



# Apple cultivars for Wisconsin

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Apples are available in a great array of colors, sizes, and flavors. In addition, they vary in their cooking or fresh eating qualities, storage life, tree hardiness, pest susceptibility, and many other characteristics. This publication introduces apple growers and gardeners to apple cultivars suitable for growing in Wisconsin. Buyers should consider carefully the different characteristics of each cultivar before purchasing and planting apple trees. Commercial orchardists also should take into account potential productivity, consumer preferences, marketing potential, and pollination requirements when planning an orchard. Home gardeners should consider whether they have the space, time, resources, and expertise needed to grow and care for apple trees. Pest management requires costly chemical sprays and suitable equipment. Planting disease-resistant cultivars mentioned in this publication will reduce fungicide application, but still require managing common insect pests such as codling moth, plum curculio, and apple maggot through trapping or insecticide application.

Most apple cultivars are self-unfruitful; they require cross-pollination from a second cultivar to ensure adequate fruit set and good production. Some apples, such as Jonagold, are triploid and do not produce good pollen; these require planting two different cultivars for pollination (in addition to the triploid itself) if the pollinators are

also to bear fruit. Crabapples are a compatible pollen source for all apple cultivars, provided they flower at the same time.

Many apple cultivars are not suitable for Wisconsin. Some are not sufficiently hardy to survive Wisconsin's rigorous winters, or they sustain significant injury most winters. Other cultivars, such as Granny Smith, Rome Beauty, Braeburn, and Fuji, ripen too late to mature properly even in southern Wisconsin. Both commercial growers and home gardeners will be disappointed in the performance of these cultivars in Wisconsin.

Most of Wisconsin is in USDA hardiness zones 4 and 5, where winter temperatures typically do not fall below  $-30^{\circ}\text{F}$ . Many apple cultivars can grow in these areas. However, much of northern Wisconsin is in USDA hardiness zone 3, where winter temperatures fall to  $-40^{\circ}\text{F}$ . Only the most hardy apples can survive such conditions and then only on the best sites.

Nurseries propagate and sell many improved strains occurring as natural bud mutations in established cultivars. These strains may differ from the parent cultivar in growth habit and fruit color, and the fruit may reach maturity at a slightly different date. Usually, strains are similar to the parent cultivar in fruit flavor, firmness, uses, storage life, and tree hardiness. The strains often are more desirable than the parent cultivar.

## Disease-resistant apples

A series of apple cultivars recently named and released are immune or resistant to apple scab, cedar-apple rust, or other diseases. These cultivars may be of interest to apple growers who do not have the time, equipment, or inclination to make frequent fungicide applications. Additional disease-resistant cultivars have recently been released, but they have not been adequately tested for suitability in Wisconsin.

Disease-resistant apple cultivars are not resistant to insect damage. Trapping or insecticide application is still necessary to control insect pests.

## Antique apples

There are many thousands of named apple cultivars. This publication lists only a few of the best ones. Older cultivars such as Wealthy, Fameuse, Wolf River, Duchess, and Ben Davis, are available from specialty nurseries. New cultivars have replaced these older cultivars because of improved horticultural traits, keeping quality, and fruit quality. While antique apples are an important part of our heritage, newer apple cultivars have better traits for the modern marketplace.

## Apple cultivars for Wisconsin

### FRUIT CHARACTERISTICS

Cultivar	Ripening date (week & month)	Color	Size <sup>a</sup>	Flesh color	Flesh texture	Taste	Uses	Storage length
Lodi	1 August	Green to yellow	Large	White	Tender, soft	Tart	Cooking	1 week
Zestar!	3 August	Red blush	Medium to large	White	Coarse, crisp	Balanced	All purpose	1 month
Sunrise	3–4 August	Orange-yellow	Medium	Cream	Coarse	Sweet, aromatic	Fresh, cooking	2 weeks
Paulared	3–4 August	Bright red	Medium	White	Firm, fine-grained	Mildly tart	Fresh	3 weeks
Gala	2 September	Orange-red	Medium to small	Yellow to cream	Crisp, fine-grained	Very sweet, aromatic	Fresh	3 months
McIntosh	2 September	Red blush over green	Medium	White	Tender, fine-grained	Mildly tart, distinctive	Fresh, cooking	3 months
Ginger Gold	3 September	Yellow	Medium to large	Cream	Coarse	Sweet, spicy	Fresh	2 months
Cortland	4 September	Dark red	Large	White	Firm, crisp	Sweet	Fresh	3 months
Honeycrisp	4 September	Red blush over yellow	Large	Cream	Coarse, very crisp, juicy	Sweet, aromatic	Fresh	4 months
Empire	1 October	Deep red	Medium	Cream	Firm, crisp	Sweet	Fresh	4 months
Haralson	1 October	Red striped	Medium to large	Creamy white	Crisp, juicy	Tart, distinctive	Fresh, cooking	3 months
Fireside/ Connell Red	2 October	Red over yellow	Large	Cream	Crisp, juicy	Sweet, subacid	Fresh, cooking	3 months
Red Delicious	2 October	Solid red	Medium to large	Light yellow	Crisp, juicy	Sweet, distinctive	Fresh	4 months
Jonathan	2 October	Bright red	Small to medium	Yellow	Firm	Sweet, distinctive	Fresh	3 months
Idared	2 October	Red	Large	White	Firm, fine-grained	Tart	All purpose	4 months
Jonagold	2 October	Yellow with red blush	Large	Creamy white	Firm, juicy, fine-grained	Sweet	Fresh	3 months
Golden Supreme	2 October	Yellow	Medium	Cream	Fine, crisp	Sweet	Fresh	3–5 months
Golden Delicious	3 October	Yellow	Medium	Cream	Crisp, fine-grained	Sweet	Fresh	3 months

### Disease-resistant apples

Redfree	3 August	Bright red	Medium	White to cream	Crisp, juicy	Mildly tart to sweet	Fresh, cooking	6–8 weeks
Prima	1 September	Red on green	Medium to large	White to cream	Soft	Mild, subacid	Fresh, cooking	1–2 months
Priscilla	2 September	Red over yellow	Medium to large	White to green	Crisp, coarse	Sweet, aromatic	Fresh	2–3 months
Jonafree	3 September	Medium red	Medium to small	Pale yellow	Crisp, juicy	Mildly tart	Fresh	2 months
Nova Easygro	3 September	Red blushed	Large	Cream	Firm, slightly juicy	Sweet	Fresh	2 months
Liberty	1 October	Purple red	Medium to large	Light yellow	Crisp, juicy, sprightly flavor	Moderately tart, like McIntosh	All purpose	3–4 months

<sup>a</sup>If thinned

<sup>b</sup>If grown on same rootstock

<sup>c</sup>USDA hardiness zone

<sup>d</sup>Purdue-Rutgers-Illinois Program

— TREE CHARACTERISTICS —

DISEASE RESISTANCE<sup>e</sup>

Size <sup>b</sup>	Growth habit	Hardiness <sup>c</sup>	Origin	Apple scab	Cedar apple rust	Fire blight	General comments	Improved strains
Large	Upright	3, 4, 5	New York	S	VS	VS	Moderately good early apple	
Medium	Upright	3, 4, 5	Minnesota	S	S	S	Good early apple, stores well	
Medium	Spreading	4, 5	British Columbia	S	S	S	Good early apple	
Large	Spreading	4, 5	Michigan	S	S	VS	Good-quality summer apple	
Medium	Upright	4, 5	New Zealand	S	VS	VS	High-quality fall apple, small fruit	Royal Gala, Imperial Gala, Scarlet Gala, Fulford Gala
Very large	Spreading	3, 4, 5	Ontario	VS	VR	S	Wisconsin's most popular apple	Rogers McIntosh, Marshall McIntosh, Mac Spur, Redmax
Medium	Spreading	4, 5	Virginia	S	S	S	Very good yellow-skinned apple	
Large	Willow	3, 4, 5	New York	VS	S	S	High-quality fall to winter apple	Redcort
Medium	Upright to spreading	3, 4, 5	Minnesota	S	S	S	Very crisp, high-quality eating apple	
Medium	Upright	3, 4, 5	New York	VS	R	R	One of the better new apples	
Small	Spreading	3, 4, 5	Minnesota	S	MR	MR	Popular in northwest Wisconsin	Haralred, Red Haralson
Medium	Weeping	3, 4, 5	Minnesota	S	R	S	Connell Red is a colored strain of Fireside	
Large	Strongly upright	4, 5	Iowa	S	VR	R	Many improved strains	Starking, Starkrimson, Richared, Oregon Spur, Redchief
Medium	Spreading	5	—	S	VS	VS	Better after storage	Jonared, Jonee
Small	Spreading	4, 5	Idaho	S	S	VS	Good keeping quality	
Large	Spreading	4, 5	New York	VS	S	VS	Does best in cool locations	Red Jonagold, Nicobel Jonagold, Jona-go-red
Large	Spreading	4, 5	Idaho	S	S	S	Great eating-quality apple	
Medium	Spreading	5	West Virginia	S	VS	S	Spur-type strains not recommended	Smoothee

Medium-large	Upright	4, 5	P-R-I Program <sup>d</sup>	VR	VR	S	Good disease-resistant summer apple	
Medium	Spreading	4, 5	P-R-I Program <sup>d</sup>	VR	VS	R	Must thin for annual bearing	
Large	Upright to spreading	5	P-R-I Program <sup>d</sup>	VR	VR	R	May not ripen in northern Wisconsin	
Medium	Spreading	4, 5	P-R-I Program <sup>d</sup>	VR	R	R	Resembles Jonathan	
Large	Spreading	3, 4, 5	Nova Scotia	VR	VR	R	Quality improves in storage	
Large	Spreading	4, 5	New York	VR	VR	R	One of the best disease-resistant apples	

<sup>e</sup>Resistance ratings: **VR** = very resistant **MR** = moderately resistant **R** = resistant **S** = susceptible **VS** = very susceptible

## Harvest dates

Optimum maturity occurs when the fruit has full flavor and aroma, pleasing flesh texture, and other desirable characteristics specific to a cultivar. Prime quality for an apple often lasts no more than a day, especially for summer apples. Even in smaller orchards, growers can't harvest or handle all fruit of a given cultivar at one time. Therefore, harvesting is a compromise based on weather, labor availability, and available capacity for marketing, handling, and storing the fruit.

Apples harvested immature may be acceptable for cooking, but they are inferior in taste and texture for fresh use. Fruit harvested for storage should be mature, but not ripe, particularly when destined for long-term storage. Apples harvested after the midpoint of the harvest season should be designated for immediate sale or use. Overmature apples left on the tree past normal harvest dates have a short storage life, and they often develop watercore, flesh breakdown (browning or storage scald), or other problems.

The indexes normally used to determine apple maturity include starch tests, fruit firmness (pressure) tests, taste, color, and soluble solids (sugar) content. Though helpful, they

are never precise. Ultimately, grower experience—including careful observation, frequent fruit sampling as harvest approaches, and good record keeping from previous seasons as to weather, moisture, and associated fruit quality—is the best guide for determining the appropriate harvest date for each cultivar.

For apples to retain good condition as long as possible, they should be cooled quickly after harvest and kept at 32° to 34°F with high humidity. Summer apples do not store well and can be kept only a few days to two weeks. Fall and winter apples store better: one to five months. In common refrigerated storage no apples will be in acceptable, commercial-marketing condition after February. Controlled-atmosphere storage is required if fruit is to be kept longer.

For more information on growing apples see Extension publications *Growing Apples in Wisconsin* (A3565), *Apple Pest Management for Home Gardeners* (A2179), *Commercial Tree Fruit Spray Guide* (A3314)—for commercial growers, *Planning and Establishing Commercial Apple Orchards in Wisconsin* (A3560), and *Fruit Crop Pollination* ([http://www1.uwex.edu/ces/pubs/pdf/A3742\\_E.PDF](http://www1.uwex.edu/ces/pubs/pdf/A3742_E.PDF)).

## Glossary

**All purpose.** Suited for fresh use, sauce, and baking.

**Alternate bearing.** Bearing a heavy crop every other year.

**Cultivar.** The term now used worldwide in horticulture in place of variety. A contraction of cultivated variety.

**Hardiness.** The relative ability to withstand extremely cold winter temperatures.

**Keeping quality.** The fruit's ability to retain acceptable firmness and flavor in storage.

**Maturity.** When fruit is ready to harvest. This is not necessarily when fruit is ripe.

**Precocious.** Beginning to produce fruit at a young age.

**Ripe.** When fruit has reached its optimum quality.

**Spur type.** Trees with fruiting spurs closer to each other than standard cultivars. The trees are slightly smaller than standard cultivars.

**Thinning.** Removing immature fruit shortly after bloom to increase fruit size at harvest.

**Watercore.** A physiological breakdown of fruit cell walls, resulting in a watery, opaque condition of the flesh around the core.

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