



Blueberry Varieties for Michigan

Jim Hancock and Eric Hanson, Department of Horticulture
Michigan State University

Dave Trinka, MBG Marketing, Grand Junction, Mich.

**FILE COPY
DO NOT REMOVE**

Site selection

The traditional range for highbush blueberry production is south of a line extending from Muskegon to the lower end of Saginaw Bay. Commercial production is difficult north of this line because of the combination of a shorter growing season (highbush varieties generally need more than 160 frost-free days) and increasingly severe winter temperatures (-20 to -25 degrees F will injure most highbush varieties). Acceptable highbush production can be accomplished in northern Michigan, however, in those zones moderated by the effects of the Great Lakes (USDA hardiness zones 5 to 6; Figure 1). Most areas above this line are in zones 4 to 5, and "half-high" types are the best choice in these areas. Use only half-high varieties in zone 3. Half-high varieties are hybrids of highbush blueberries (*Vaccinium corymbosum*) and lowbush blueberries (*Vaccinium angustifolium*). They are low in stature (2 to 4 feet tall) and tolerate more severe winter conditions than most highbush varieties.

Blueberries require specific soil conditions for good growth and production. Optimum soils are sandy, high in organic matter and very acidic (optimum pH 4.5 to 5.0). Native "blueberry soils" generally have a shallow water table (2 to 3 feet depth), which supplies uniform moisture during the growing season. Flooded soils are undesirable, and some varieties like Bluecrop and Duke are readily damaged by high moisture levels. Blueberries can be grown on upland soils — those with low organic content and a deep water table — but plants require more inputs and generally grow more slowly. Consult Extension bulletin E-564, "Hints on Growing Blueberries," for complete information on blueberry culture.

Variety selection

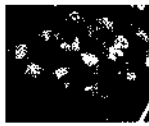
Choose varieties adapted to Michigan conditions. Varieties have been bred for use from Florida through Michigan, so consider only regionally adapted types. When possible, determine what varieties have performed well for other

growers in your area. If local information is limited, consider starting a small test planting of several varieties before you plant on a large scale. Also, consider the intended use — some varieties are better suited to freezing/processing, fresh shipping, pick-your-own or on-farm sales.

Consider several characteristics when you select varieties: picking season, yield, fruit quality, hardiness, harvesting ease, amount of pruning required and disease resistance. These traits are listed in Tables 1 and 2, and Figure 2.

The most important varieties in Michigan are currently Bluecrop, Jersey, Elliott, Duke, Rubel and Bluejay. Jersey and Rubel have long been the backbone of the Michigan industry, but planting of these varieties has declined over the past several decades. Bluecrop has been the most widely planted cultivar over the past 25 years. It is favored for its very high, dependable yields. Elliott and Duke have become very popular in the last decade, Elliott for its very late harvest and storability, and Duke for its large, firm fruit, late bloom and early harvest. Bluejay has been a minor variety for years, being desired for its high-quality, machine-harvested fruit. At one time, Spartan and Patriot showed promise in Michigan, but Spartan has proven difficult to grow on all but the best blueberry sites, and Patriot is very early blooming and subject to spring frosts.

The USDA released a large group of additional cultivars in the past two decades, including Bluegold, Chandler, Legacy, Little Giant, Nelson, Sierra, Sunrise and Toro. Nelson is highly recommended for trial because it is an upright, high-yielding bush with flavorful, firm fruits that are retained on the bush without deteriorating (hang well). Toro is attractive because of its very high fruit quality, but it has the same fruiting season as Bluecrop and lower yields. Little Giant is promising because it has very small fruit that hang well and are appropriate for the processed market, but it is low in stature and bushy and may need a pollinizer. Bluegold has the potential for very high yields and fruit appear to store well, but it is very bushy and not as late as was initially hoped. Sierra, Chandler and Legacy are not sufficiently winter hardy for the most northern production regions.



Other recent northern highbush releases include Bonus, Chanticleer and Friendship. Friendship is a wild clone from Wisconsin that was released because it is unusually cold hardy for a highbush type; however, it has very small, dark fruit and has not performed better than half-high types in very cold locations such as Minnesota. Bonus shows promise as a large-fruited late type but is little tested. Chanticleer is a very early type that may compete with Weymouth in New Jersey, though it appears highly susceptible to spring frosts and has been little tested. A number of northern highbush types have also been released out of the breeding programs in Arkansas, Florida and North Carolina, but these are probably of insufficient hardiness for areas with very cold winters and frosty springs.

Several northern highbush types have been released from Australia, New Zealand and Germany, including Bluerose, Brigitta, Denise (Australia), Gila and Greta (Germany), and Puru, Nui and Reka (New Zealand). The Australian cultivars were selected from seed sent by Stanley Johnson of Michigan State University in 1970. Nui and Puru have exceptionally large fruit, though they have not proven winter hardy in very cold locations such as Minnesota. Brigitta shows high promise as a very firm, long-storage type, but it is relatively untested in North America and may be insufficiently hardy for colder areas of the state.

Of the half-highs, Northblue has become the most popular. It propagates well, has among the largest fruit, is consistently productive and is highly self-fertile, though it does better with a pollinizer. St. Cloud is dropping in popularity because it is difficult to propagate by tissue culture and needs a pollinizer. Northland has the best overall fruit quality of the half-highs and is now grown to some extent in traditional highbush zones because of its high productivity. Northsky and North Country are very low in stature and are only occasionally planted. The most recent releases, Polaris and Chippewa, have among the largest fruit and can be used to extend the fruiting season.

Specific recommendations — southern Michigan

The varieties most adapted for mechanical harvesting are Bluecrop, Bluejay, Duke, Elliott, Jersey, Little Giant, Nelson, Patriot, Rubel and Spartan. The most desirable of these for commercial processing uses are the smaller fruited varieties Jersey, Little Giant and Rubel. Varieties best suited for fresh packing and shipping include Bluecrop, Bluejay, Duke, Elliott, Nelson and Toro. Varieties adequate for "U-Pick" marketing are Berkeley, Bluecrop, Bluejay, Blueray, Burlington, Collins, Coville, Duke, Elliott, Jersey, Lateblue, Nelson, Northland, Patriot, Rubel, Spartan and Toro.

Specific recommendations — northern Michigan

Choose varieties with sufficient hardiness. For processed uses, consider highbush Blueray, Jersey, Northland and Patriot, and half-high Northblue and Chippewa. Suitable varieties for fresh fruit sales are highbush Blueray, Bluetta and Patriot, and half-high Northblue and Chippewa.



Table 2. Characteristics of common blueberry varieties in Michigan.

Cultivar	Growth habit	Hardiness	Propagation ease	Amount of pruning	Known disease reactions
Berkeley	upright, bushy	limited	easy	moderate	susceptible to mummyberry and phomopsis canker; resistant to powdery mildew
Bonus	upright, open	hardy	easy	moderate	
Bluecrop	upright, open	hardy	difficult	moderate	moderately resistant to mummyberry, powdery mildew and red ringspot; very resistant to shoestring
Bluegold	low, bushy	hardy	easy	high	susceptible to mummyberry
Bluehaven	low, bushy	limited	intermediate	moderate	susceptible to mummyberry and phomopsis canker
Bluejay	upright, open	hardy	easy	moderate	resistant to shoestring and mummyberry
Blueray	upright, open	very hardy	easy	high	susceptible to mummyberry and anthracnose
Bluetta	low, bushy	moderate	easy	moderate	resistant to phomopsis canker; susceptible to mummyberry
Burlington	upright, bushy	very hardy	easy	moderate	resistant to mummyberry; susceptible to shoestring
Chippewa	upright, half-high	very hardy	easy	moderate	
Collins	moderately upright	hardy	easy	moderate	susceptible to mummyberry
Coville	upright, open	limited	easy	moderate	moderately resistant to mummyberry, powdery mildew, fusicoccum canker
Darrow	low, bushy	limited	intermediate	moderate	resistant to mummyberry and shoestring
Duke	upright, open	moderate to hardy	easy	moderate	resistant to mummyberry
Earliblue	upright, bushy	moderate	easy	moderate	resistant to powdery mildew, susceptible to shoestring, mummyberry, phomopsis canker
Elliott	upright, bushy	hardy	easy	moderate	resistant to mummyberry, phomopsis canker and anthracnose; susceptible to shoestring
Jersey	upright, bushy	hardy	intermediate	moderate	moderate resistance to mummyberry, red ringspot; susceptible to shoestring and blueberry leaf mottle viruses and phomopsis twig blight
Lateblue	upright, open	very hardy	intermediate	moderate	resistant to mummyberry
Little Giant	spreading, bushy	hardy	intermediate	heavy	resistant to anthracnose
Nelson	upright, open	very hardy	easy	moderate	
Northblue	upright, half-high	very hardy	easy	moderate	resistant to mummyberry
Northcountry	very low, bushy	very hardy	easy	moderate	
Northland	low, bushy	very hardy	easy	heavy	resistant to shoestring; susceptible to mummyberry

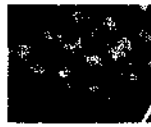


Table 2. Characteristics of common blueberry varieties in Michigan. (continued)

Cultivar	Growth habit	Hardiness	Propagation ease	Amount of pruning	Known disease reactions
Northsky	very low, bushy	very hardy	easy	moderate	resistant to mummyberry
Patriot	moderately	very hardy upright, open	easy	moderate	resistant to phytophthora root rot
Polaris	spreading, half-high	very hardy	easy	moderate	
Rancocas	moderately upright, bushy	very hardy	easy	moderate to heavy	moderately susceptible to mummyberry and shoe string; resistant to fusicoc- cum canker and powdery mildew
Rubel	upright, open	hardy	easy	moderate	susceptible to mummyberry, necrotic ringspot, mosaic, blueberry leaf mottle, and shoestring; moderately resistant to fusicoccum canker
Sierra	upright, open	moderate	easy	moderate	susceptible to mummyberry and unknown flagging
St. Cloud	upright, half-high	very hardy	difficult	moderate	
Spartan	upright, open	hardy	easy	moderate	moderately resistant to mummyberry; susceptible to shoestring
Sunrise	low, bush	hardy	easy	moderate	
Toro	upright, open	hardy	easy	moderate	
Weymouth	low, bushy	hardy	easy	moderate	susceptible to mummyberry and shoestring

Planting Stock

Buy plants that have a state certificate of inspection indicating they are free from visible diseases. Some nurseries also participate in a state virus-free certification program, which provides protection against latent virus diseases. Plant 2-year-old plants, if available. Three-year-old plants are satisfactory but can cost more. If you do plant stock older than 3 years, make sure they were not culls that were too weak to sell as 2- or 3-year-olds. Most commercial growers plant 2-year-old plants.

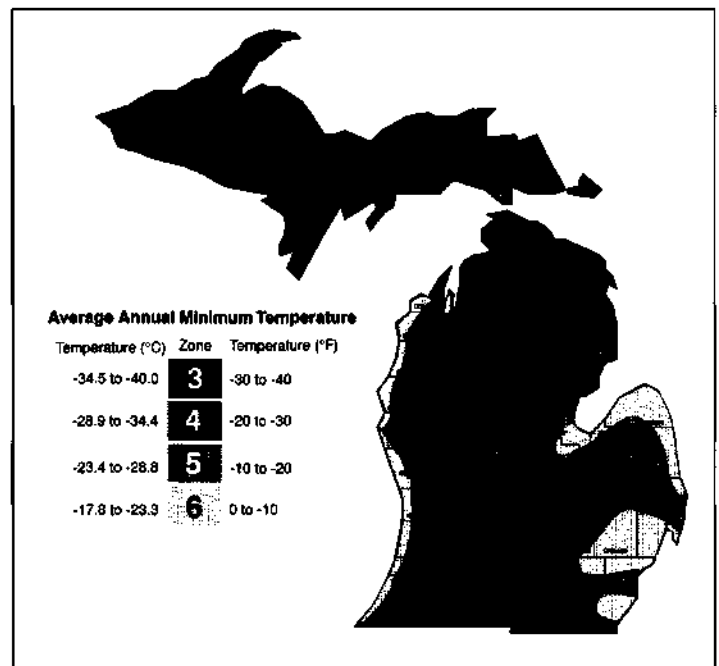


Figure 1. U.S. Department of Agriculture plant hardiness zones in Michigan.

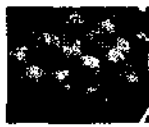


Table 1. Characteristics of common blueberry varieties in Michigan.

Cultivar	Season	Yield in Michigan	Size	Fruit quality			
				Color	Scar	Firmness	Flavor
Berkeley	midseason	moderate	large	light blue	large, but dry	firm	fair, low acid
Bonus	midseason	moderate	very large	light blue	small	firm	good
Bluecrop	midseason	moderate to high	medium to large	light blue	small	very firm	good, tart
Bluegold	late	high	medium	light blue	small	firm	good
Bluehaven	early midseason	low to moderate	medium	light blue	small	firm	fair
Bluejay	early midseason	moderate to high	medium	light blue	small	very firm	mild, slightly tart
Blueray	midseason	moderate to high	large	medium blue	medium	firm	good
Bluetta	very early	erratic; moderate to high	medium	medium blue	medium	medium	fair
Brigitta	late	low to moderate	large	light blue	small	very firm	good
Burlington	late	moderate to high	medium	light blue	small	firm	good
Chippewa	midseason	moderate	medium	very light blue	small to medium	medium to firm	good
Collins	early midseason	moderate	large	light blue	small	firm	good
Coville	late midseason	moderate	very large	medium blue	medium	firm	good, tart
Darrow	late	low	large	light blue	small	firm	excellent
Duke	early	high	large	medium blue	small	firm	good
Earliblue	very early	low to moderate	medium	medium blue	medium	medium	good
Elliott	very late	very high	medium	light blue	small	very firm	good
Jersey	late midseason	moderate to high	medium	light blue	medium	firm	fair
Lateblue	very late	moderate	medium to large	dark blue	medium	firm	fair, tart
Little Giant	midseason	high	very small	medium blue	medium	medium	good
Nelson	late	high	large	light blue	small	firm	good
Northblue	early to midseason	low to moderate	medium	dark blue	medium	medium	fair, acid
Northcountry	early midseason	low	very small	light blue	small to medium	soft	good, sweet
Northland	early midseason	very high	medium	medium blue	medium	soft	fair
Northsky	midseason	low	very small	light blue	small to medium	soft	good, sweet
Patriot	early midseason	high	large	medium blue	small	firm	excellent
Polaris	early	moderate	medium	light blue	small	firm	excellent
Rancocas	midseason	moderate to high	small	dark blue	medium	firm, can crack	good
Rubel	midseason	moderate to high	small to medium	medium blue	medium	firm	fair
Sierra	midseason	low to medium	medium	light blue	small	firm	good
St. Cloud	early	moderate	medium to large	dark blue	medium to large	medium	excellent
Spartan	early midseason	moderate to high	large	light blue	medium	firm	excellent
Sunrise	early midseason	low	medium	medium blue	medium	medium	good
Toro	midseason	moderate	large	light blue	small	firm	good
Weymouth	very early	moderate	medium to small	dark blue	medium	soft	poor

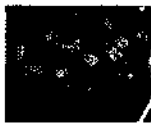
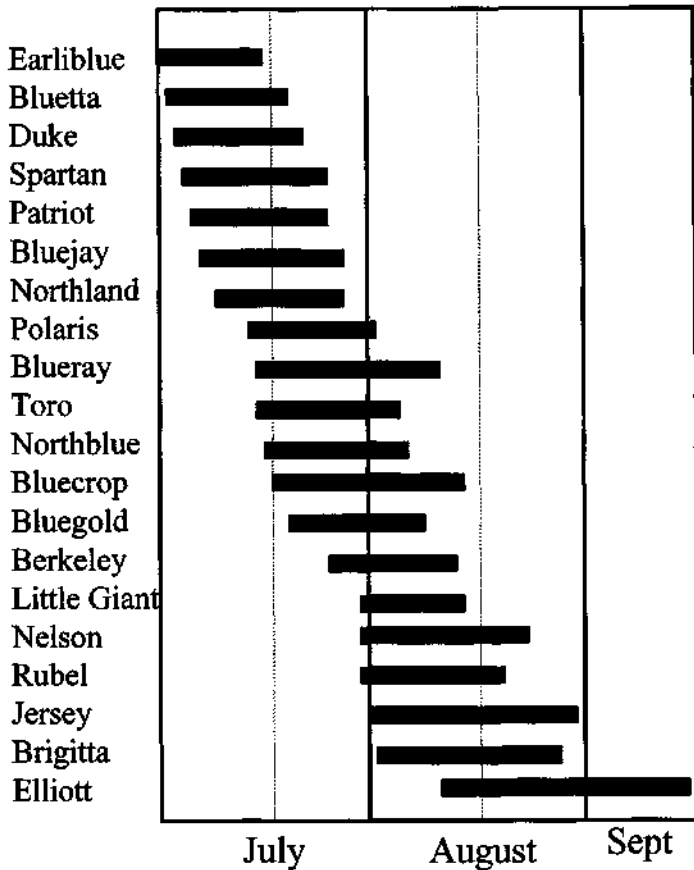


Figure 2. Fruiting season of common blueberry varieties.



Acknowledgements

The comments of Mike and Joe DeGrandchamp, Mark Ehlenfeldt, Jim Luby, Al Stretch, and Dave Wildung are gratefully acknowledged.



MSU is an affirmative-action, equal-opportunity institution. Michigan State University Extension programs and materials are open to all without regard to race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, marital status, or family status. Issued in furtherance of MSU Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Arlen Leholm, Extension Director, Michigan State University, E. Lansing, MI 48824. This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by MSU Extension or bias against those not mentioned. This bulletin becomes public property upon publication and may be reprinted verbatim as a separate or within another publication with credit to MSU. Reprinting cannot be used to endorse or advertise a commercial product or company.