



Department of Horticulture

Purdue University Cooperative Extension Service • West Lafayette, IN

Fruits and Nuts for Edible Landscaping

Michael N. Dana*

Landscaping with plants which are both attractive and food producing is gaining in popularity. However, selecting fruit- and nut-producing plants for an “edible landscape” is complicated by the added concern for productivity. Characteristics of size, form, and site suitability are no less important than ever, but in addition the designer must consider total potential yield and its sustainability, fruit set, pest resistance or control, microclimate adaptation, and fruit quality. As with any landscape design process, the ultimate goals should be the definition of space and the enhancement of land for human use. Using productive plants to reach these goals is no small challenge.

Landscape Characteristics

Productive plants are no different from their ornamental counterparts in that they may be classified by size, notable visual characteristics, and potential function in landscape planting. Available fruit plants range in size from the 12-inch tall strawberry to the 60-foot tall black walnut and shagbark hickory. Their growth habits range from the ground covering of the strawberry to the climbing of the grape, from the compact shrubbiness of the gooseberry to the picturesque irregular form of the gnarled old apple. Interesting winter bark texture is found on hickory, persimmon, and some cherries. Figures 1, 2, and 3 classify productive plants according to size, landscape value, and potential use for special landscape effects.

Potential Yield

A truly productive landscape yields quantities of produce appropriate to meet the needs of the consumer continuously throughout the growing season. Factors involved in achieving this goal include potential yield of the various crops and the season of production.

Annual yield or production in each year must be considered. Table 1 indicates average expectable yields from fruit and nut crops in addition to life span and typical time to bearing age. Also, production over a period of years should be considered. For instance, some cultivars (varieties) of tree fruits bear well only in alternate

Figure 1. Fruit plants classified according to approximate size.

- **Vine:** Grape
- **Low-ground cover:** Strawberry
- **Shrub or bush from 3-8 feet in height:** Blackberry (erect), Blueberry, Currant, Elderberry, Gooseberry, Quince, Raspberry (all), Serviceberry
- **Large shrub or small tree 8-15 feet:** Apples (on selected rootstocks, Apricot, Cherry (tart), Filbert, Pawpaw, Peach, Plum (European), Quince, Serviceberry
- **Tree 15-30 feet:** Apple, Cherry, Crabapple, Pear, Serviceberry
- **Tree over 30 feet in height:** Butternut, Chestnut (Chinese), Hickory, Persimmon, Walnut (Black), Walnut (Persian)

Figure 2. Fruit plants classified according to interesting landscape value.

- **Attractive blossom display:** Apple, Apricot, Cherries (all), Crabapple, Peach, Pear, Plums (all), Quince, Serviceberry
- **Attractive fall foliage display:** Blueberry, Crabapple, Persimmon, Serviceberry
- **Food source for wildlife:** Blueberry, Cherries (all), Crabapple, Raspberry (Black), Serviceberry, Strawberry, nut trees

Figure 3. Fruit plants classified according to their potential for special uses.

- **Covering arbors, pergolas, or other garden structures:** Grapes (all)
- **Training into special forms or espaliers (candelabras, Belgian fences, etc.):** Apple (dwarf), Crabapple, Peach, Pear (dwarf)
- **Growing in containers for patios and decks (Winter protection is necessary for container to avoid root freezing.):** Apple (dwarf), Blueberry, Crabapple, Currant, Gooseberry, Peach (dwarf), Pear (dwarf), Strawberry

years and thus provide a feast or famine situation. Golden Delicious and York Imperial apples are two classic examples of alternate bearers.

Continuity of production throughout the season is the other critical factor in determining success of a productive landscape. In central Indiana, strawberries begin to mature in late May, and they are followed by cherries, currants, raspberries, gooseberries, peaches, and on through the season to the apples and nuts that may be harvested through mid-November. Thus a supply of some type of fresh fruit or nuts can be available for a 6-month period if suitable kinds are selected. Figure 7 is a chart listing the sequence of harvest periods for fruits and nuts appropriate to Indiana.

Choosing several cultivars of a kind of fruit can also provide for an extended period of seasonal production. The earliest apples are ripe in mid-July, and the latest ones are not mature until late fall. Likewise, blueberries may be harvested from July 1 until mid-August and red raspberries from early July until fall freeze-up. Of course, the freezing or other preservation of these fruits assures an even longer period of supply.

Table 1. Yield potential of some fruit and nut plants.

Fruit	Type	Annual Yield Potential at Maturity	Years to Bearing Age	Years of Useful Life Span w/Good Care
Apple	semi dwarf	5-12 bu.	4-5	15-20
	dwarf	1-2 bu.	3-4	10-15
Apricot		3-5 bu.	3-4	10-15
Blackberry		1.5-2 qt.	2	10-12
Blueberry		3-4 qt.	3-5	30-50
Butternut		1-3 bu.	7-10	40-50
Cherry,	sweet	1-2 bu.	4-7	15-20
	tart standard	1-2 bu.	3-5	15-20
	dwarf	.5-.75 bu.	3-4	10-15
Chestnut,				
Chinese		20-50 lb.	7	40-50
Crabapple		.5-1 bu.	3-4	10-15
Currant		5-8 qt.	2	12-15
Elderberry		3-4 qt.	2	12-15
Filbert		1-6 qt.	3	30-50
Gooseberry		4-6 qt.	2	12-15
Grape		20-30 lb.	3	25-30
Hickory		1-1.5 bu.	10-20	80+
Nectarine		3-5 bu.	3	10-15
Peach		3-5 bu.	3	10-15
Pear	standard	3-5 bu.	4-5	15-20
	dwarf	1-3 bu.	3-4	10-15
Persimmon		25-30 lb.	4-6	50+
Plum	standard	2-4 bu.	3-5	15-20
	dwarf	1-2 bu.	3-4	10-15
Rasp- berry	standard	1.5 qt.	2	8-10
	everbearing	3 qt.	2	8-10
Serviceberry		4-6 qt.	2-3	indefinite
Straw- berry	June bearing	1 qt.	1	3-5
	everbearing	.5 qt.	.25	2-3
Walnut,				
	Black	1-3 bu.	8-12	80+
Persian		2-5 bu.	6-10	40-50

Fruit Set (Pollination)

When growing landscape plants for fruit or nut production, it is important to recognize that for most fruit crops pollination and fertilization are essential to the development of fruit on the plant. Certain fruit plants are self-fruitful, i.e. self-pollinating and fertilizing. Thus, a single plant or several plants of the same cultivar can produce fruit. Other kinds of fruit or nuts, e.g., apples, sweet cherries, hickories, are self-unfruitful, or cross-pollinating. This means that more than one cultivar must be planted if fruit is to be expected, unless the neighbors have a plant of another cultivar within a few hundred feet. Figure 4 indicates the pollination requirements for many fruit and nut crops.

Figure 4. Fruit plants classified according to pollination requirements.

- **Self-fruitful plants (One cultivar or plant will produce fruit.):** Apricot, Blackberry, Cherry (Tart), Currant, Gooseberry, Grape, Nectarine, Peach, Quince, Raspberry, Serviceberry, Strawberry.
- **Partially self-fruitful plants (Fruit production is improved by providing for cross-fertilization.):** Blueberry, Elderberry, Pawpaw, Pear, Plum (European), Walnut (Persian)
- **Self- and/or cross-unfruitful plants (Nut trees are often cross-pollinated by wild trees.):** Apple, Butternut, Cherry (Sweet), Chestnut (Chinese), Crabapple, Filbert, Hickory, Persimmon, Plum (American), Plum (Cherry), Walnut (Black)

Pest Resistance or Control

The production of high quality fruit requires that the developing fruit be protected from insects and disease organisms. Some of these pests can be lethal to the plant, while others damage the appearance and quality of the fruit. One important option is the use of disease resistant cultivars. For example, apple cultivars Jonafree, Prima, Priscilla, Redfree, and Sir Prize are all resistant to the disease apple scab. The cultivar recommendations in Figure 8 include those cultivars which exhibit disease resistance.

The amount of effort required to maintain the plant is directly related to the extent of their need for pest control, and this is a factor that should be considered in plant selection. Selecting cherries rather than apples as a tree fruit crop, for instance, can minimize pest problems and still result in a high yield. In general, nut crops are less demanding of care than fruit crops. Figure 5 gives an indication of relative maintenance requirements for most of the fruit and nut crops suited for Indiana.

Figure 5. Fruit plants classified according to degree of maintenance needed for fruit production.

- **Minimum maintenance (simple pruning, usually not more than one pest control application, adaptation to most soil conditions, may need screening to protect from birds):** Butternut, Chestnut (Chinese), Crabapple, Currant, Elderberry, Filbert, Gooseberry, Hickory, Pawpaw, Persimmon, Quince, Serviceberry, Strawberry, Walnut (Black), Walnut (Persian)
- **Modest maintenance (pruning, 1-5 pest control applications, protection against rabbits and/or mice):** Apricot, Blackberry, Cherry (all), Raspberry (all), Blueberry (specialized land preparation initially, frequent irrigation)
- **High maintenance (more than 5 pest control applications):** Apple, Grape, Peach, Pear, Plum (American), Plum (European)

Microclimate and Soil

A well-planned diverse edible landscape will necessarily include some species that have specific requirements for climate and soil. For instance, red raspberries are happiest when shielded from the winter sun but located where they get good summer sun. Apples, pears, and peaches should be planted where some protection against prevailing winds is available. Grapes respond favorably to high summer temperatures and are adapted to warm, sunny locations. All fruit and nut crops are most productive in full sunlight during the growing season.

Tolerance of low winter temperatures is another critical selection factor. While the general climate of a region usually determines crop suitability, specific characteristics of a landscape, its topography or structures, can create conditions which allow less hardy species to be successful. Fruit plants usually will tolerate temperatures lower than the fruit buds can survive. Thus plants grown in marginal areas may produce crops following warmer winters, but be barren after very severe ones. Figure 6 lists fruit and nut crops according to winter temperature tolerance.

Soil quality is another vital factor determining successful yield. Blueberries, for instance, are very specific in regard to soil needs. They must be located where the soil is or can be made acidic and a large quantity of organic matter can be added to the soil.

**Adapted from "Fruit in the Yard," by Malcolm N. Dana, Department of Horticulture, University of Wisconsin.*

Figure 6. Fruit plants classified according to winter hardiness.

- **Tolerate lower than -30°F:** Cranberry (Highbush), Currant, Elderberry, Gooseberry, Hickory (Shagbark), Plum (American), Raspberry (Red), Serviceberry, Walnut (Black)
- **Tolerate -20 to -30°F:** Apple, Blueberry, Butternut, Cherry (Tart), Chestnut (Chinese), Crabapple, Filbert, Grape (American type), Pear, Persimmon, Plum (Cherry), Walnut (Persian)
- **Tolerate -10 to -20°F (Plants in this category should not be considered reliably hardy in most of Indiana, except the Ohio River Valley area and in protected locations.):** Apricot, Blackberry, Cherry (Sweet), Grape (Hybrid), Pawpaw, Peach, Plum (European), Quince, Raspberry (Black), Raspberry (Purple)

Fruit Quality

With most fruit plants, the selection of cultivars is as important as the selection of species. Not just any apple or cherry or blueberry will do: a fruit with good size, appearance, and good fruit flavor is demanded. The dessert value and culinary attributes will help determine which particular cultivar is chosen. This type of judgment is subjective and is left to the consumer to make, but Figure 8 can be used as a guide to cultivar selection.

Related Publications

Numerous publications concerning specific fruit crops and procedures in landscape design are also available. Contact your county Extension office for a copy of:

HO-179, "Home Yard & Garden," which lists the relevant publications.

For more information on the subject discussed in this publication, consult your local office of the Purdue University Cooperative Extension Service.

		May 15	June 1 30	July 1 31	Aug. 1 31	Sept. 1 30	Oct. 1 31	Nov. 1 30	Dec. 1 31
Strawberry	June bearer	•••••	••••••••••						
	Everbearer	•••••	••••••••••		•••••	••••••••••	••••••••••	••••••••••	to frost
Serviceberry			•••••••						
Cherry	Tart		•••••	••••••••••					
	Sweet			•••••••					
Raspberry	Conventional		••••••••••	••••••••••	••••••••••	••••••••••	••••••••••	••••••••••	to frost
	Everbearer Red		••••••••••	••••••••••	••••••••••	••••••••••	••••••~	••••••••••	to frost
Blueberry			••••••••••	••••••••••					
Gooseberry			••••••••••	••••••••••					
Apple			••••••••••	••••••••••	••••••••••	••••••••••	••••••••••		
Blackberry			••••••••••	••••••••••					
Currant			•••••••	••••••••••	••••••••••				
Nectarine			••••••••••	••••••••••	••••••••••				
Peach			••••••••••	••••••••••	••••••••••				
Crabapple				•••••					
Plum				••••••••••	••••••••••				
Elderberry					••••••••••				
Grape					••••••••••				
Pear					••••••••~				
Chestnut, Chinese					••••••••••				
Filbert					•••••				
Persimmon						••••••••••			
Butternut							•••••	••••••••••	••••••••••
Hickory							•••••	••••••~	••••••••••
Walnut							•••••	••••••~	••••••••••

Figure 7. Fruit plants classified according to sequence of harvest.

Figure 8. Fruit and nut cultivars suggested for landscape use.

- **Apple:** Delicious, Golden Delicious, Jonafree, Liberty, Prima, Priscilla, Redtree, Sir Prize
- **Apricot:** Alfred, Goldcot, Harcot, Veecot
- **Blackberry**
Thorny: Cherokee, Comanche, Darrow, Eldorado
Thornless: Dirkson, Hull, Thornfree
- **Blueberry:** Berkeley, Bluecrop, Bluehaven, Blueray, Burlington, Collins, Coville, Darrow, Rancocas
- **Butternut*:** Ayers, Chamberlin, Craxey, Love
- **Cherry, Sweet:** Black Tartarian, Giant, Gold, Rainier, Royal Ann, Stella, Van, Vic, Vista
- **Cherry, Tart:** Early Richmond, English Morello, Meteor, Montmorency, North Star
- **Chestnut, Chinese*:** Abundance, Crane, Meiling, Nanking, Orrin
- **Crapapple:** Dolgo
- **Currant:** Red Lake, Wilder
- **Elderberry:** Adams No. 1 and No. 2, Kent, Nova, Victoria
- **Filbert:** Bixby, Jones hybrids, Potomac, Winkler
- **Gooseberry:** Downing, Pixwell, Welcome
- **Grape**
American (Labruscan)
Seedless: Canadice, Himrod, Interlaken, Reliance, Suffolk Red
Seed bearing: Catawba, Concord, Delaware, Fredonia, Niagara
French hybrids: Aureore, Baco Noir, Chancellor, Dechaunac, Foch, Seyval Blanc, Vidal Blanc
- **Hickory***
Shagbark: Anthony, Harold, Retzer, Weschcke
Shellbark: Ross, Schnoll
- **Nectarine:** Crimson Gold, Hardired, Mericrest, Sunglo
- **Pawpaw:** Sunflower, Taytwo
- **Peach:** Biscoe, Garnet Beauty, Harbrite, Madison, Redhaven, Redkist, Reliance
- **Pear:** Dawn, Honeysweet, Maxine, Moonglow, Seckel
- **Walnut, Black*:** Beck, Emmak, Hare, Oakes, Snyder, Sparrow, Thomas
- **Walnut, Persian:** Colby, Hansen (Both are self-fruitful.)
- **Persimmon (not Oriental):** Ennis, Early Golden, John Rick, Killen, Miller, Woolbright
- **Plum**
American: South Dakota, wild seedlings
Cherry-plum: Kaga with Compass as pollinator, Sapa, Sapalta
European: Blufre, President, Reine Claude, Stanley
Japanese-American: Monitor, Superior with South Dakota as pollinator, Underwood
- **Quince:** Orange, Pineapple, Smyrna
- **Raspberry**
Red raspberry
Regular season: Latham, Newburgh
Everbearing: Heritage, September
Purple Raspberry: Amethyst, Brandywine, Marion, Royalty, Sodus
Black raspberry: Bristol, Cumberland, New Logan
- **Serviceberry:** Altaglow, Moonlake, Northline, Paleface, Pembina, Regent, Smokey, Thiessen
- **Strawberry**
June bearing: Delite, Earliglow, Guardian, Marlate, Redchief, Sparkle, Surecrop
Everbearing: Fort Laramie, Ozark Beauty

*Nut tree cultivars are often difficult to procure through the nursery trade. Seedling trees are a reasonable alternative.