

Strawberry Varieties for Michigan

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Selecting adapted strawberry varieties is one of the most important production decisions. Yields and berry quality are influenced by how plants are grown, but are limited by the inherent characteristics of the variety and how well it is adapted to local conditions.

New strawberry varieties released regularly from breeding programs throughout the United States and Canada give growers many possible choices. Nearly all strawberry varieties that have been successful in Michigan have originated from breeding programs in the Midwest, Northeast, and Mid-Atlantic states, where the climate is similar to that in Michigan. Varieties developed in southern states or on the west coast have generally performed poorly in Michigan.

New varieties and selections should be placed in trials for several years before they are grown widely in Michigan. Trials conducted at various locations in Michigan and surrounding states provide an opportunity to observe and compare new varieties with standard commercial varieties. Varieties that perform well in these trials are first recommended for commercial use on a limited basis. If they perform well for producers for several years, they are recommended for commercial use.

Types of Strawberries

There are three major classes of strawberries:

- 1) *June-bearer or short-day*; 2) *Everbearer*; and
- 3) *Day-neutral*. The principle difference between these types is the daylength conditions that stimulate flower bud formation. June-bearers initiate their flowers buds in the fall when days are relatively short, and bear the following spring. Everbearers

initiate flowers and fruits under the long days of summer. Day-neutrals can initiate flower buds under any daylength. In Michigan, everbearers and day-neutral plants appear to have similar fruiting habits in the field, although the day-neutrals are usually more reliable producers.

Choosing Varieties

Recommended varieties are grouped by these harvest seasons: early season; midseason; late season; everbearing; and day-neutral. Early varieties are harvested one to two weeks earlier than late varieties. Growing varieties that ripen at different times can provide a longer picking season. Some characteristics of most varieties currently available through nurseries are summarized in Table 1. The susceptibility of varieties to various diseases are summarized in Table 2.

Early Season

Most early season varieties are either not consistently productive or do not produce high-quality fruit. *Earliglow* has been the standard early variety in Michigan and much of the Midwest. Berries are attractive but small, and their size decreases rapidly as the season advances. Flavor is exceptional. Plants are vigorous and resistant to red stele and Verticillium wilt.

Sunrise has also been widely planted as an early variety. Though it tends to have low productivity and its fruit are soft, *Sunrise* is resistant to both Verticillium wilt and red stele.

Cornwallis and *Annapolis* (Table 1) are promising early varieties that need further testing before they can be recommended.

Table 1. Fruit characteristics of strawberry varieties observed in Michigan

Variety	Season	Yield	Size	Fresh firmness	Skin firmness	Dessert quality	Processing quality
<i>Allstar</i>	Midseason	Moderate to high	Large	Medium	Medium	Good	Unknown
<i>Annapolis</i>	Early	Moderate to high	Large to medium	Very firm	Very firm	Very good	Very good
<i>Aptos</i>	Everbearer	Moderate	Medium	Firm	Firm	Fair	Fair
<i>Blomidon</i>	Late	Moderate	Medium to large	Medium	Medium	Fair	Unknown
<i>Bounty</i>	Late	High	Large	Medium	Medium	Good	Good
<i>Brighton</i>	Everbearer	Moderate	Large	Firm	Firm	Fair	Fair
<i>Canoga</i>	Midseason	Moderate to high	Large	Firm	Medium	Fair	Unknown
<i>Cardinal</i>	Midseason	Low	Large	Firm	Firm	Fair	Good
<i>Catskill</i>	Midseason	Low	Large	Soft	Soft	Good	Fair
<i>Chandler</i>	Everbearer	Moderate	Very large	Firm	Firm	Very good	Good
<i>Cornwallis</i>	Early	Moderate to high	Medium to large	Firm	Firm	Very good	Good
<i>Crimson King</i>	Early	Moderate	Large	Soft	Soft	Fair	Unknown
<i>Darrow</i>	Early	Moderate	Medium	Firm	Firm	Good	Very good
<i>Delite</i>	Late	High	Large	Medium	Firm	Fair	Unknown
<i>Earliglow</i>	Early	Moderate to high	Medium to large	Firm	Firm	Very good	Very good
<i>Fairfax</i>	Midseason	Moderate	Medium	Firm	Soft	Excellent	Fair
<i>Fern</i>	Everbearer	Moderate to high	Medium	Very firm	Very firm	Good	Good
<i>Fletcher</i>	Late	Low	Small	Medium	Soft	Very good	Good
<i>Gilbert</i>	Midseason	Moderate	Small to medium	Firm	Medium	Fair	Unknown
<i>Glooscap</i>	Midseason	Moderate to high	Large	Firm	Firm	Very good	Good
<i>Gov. Simcoe</i>	Midseason	Moderate to high	Large	Very firm	Very firm	Very good	Very good
<i>Guardian</i>	Midseason	High to moderate	Large	Firm	Firm	Good	Fair
<i>Hecker</i>	Everbearer	High	Medium	Firm	Firm	Fair	Fair
<i>Holiday</i>	Midseason	High to moderate	Large	Very firm	Very firm	Good	Good
<i>Honeoye</i>	Midseason	High	Medium	Medium	Medium	Good	Good
<i>Jewel</i>	Midseason	Medium to high	Large	Firm	Medium	Good	Unknown

Table 1. Fruit characteristics of strawberry varieties observed in Michigan (Cont.)

Variety	Season	Yield	Size	Fresh firmness	Skin firmness	Dessert quality	Processing quality
Kent	Late	High	Large	Medium	Medium	Good	Unknown
Lateglow	Late	Moderate	Medium to large	Very firm	Very firm	Very good	Very good
Lester	Midseason	Medium	Medium	Firm	Medium	Very good	Good
Marlate	Midseason	Medium	Medium	Firm	Medium	Very good	Good
Midway	Midseason	High	Medium	Firm	Firm	Good	Very good
Micmac	Midseason	Moderate to high	Large	Firm	Firm	Very good	Good
Our Own	Everbearer	Low to moderate	Medium	Firm	Firm	Good	Good
Ozark Beauty	Everbearer	Low to moderate	Medium	Medium	Medium	Very good	Good
Pocahontas	Midseason	Moderate	Large	Medium	Medium	Good	Very good
Quinault	Everbearer	Low to moderate	Medium	Soft	Soft	Good	Fair
Raritan	Midseason	High	Medium	Firm	Medium	Fair	Fair
Redchief	Midseason	High	Medium	Firm	Firm	Good	Very good
Redcoat	Midseason	Moderate to low	Small	Medium	Medium	Good	Fair
Redglow	Midseason	Moderate	Medium to large	Firm	Firm	Good	Very good
Robinson	Midseason	Low	Large	Soft	Soft	Fair	Poor
Scott	Midseason	Medium	Medium to large	Medium	Medium	Fair	Unknown
Selva	Everbearer	Low to moderate	Very large	Very firm	Very firm	Fair	Fair
Sparkle	Midseason	Low	Medium	Soft	Soft	Very good	Very good
Sunrise	Early	Low	Small	Soft	Medium	Fair	Fair
Surecrop	Midseason	Low	Medium	Firm	Medium	Good	Good
Tenn. Beauty	Midseason	Low	Small	Firm	Firm	Good	Good
Tribute	Everbearer	High	Medium to large	Firm	Firm	Good	Good
Tristar	Everbearer	Moderate	Small to medium	Firm	Firm	Very good	Good
Trumpeter	Midseason	Moderate	Medium	Soft	Soft	Good	Very good
Veestar	Late	Low	Small	Medium	Medium	Good	Fair
Vesper	Late	High to low	Large	Soft	Soft	Fair	Poor

Table 2. Plant disease resistance of strawberry varieties¹

Variety	Leaf spot	Leaf scorch	Red stele	Verticillium wilt	Variety	Leaf spot	Leaf scorch	Red stele	Verticillium wilt
<i>Allstar</i>	S*-T	T	R	R-T	<i>Our Own</i>	U	U	R	R
<i>Annapolis</i>	—	—	R	I	<i>Ozark Beauty</i>	R	R	S	S
<i>Aptos</i>	U	U	U	I-R	<i>Pocahantas</i>	S-R	S-I	S	S-I
<i>Blomidon</i>	U	U	S	S	<i>Quinault</i>	R	S-R	R	U
<i>Bounty</i>	S-R	S	S	VS	<i>Raritan</i>	S	S	S	S-I
<i>Brighton</i>	U	U	U	I-R	<i>Redchief</i>	S	I-R	R	I-R
<i>Canoga</i>	S	U	S	I	<i>Redcoat</i>	S-I	I-R	R	I-R
<i>Cardinal</i>	R	R	S	S	<i>Redglow</i>	S-R	S-R	R	S-I
<i>Catskill</i>	S-R	I-R	S	VR	<i>Robinson</i>	S-I	S-R	S	R
<i>Chandler</i>	U	U	U	U	<i>Scott</i>	S-T	R	R	S-I
<i>Cornwallis</i>	U	U	R	I	<i>Selva</i>	S	U	U	U
<i>Crimson King</i>	I	I	U	U	<i>Sparkle</i>	S-R	S-I	R	S-I
<i>Darrow</i>	I	I	R	I	<i>Sunrise</i>	VS	I-R	R	I-R
<i>Delite</i>	S-R	R	R	R	<i>Surecrop</i>	I-R	S-R	R	VR
<i>Earliglow</i>	I-R	I-R	R	I-R	<i>Tenn. Beauty</i>	S-R	S-R	S	I-R
<i>Fairfax</i>	S-R	I-R	S	I	<i>Tribute</i>	T	T	R	T-R
<i>Fern</i>	S	U	U	U	<i>Tristar</i>	T	T	R	R
<i>Fletcher</i>	R	VR	S	S	<i>Trumpeter</i>	VS	T-R	S	R
<i>Gilbert</i>	U	R	U	U	<i>Veestar</i>	S	S	S	I
<i>Glooscap</i>	U	U	S	S	<i>Vesper</i>	S	S	U	S
<i>Gov. Simcoe</i>	—	—	—	—					
<i>Guardian</i>	S-I	R	R	R					
<i>Hecker</i>	U	U	U	R					
<i>Holiday</i>	R	R	S	I					
<i>Honeoye</i>	S-T	T	S	S					
<i>Jewel</i>	U	U	S	S					
<i>Kent</i>	U	I	S	S					
<i>Lateglow</i>	R	R	R	VR					
<i>Lester</i>	U	R	R	S					
<i>Marlate</i>	R	R	S	S					
<i>Micmac</i>	S	S	I-R	I					
<i>Midway</i>	VS	S-I	R	S-R					

¹Source: Dr. John Maas, Plant Pathologist, USDA-ARS, Beltsville, Maryland.
 *S—Susceptible; T—Tolerant; I—Intermediate; R—Resistant; U—Unknown.

Midseason

Midseason varieties represent most of Michigan's strawberry acreage. A number of old and new mid-season varieties provide high yields and good fruit quality.

Midway, the primary variety grown in Michigan, produces consistently good yields and has a long harvest season. *Midway* produces high-quality, medium-to-large fruit that are equally adaptable for fresh use or freezing. *Midway* is the dominant processing berry in Michigan because berries freeze well and caps are easily removed by hand. Plants are moderately vigorous, but require mulching or snow cover for winter protection. *Midway* is resistant to red stele, but is partly susceptible to Verticillium wilt. A second strain known as *Early Midway* ripens several days earlier, but has not been as productive as *Midway*.

Guardian is a vigorous, productive variety that is resistant to most leaf and root diseases. Berries are firm and large with a bright red, glossy surface. A rough, seedy texture and occasional green tips can reduce berry attractiveness. Its light-colored flesh can also detract from the appearance of frozen packs.

Redchief is an important all-purpose variety in Michigan. Advantages include very attractive medium-to-large fruit that are firm, uniformly shaped, and bright red. Berries are very attractive and flavorful as a fresh or frozen product. However, plants are only moderately vigorous and do not produce many runners. Berries are also difficult to cap, and primaries may occasionally split.

Raritan can be productive, but is somewhat inconsistent in Michigan. Fruit are medium in size and firm, but rate only fair in quality as a fresh or frozen product. This variety's susceptibility to most leaf and root diseases has limited its use.

Honeoye, a newer early midseason variety, has performed very well throughout the Midwest and is rapidly gaining commercial acceptance. Yields have been outstanding. Berries are large with a bright red, glossy finish, moderate firmness, and good flavor. Fruit are attractive and freeze well. Plants are very hardy, but are susceptible to both

red stele and Verticillium wilt. An off flavor can develop under some conditions.

Kent originated in Nova Scotia (1982) and is rapidly increasing in popularity as a late midseason variety. Yields have been outstanding in Michigan and the Midwest. Fruit are large with a mild flavor, but have only average firmness and do not cap easily. Exterior color is deep red and berries can become too dark if they are not picked as soon as they ripen. *Kent* has some resistance to leaf scorch, but is susceptible to root disease.

Allstar is gaining acceptance in Michigan because of its high yields and very large fruit. Berries are an elongated cone- or wedge-shape and firm. Some growers complain about the light red exterior and light pink to white interior color. Plants are vigorous and resistant to red stele, but are only partly resistant to leaf diseases and Verticillium wilt.

Jewel, *Lester* and *Scott* have yielded relatively well in limited trials and shown some promise as mid-season varieties. *Lester* and *Scott* are resistant to red stele, but *Jewel* is not. All three varieties produce attractive and moderately firm fruit, but further testing in Michigan is needed.

Late Season

Delite is a consistently high-yielding, late-season variety that produces medium-to-large, bright red fruit with pink flesh. Firmness is only average. Plants are very vigorous and tend to become overcrowded in matted rows. *Delite* is resistant to red stele and Verticillium wilt.

Marlate has produced only moderate yields, but fruit are large, firm and attractive with light red flesh. *Marlate* is resistant to leaf spot and leaf scorch, but not to root diseases.

Bounty has some potential as a late-season variety, and is relatively high yielding in Michigan. Berries are medium to large, relatively firm, and dark red. Flavor is mild. Plants are vigorous and hardy, but are susceptible to red stele and Verticillium wilt.

Two promising late-season varieties are *MicMac* and *Blomidon*, although these need further testing. Both originated in Nova Scotia.

Everbearers

A number of new everbearers have been released in the last few years. Information on their performance in Michigan is sparse but research in Minnesota, New York and Ontario, Canada, has provided some indication of how they might perform in Michigan. Overall, *Tribute*, *Tristar*, *Hecker* and *Fern* have shown the most potential. *Hecker* is the least flavorful of the four, but all have yielded well, with medium-to-large fruit.

Obtaining Strawberry Plants

Always purchase plants from a reliable nursery that is licensed with the state. Most states regularly inspect the nursery stock from licensed nurseries for visible evidence of diseases. Some nurseries offer virus-test plants that are tested for specific virus diseases. Virus-tested plants are more desirable, but may be more expensive than non-tested plants.

Nurseries may offer conventionally propagated plants or plants derived from tissue culture. Tissue-cultured plants are sometimes more vigorous when placed in the field, and may be preferred if prices are comparable.

Order plants early—popular varieties are often sold out. When ordering, specify when plants should be shipped so you have them in hand for early planting.

If plants arrive too early to plant, you may store them for several days in a refrigerated area at 30 to 40°F. Wrap the roots loosely in plastic to prevent them from drying out while in storage. Do not store plants with apples or other potential sources of ethylene gas.

If a refrigerated area is not available for storage, plants may be heeled into the ground in a well-drained area protected from direct sun and wind. Dig a V-shaped trench deep enough to accommodate the roots, and space the bundles of plants in the trench. Spread the roots and pack soil firmly around roots up to the level of the crown (do not cover the crown).

Determining Plants Per Acre

Strawberries are commonly planted 18 to 24 inches apart in rows 3 to 4 feet apart. The number of plants required per acre at these common spacings is given in Table 3.

Table 3. Number of plants needed to plant an acre at various spacings

Plant spacing (feet)		Plants per acre*
In row	Between rows	
1½	3	9,680
1½	3½	8,296
1½	4	7,260
2	3	7,260
2	3½	6,223
2	4	5,445
2½	3	5,810
2½	3½	4,980
2½	4	4,356

*Can be calculated by multiplying plant spacing in the row by spacing between the row and dividing into 43,560 (the number of square feet in an acre).



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