not necessarily indicate known productivity in the landscape because of lack of trialing data. While often marketed as self-pollinating, yields and fruit size are likely to improve when multiple cultivars are present (and blooming at the same time) for cross-pollination.

Name	Cultivar Description
Berrybux	This compact (2-3 feet) blueberry has a more full and bushy growth habit and can be used in a container or in the landscape as a small hedge type shrub. It has small berries in summer. Requires 600 chill hours.
Jelly Bean	Mounded plant that is 1 to 2 feet in height with large, sweet berries. Can be grown in ground or in container. Green leaves can have some red tips under cooler conditions. Over 1,000 chill hours.
Perpetua	This upright plant will attain a height of 4 to 5 feet with dark green leaves that color to deep red in the fall. Fruit can be harvested in summer around the time of other cultivars, but fruit can also be produced on new wood to yield a fall crop. The berries are small and deep blue. Requires more than 1,000 chill hours.
Pink Icing	A mounded plant that reaches 3 to 4 feet in height. Spring foliage provides a range of green to blue leaf colors with new leaves emerging red to pink. This plant often can be evergreen and is reported to have a unique blue/green winter color. Berries are large. Requires 500 chill hours.
Tophat	One of the earliest of the consumer-focused compact blueberry cultivars. Will produce small, flavorful, light blue berries in summer with the dark green foliage turning red/orange in the fall. This plant is deciduous and requires more than 1,000 chill hours.

References and Further Reading:

Cultivar information from recent Extension publications in the southeast and lower Midwest were used to develop these tables.

- Midwest Blueberry Production Guide: www2.ca.uky.edu/agcomm/pubs/ID/ID210/ID210.pdf
- Blueberry Variety Releases from the University of Georgia: smallfruits.org/files/2019/06/NewUGABlueberryVarieties2012.pdf
- Blueberry Cultivars for Georgia: smallfruits.org/files/2019/06/06bbcproc_Nov0206.pdf
- Suggestions for Establishing a Blueberry Planting in Western North Carolina: <https://content.ces.ncsu.edu/suggestions-for-establishing-a-blueberry-planting-in-western-north-carolina>
- Blueberry Production in the Garden: www.uaex.edu/publications/PDF/FSA-6104.pdf
- University of Arkansas Cooperative Extension Service Fruit, Vegetable and Nut Update, 2018-03-28: www.uaex.edu/farm-ranch/crops-commercial-horticulture/horticulture/ar-fruit-veg-nut-update-blog/posts/Blueberry%20Variety%20Trial.aspx

Potential Suppliers:

(Intended as suggestions and certainly not as an exhaustive list)

- Bottoms Nursery: bottomsnursery.com
- Hartmann's Plant Company: hartmannsplantcompany.com
- Ison's Nursery and Vineyard: isons.com
- Rabbit Ridge Nursery: rabbitridgeberryfarm.com
- Finch Blueberry Nursery: finchblueberrynursery.com
- Nourse: noursefarms.com

Supplier Link: tiny.utk.edu/FruitSupplierList



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