

Selecting Plants for Virginia Landscapes:

Edible Landscape Species – Trees



Virginia Cooperative Extension
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Authored by Alex X. Niemiera, Professor, School of Plant and Environmental Sciences, Virginia Tech; and Michael McConkey, owner of Edible Landscaping, Afton, Virginia

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Introduction

Landscape plants are multifunctional but their beauty and artistry is one of their most prominent aspects. Their showy appearance that collectively spans many months of the year includes flowers, fruit, foliage, and form. These features give visual pleasure and increase property value. In addition to these aspects, trees, shrubs, vines, and ground covers also provide ecological services, such as taking carbon dioxide out of the air, decreasing summer air temperatures, reducing stormwater runoff, and numerous other important services.

An often-overlooked benefit of these woody plants is food provision. Trees, shrubs, ground covers, and vines — the elements that serve the major aesthetic, structural, environmental, and architectural functions of a landscape — can also be grown for food. This publication focuses on trees that produce edible fruit. Readers may also be interested in the companion Virginia Cooperative Extension publication, [“Selecting Plants for Virginia Landscape: Edible Landscape Species – Shrubs, Vines, and Ground Covers.”](#) Publication SPES-317.

A popular term to describe edible landscapes is “foodscaping,” the integration of edible species into the structure of one’s current landscape. The topic of edible landscapes has been one of the top gardening trends in the last few years, but maximizing the returns on a landscape investment goes beyond following trends. Having edible woody plants as part of the landscape plant palette makes sense from a practical standpoint. Why not have blueberry plants and Juneberry trees, for a simple example, supply the fruit in your next fruit salad or smoothie at the same time they beautify your landscape?

This publication features the many woody landscape tree species that serve aesthetic and environmental services as well as a fruit-providing function in the landscape. Some of these trees can supply a bountiful amount of fruit; others, an occasional snack. Some edible fruit-bearing species have a reputation of being too reliant on chemical sprays to control insects and diseases. Most of the plants covered here do not require regular pesticide applications; for those that do, pest-resistant cultivars and alternative nonspray techniques or nonchemical spray applications are recommended.

Before discussing recommendations of trees for the dual role of supplying fruit as well as beautifying the landscape, a few pertinent topics should be addressed, including guidance on choosing cultivars, pest control, protecting fruit from birds and other animals, pollination and fruit set, and winter hardiness.

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Listed Cultivars

Most of the cultivars listed for each species in this publication are recommended for Virginia and are a subset of the many cultivars that are commercially available. Since Virginia has a broad range of geographical regions, from coastal plains to mountains, and with each region having a characteristic soil type, low winter and summer high temperatures, humidity level, and precipitation amount, cultivars should be chosen that are appropriate for specific localities. Local garden center personnel or mail order plant vendors are good resources for such information.

Pest Control

Before considering pest control measures for a potential fruit crop, be aware that some species or cultivars are more resistant to insects and diseases than others. So, selection of specific plants should be the first step in avoiding pest problems. Also, some areas of Virginia — due to location, temperature, and humidity conditions — are more or less prone to insects and diseases. So, careful attention to these factors goes a long way to reducing pest management.

When applicable, garden centers and online edible plant vendors should supply the disease and insect resistance/susceptibility rating for a particular fruit-producing plant; this is considered essential information for many edible fruit-bearing species. Some diseases and insect damage results only in superficial blemishes and will be mostly cosmetic without affecting fruit quality.

For some fruits and some pests, spraying may be necessary. Several spray chemicals are approved for certified-organic farms. Some have no or minimal

effects on beneficial insects such as bees and spiders (not an insect). One of these is an insecticide product that is mostly composed of kaolin clay, a naturally occurring mineral that has been shown to be effective for many edible fruit species and even some vegetables. This product leaves a white film on leaves and fruit that is easily removed on fruit by washing. Several types of organic materials—fungicides and insecticides—are available for fruit tree use. However, be aware that an “organic” label does not necessarily imply that a product is harmless to people or beneficial insects.

To avoid spraying and to control some insects and diseases from damaging fruit, it's possible to provide protection by enclosing fruit in a fruit bag or with old nylon socks or stockings. When fruits are small, enclose them in the end of a sock or a fruit bag and use a twist tie or other method to cinch the open end. Commercially available fruit protection bags (Japanese fruit bags are recommended) are usually equipped with a closure cinch and cost about 25 cents per bag. This is quite a laborious task for plantings with more than one or two plants, but it will ensure fruit will be free of most pest damage. A video by co-author Michael McConkey showing this bagging method to produce disease-free grapes is available at <http://ediblelandscaping.com/careguide/Grape/>.

Another insect control method is to deploy lures or traps impregnated with synthetic versions of insect pheromones; however, a minimum amount of acreage is often required for effectiveness. These pheromones (sex hormones) simulate the scent of female insects, thereby confusing males, which are then not able to locate females and mate. Lures/traps are usually placed on a 10-by-10-foot spacing, but the spacing and reapplication timing are factors that depend on the product. The choice of lure/trap type and time of deployment depends on the fruit species being grown and the targeted insects for that species.

Protecting Fruit from Birds and Other Animals

Birds and mammals are the critters that will most likely compete with growers for eating the fruit they grow. So, unless a grower wants to share with them, the fruit will need to be protected. To prevent bird feeding, cover plants with a fine mesh crop net (fig. 1) about two weeks before fruits ripen. Many netting types, materials, and sizes are commercially available. Detering squirrels, chipmunks, racoons, and deer is more problematic and solutions include visual scare devices, repellents, tall or electric fencing, or even the family dog.



Figure 1. Mesh covers protect fruit from bird feeding.

Pollination and Fruit Set

For several of the species discussed in this publication, a single plant of a particular species or cultivar will require the presence of another plant of that species to produce fruit. This phenomenon results when the plant species has separate sex individuals or when a cultivar has self-incompatibility.

Separate Sex Plants

A minority of plant species have separate sex individuals, that is, individual plants that have either male flowers or female flowers. For example, persimmon plants are either male or female. Thus, for species that have separate female and male plants, called dioecious plants, a male plant needs to be in the vicinity of female plants to supply pollen to the female plants' flowers to allow them to set fruit. In some cases, a female plant of a dioecious species can produce fruit without the presence of a male; this is termed parthenocarpy. In many cases, though, even parthenocarpic plants will see increased fruit set and yield if there is a male plant nearby. Most plant species have both sexes in a single flower or on the same plant; these are called monoecious. Monoecious plants can usually pollinate themselves, but several woody species are not able to do so due to self-incompatibility.

Self-incompatibility (self-infertility)

To understand self-incompatibility, an understanding of the concept of a cultivar is necessary. A cultivar is a member of a species that is selected and grown to ensure specific traits, such as size, fruit characteristics, hardiness, pest resistance, etc. Woody plant cultivars are asexually propagated, mostly by cuttings or grafting methods, and all the progeny from an asexually propagated plant are clones of the mother plant. For example, an apple orchardist grows the 'Honeycrisp' clone; all 'Honeycrisp' apples are genetically identical to each other since they were all asexually

propagated by grafting by using stems from the mother ‘Honeycrisp’ tree or ‘Honeycrisp’ clones. Cultivars of the many species grown for their fruit cannot pollinate themselves despite the fact that they bear fertile male and female flower parts in each flower. In these cases of self-incompatibly (self-infertile), a different cultivar, termed a pollinizer, is needed to supply pollen to the fruit-bearing cultivar to produce fruit. Thus, the grower of ‘Honeycrisp’ apples selects and plants a pollinizer cultivar within the orchard that bears pollen at the same time as ‘Honeycrisp’ flowers and with pollen known to be compatible with ‘Honeycrisp’ flowers.

There are easily accessible charts and recommendations for suitable pollinizers for each self-incompatible fruit-producing cultivar. Bees and other insects are the vectors of the pollen transfer.

In a residential setting, one might have a self-incompatible cultivar that is planted without a pollinizer. To supply pollen, a few branches (in water buckets) of another cultivar of that species that flowers at the same time as the fruiting cultivar can be placed within or under the tree.

Lack of Fruit Set

Assuming an appropriate pollinizer has been selected and if in fact it flowered at the same as the fruit-bearing tree, poor fruit set may be due to weather or pollinator factors. Nonideal weather conditions during bloom time, such as frost, cool temperatures (below 50 degrees Fahrenheit), rainy or windy weather will impact activity of pollinators such as bees and other insects. A lack of pollinators in the area may also result in poor yields. In the case of insufficient pollinators, one strategy is to attract more pollinators to the area by planting more species that serve as a pollinator habitat. Another potential solution — albeit laborious — is to hand pollinate. This can be accomplished in a number of ways. One example: Collect flowering branches from the pollen source tree and place them in a plastic bag. Shake the branch to shed the pollen. Use a small paint brush to apply the pollen to the flowers of the fruit-bearing tree

Plant Hardiness

Plant hardiness refers to the coldest winter temperature that a plant can tolerate and remain in an aesthetically acceptable condition. The U.S. Department of Agriculture Plant Hardiness Zone Map categorizes each location in the U.S. by its average annual extreme minimum temperature (low winter temperature) expressed in a 10 degree Fahrenheit range ([https://](https://planthardiness.ars.usda.gov)

planthardiness.ars.usda.gov). For example, the Japanese persimmon hardiness rating is zone 7 to 9; the first number (7) refers to the cold hardiness range of zero to 10 F, and the second number (9) refers to the heat tolerance. Hardiness zones in Virginia range from zone 5 (-10 F to -20 F) in the western part of the state to zone 8 (10 F to 20 F) in the far southeastern part. All woody plant species and cultivars, including those in this publication, have a hardiness zone rating in which they are reliably hardy.

An important consideration is that hardiness zone ratings are based on averages, and the occurrence of a winter temperature lower than its designated range is possible. For example, Blacksburg, Virginia, is in zone 6 with a range of zero degrees to -10 F. But, the historical low for Blacksburg is -18 F. Virginia Beach, Virginia, is in zone 8 with a range of 10 F to 20 F, but the historical low is -3 F. Anyone who lives in a zone 7 location and plants a fuzzy kiwi, a species rated for zone 7 (zero to 10 F) needs to realize the possibility exists that the plant may be damaged if winter temperatures go below zero in any given year. Anyone with such a concern would want to locate the plant in an area of the landscape known to be a warm “microclimate” that experiences a slightly higher temperature than surrounding areas, such as against a southern wall or a hillside instead of a low area.

Although not scientifically proven, numerous anecdotal reports and observations by the co-authors note that established plants in the landscape (two or more years after planting) are more cold hardy than recent transplants.

Below are the recommendations for edible tree species in Virginia. Each species is described by its landscape appeal (somewhat subjective) and its fruit-bearing capacity (will vary by location). These species are followed by cultivars and/or species that also have ornamental and fruit-producing merit.

Persimmon

Landscape appeal: High

Fruit production: High

The persimmon species, *Diospyros*, has been so revered for its fruit that the genus *Diospyros* comes from ancient Greek meaning “fruit of the gods” or “divine fruit.” In Virginia and throughout most of the eastern U.S., the common persimmon (*Diospyros virginiana*) is commonly found along roadways, abandoned farm

fields, and fence rows. This native species, a medium to large tree with an interesting blocky bark and usually showy fall foliage color, bears attractive tasty fruit (fig. 2). A few cultivars are noted for fruit taste and production (see below). When still unripe (immature) and hard, the fruit are inedible. Fruit usually ripen after the first frost of autumn.



Figure 2. Unripened native persimmon fruit (*Diospyros virginiana*) shown with the harmless hickory horned devil caterpillar (the immature form of the regal moth).

The most common persimmon species that is commercially and garden grown for its fruit is the Japanese persimmon (*D. kaki*; pronounced ka'ki), the national tree of Japan. Numerous Japanese persimmon cultivars, mostly selected for their fruit characteristics, are small trees (about 15 feet tall) with a rounded or oval form (fig. 3). In addition to yielding a bounty of delicious, sweet fruit, a fruiting persimmon tree is a beautiful sight to behold. In late summer/early fall, relatively large fruits turn from green to a no-less-than-spectacular glossy bright orange, orange-yellow, or orange-red, fully ripened in the fall (figs. 4, 5). Persimmon flowers are relatively small and inconspicuous and are not an eye-catching feature. A secondary feature of both green and maturing fruit, albeit minor, is the four-lobed cap on top of the fruit (called a calyx, it is actually remnants of flower parts; fig. 6). This species also has attractive foliage characteristics. Lustrous leathery leaves that compose the tree's canopy throughout the growing season (fig. 7) are a handsome aspect. The fall foliage, depending on cultivar, can be spectacular shades of yellow, orange, and red (figs. 8, 9). So, from an edible fruit and an attractive landscape plant perspective, a persimmon is a superstar.



Figure 3. Japanese persimmon tree (*Diospyros kaki*) with showy ripe fruit.



Figure 4. Close-up of a branch of Japanese persimmon (*Diospyros kaki*) with showy ripe fruit. This type remains hard when ripe and has a flattened bottom.



Figure 5. Japanese persimmon tree (*Diospyros kaki*) in autumn.



Figure 6. Lobed cap (calyx) tops a Japanese persimmon fruit (*Diospyros kaki*).



Figure 7. Showy lustrous foliage of Japanese persimmon tree (*Diospyros kaki*) in summer.



Figure 8. Showy lustrous foliage of Japanese persimmon tree (*Diospyros kaki*) in fall.



Figure 9. Showy lustrous foliage of Japanese persimmon tree (*Diospyros kaki*) in fall. Photo taken by Michael McConkey.

Persimmon Fruit Types: Hard vs. soft when ripe

Regardless of fruit type, ripe persimmons are wonderfully delicious and sweet, but persimmons are categorized into two main types relative to when their fruit become mature, sweet, and edible: Some remain hard when ripe, and others turn soft when ripe.

Co-author of this publication, Michael McConkey, has an informative persimmon video featuring the fruit of various persimmon cultivars available online at <https://www.youtube.com/watch?v=5J8qpm8jI0M>.

Hard When Ripe (eaten when firm)

When mature (turns from green to orange) and edible, the **hard when ripe** types can be picked right from the tree, remain hard (firm) to the touch, and the flesh has an apple-like crisp texture that tastes sweet. The fruit can also be eaten as it softens. Fruit of this type usually have a flattened shape like a tomato (fig. 4). See the table for cultivar descriptions.

Soft When Ripe (eaten when soft)

When mature and edible, the **soft when ripe** types have to become fully soft (almost mushy) and sweet; typically, the hard-to-soft transformation occurs after a hard frost. When still unripe (immature) and hard, the fruit is inedible. Its astringent taste is due to a relatively high tannin content; anyone who tries biting into it will find their mouth puckering and every last molecule of saliva confiscated. Fruit of this type are acorn-shaped, having a somewhat tapered bottom (fig. 10).



Figure 10. A ripe Japanese persimmon (*Diospyros kaki*) whose acorn shape reveals that it is the type that is soft when ripe. Photo taken by Michael McConkey.

Japanese Persimmon Cultivar Characteristics

In addition to the hard when ripe and soft when ripe types, Japanese persimmons will vary according to their time of ripening/harvest, hardness, fruit characteristics, and the need for an alternate cultivar to act as a pollinizer (see below).

Asian types will vary according to when they ripen (from late August all the way to December), their flavor and texture, the amount of seeds per fruit (seedless to many seeds), species, and hardness (tolerance of low winter temperatures). Several Japanese persimmon cultivars are only winter hardy in zones 7 and higher (minimum low winter temperature of zero to 10 F) while others are hardy in zone 6.

American Persimmon Cultivar Characteristics

The Common Persimmon (*Diospyros virginiana*), native to the eastern U.S. and hardy in zones 4 and higher, is a soft when ripe type. With the exception of the ‘Prok’ cultivar, which ripens prior to frost, the orange-yellow fruit is hard and very astringent-tasting before a hard frost in the early fall. Once soft and mature, the fruit is attractive and deliciously sweet, guaranteed to attract every local tree-climbing, fruit-eating critter for a feast. This species is a medium-sized tree, to about 50 feet tall, but can be kept shorter with pruning, with an oval form and an interestingly attractive blocky bark. In

addition to its native status and long-lived characteristic, there are a few exceptional cultivars noted for their fruit production: ‘Prok’ is a heavy-bearing cultivar that is rated as one of the best tasting clones of the American persimmon. It is also known for its tolerance to urban conditions. Other recommended cultivars are ‘Ruby’ and ‘Yates’ (very productive, large fruit; self-fertile). Unless noted as self-fertile, all American persimmon fruit-bearing cultivars (clones) are female and require a male tree in the vicinity for pollination and fruit set.

A technique to facilitate fruit harvest, especially for taller trees, is to spread clean straw beneath the tree so that fallen ripe fruit do not come in contact with the soil and are easily gathered.

Persimmon Pollination – Male and Female Trees

Persimmon plants can be either female or male (dioecious) or occasionally contain both sexes (monoecious). In some cases, a female plant will produce fruit without pollination by a male (parthenocarpy), but maximum fruit production will occur if a male tree is planted in the vicinity of these female plants. Cultivars noted in the tables below will indicate whether an alternate cultivar is needed to supply pollen to the fruit-bearing clone.

All commercial persimmon cultivars are propagated by grafting since cuttings will not produce roots. Seeds from cultivars will not produce the cultivar traits of the mother tree.

“Hard When Ripe” Firm-Fruited Cultivars

Cultivar	Hardiness zone	Pollinator need	Fruit	Harvest time	Notes
‘Maekawa Jiro’	6 to 10	No	Large; usually seedless	Early	Handsome tree form
‘Ichi Ki Kei Jiro’	6 to 8	No	Large	Early to mid-season	Attractive fall foliage colors
‘Izu’	6 to 10	No	Good taste; large; usually seedless	Early	Dark orange fruit
‘Wase’ (aka ‘Matsumoto’)	6 to 9	No	Excellent quality; high yield	Early to mid-season	Vigorous growth

“Soft When Ripe” Soft-Fruited Cultivars

Cultivar	Hardiness zones	Pollinator need	Fruit	Harvest time	Notes
‘Hachya’	7 to 10	Yes	Large, sweet usually seedless	Mid-season	Vigorous growth; red fall foliage; common commercially
‘Sheng’	6 to 9	Yes	Sweet and large	Mid-season	Dwarf tree size
‘Saijo’	6 to 9	No	Elegant flavor; usually seedless	November	Vigorous growth
‘Hira Tanenashi’ (‘Tanenasi’)	6 to 9	No	High yielding; excellent quality; mostly seedless	Early	Showy red fall foliage color
‘Miss Kim’	6 to 9	No	Excellent flavor; usually seedless	Early to mid-season	Vigorous growth
‘Sung Hui’	6 to 9	No	Sweet and juicy; usually seedless	Early	Good fall foliage color
‘Tecumseh’	6 to 8	No	High yield	Late	Small tree
‘Giombo’	7 to 9	No	Large; High quality texture and sweetness	Late	Attractive tree features
‘Nikitas Gift’	5 to 8	No	Taste similar to American persimmon	Late	Very hardy; hybrid of American and Asian persimmon
‘Gil Ya’	6 to 8	No	Excellent flavor	Early	Small tree

Jujuba (joo-joo-buh), Chinese Date

Landscape appeal: Medium to high

Fruit production: Medium to high

Jujuba (*Ziziphus jujuba*) is a deciduous large shrub or small tree (fig. 11) with drooping branches that produce a sizable crop of edible fruit. It is native to southeastern Europe and southern and eastern Asia. It has a 4,000-year-old history of cultivation in China in which it has been used in medicines for the treatment of many ailments, including cancer. Jujuba is hardy in zones 6 to 9, so this species is hardy in most of Virginia.



Figure 11. Typical Jujuba tree (*Ziziphus jujuba*) in a small tree size and form.

Plant form (shrub or tree) depends on how it is trained. Jujuba typically grows to about 15-plus feet but can be kept shorter for harvesting purposes by pruning. Since flowers, and hence fruit, are produced on newly produced shoots in spring, and not on shoots produced in the previous year, pruning can occur in the fall, winter, and early spring. The glossy bright green foliage (fig. 12) borne on pendulous branches is an attractive feature throughout the growing season. A minor liability of jujuba is that young stems bear small thorns, but mature plants are nearly or totally thornless. Another potential liability is that trees tend to sucker (produce shoots from the roots), thereby creating a colony of stems; however, lawn mowing will eliminate this issue. Flowers produced in late spring are quite small and relatively inconspicuous but have been described as having a “grape soda” scent. The oval to round 1 inch plus fruit emerge a glossy green (fig. 13) and mature to shades of red (fig. 14), amber, and brown depending on cultivar. Ripeness is indicated by full color transition, softness, and wrinkling in the fall. Fruits will only ripen on the tree. Skin and flesh are edible with a taste and texture described a non-juicy apple. Dried fruit have a very long shelf life.



Figure 12. The glossy foliage of the jujuba tree (*Ziziphus jujuba*).



Figure 13. Jujuba tree branches with unripe (green) and ripe (reddish) fruit.



Figure 14. Mature fruit of the jujuba tree.

Jujuba requires a full sun exposure, is not particular to soils, and is relatively pest-free. This species has the reputation of being drought tolerant, but reports on how drought impacts fruit quality and yield are lacking. There are several cultivars in the trade (800-plus in China); cultivars are mostly propagated by grafting or budding techniques. The main cultivar characteristic is fruit quality (eating quality, sweetness, suitability for fresh vs. dried consumption), which varies greatly among cultivars. Certainly seed-propagated plants would bear inferior quality fruit; seedlings are only used as rootstocks in grafting operations. Quality is also claimed to vary with plant age, from year to year, and with local climate. In terms of commercially grown cultivars in the U.S., ‘Li’ and ‘Lang’ are the most dominant. While flowers bear both male and female parts and do not require cross-pollination, commercial growers report higher yields when two or more cultivars are grown in proximity.

Jujuba Cultivars

Cultivar	Hardiness zones	Fruit	Notes
‘Li’	6 to 9	Large size; high yield	Rootstock can sucker
‘So’	6 to 9	Sweet and crisp	Zig-zag stems, dwarf size tree
‘Sugar-cane’	5 to 9	Very sweet; apple-like texture	Sweetest fruit of all cultivars
‘Honey Jar’	5 to 10	Small size; sweet and spicy; early ripening	Tree size shorter than typical
‘Shanxi Li’	6 to 10	Very large size; crisp	Heat tolerant
‘Tigertooth’	6 to 9	Long, slender fruit, very sweet	Tree size shorter than typical

Juneberry/Serviceberry

Landscape appeal: High

Fruit production: High to medium

Juneberry (*Amelanchier* spp.) is a U.S. native genus with a few species that are shrub-like or usually small multi-stem trees. The small tree types are suitable in groups or alone as a specimen plant. Their showy white flowers, collectively and individually, make for a stunning site in the early spring (figs. 15, 16), albeit for a relatively brief period. As they ripen, fruits transition from green to a showy red (fig. 17) and then to dark blue (fig. 18). Fruits, with a blueberry-like taste and appearance, mature in June, and are abundant and absolutely delicious. Fruits are ripe when they turn dark blue and soft. They can be picked off the tree to eat out of hand, made into preserves, or used in baked goods. Birds and squirrels will indisputably compete for this bounty. Fall foliage color is variable in a magnificent range of yellow to orangish colors (fig. 19).



Figure 15. Juneberry tree (*Amelanchier* spp.) in full flower (early spring); typical small tree size and form.



Figure 16. Close-up of a Juneberry flower (*Amelanchier* spp.).



Figure 17. Unripe Juneberry fruit (*Amelanchier* spp.).



Figure 18. Juneberry fruit (*Amelanchier* spp.) in the process of ripening to a dark blue color.



Figure 19. Showy autumn foliage of Juneberry tree (*Amelanchier* spp.).

Juneberries tolerate full sun, which is best for fruit production, or part shade, though this may increase disease susceptibility. They are adaptable to most soils except poorly drained conditions. One of the main considerations for this rose family member, like that of apples, pears, and cherries, is to select disease-resistant cultivars.

Juneberry/Serviceberry Cultivars

Cultivar	Hardiness zones	Fruit	Notes
'Regent'	4 to 6/7	Sweet	Amelanchier alnifolia cultivar; dwarf to about 5 feet tall
'Autumn Brilliance'	4 to 9	Sweet	Amelanchier ×grandifolia cultivar; showy flower and fall foliage color
'Success'	5 to 8	Sweet	Old cultivar; medium to large shrub
Amelanchier arborea cultivars	4 to 9	Sweet	Several small tree cultivars; choose for disease resistance
Amelanchier obovalis 'Jennybelle'	5 to 9	Sweet; abundant producer	Excellent fruit
Amelanchier canadensis 'Prince William'	4 to 7	Sweet; large; abundant producer	Medium to large shrub

Pawpaw

Landscape appeal: Medium to high

Fruit production: Medium

Pawpaw (*Asimina triloba*) is a small deciduous understory tree native to the eastern U.S. that produces a delicious crop of fruit. Trees, usually about 15 feet tall (fig. 20), bear boldly sized leaves up to 1 foot long

(fig. 21) that droop and then turn a beautiful golden yellow color in the fall (fig. 22). Primarily occurring as an understory tree in moist forests (usually adjacent to streams), they are tolerant of wet soils and quite shade tolerant, but grow less dense in the shade. However, this species is also perfectly happy growing in a full sun exposure, where it will produce its maximum fruit yield. In forest conditions, a mother plant can produce suckers (shoots emerging from the root system) to produce a colony of clonal offspring in the vicinity. The oddly shaped fruit, which usually grow in clusters, is the largest edible fruit native to North America (fig. 23).



Figure 20. Typical pawpaw tree (*Asimina triloba*) with a small tree size and form, grown in full sun.



Figure 21. Relatively large leaves of pawpaw (*Asimina triloba*).



Figure 22. Autumn color of pawpaw foliage (*Asimina triloba*).



Figure 23. Fruit cluster of pawpaw (*Asimina triloba*).

Even if pawpaw did not produce a single fruit, its small stature, its tolerance of shade and sun, its bold yet graceful large leaves with a golden glow in the fall, and its native plant prominence in our forests make it a splendid choice for any landscape.

Cup-shaped flowers (fig. 24), marginally conspicuous and showy, are about 1 1/2 inches wide, purplish red, and mimic carrion to attract pollinators such as flies and beetles. In fact, a grower in a commercial orchard has been known to hang roadkill in trees to attract insects for cross-pollination. Pawpaws have an interesting sexuality. A plant can bear either male or female flowers (dioecious), or can bear both male and female flower parts (monoecious), but in this case the pollen

(male flower part) is released at a time when the stigma (female flower part) is not receptive to the pollen. So, even monoecious types are not self-pollinating, which means that all pawpaws must be pollinated by another unrelated plant (pollinizer) to produce fruit. Or in the case of a cultivar (clone), one cultivar must be cultivated by another cultivar. Relatively small fruit yields are generally typical for the pawpaw tree due to pollination issues.



Figure 24. Pawpaw flower (*Asimina triloba*).

Pawpaw foliage is one of the few plants that deer will not eat. Most other animals leave it be, as well. However, pawpaw is a host to the larval (caterpillar) stage of the strikingly beautiful and native zebra swallowtail butterfly. In Virginia and throughout most other states, pawpaw is the only plant species to host this caterpillar and hence give rise to this butterfly.

Young trees (grafted) may take about three to four years to produce fruit; seedling grown trees take about seven years to fruit. The green fruit, about the size and shape of a small potato, usually grow in clusters of two to nine fruits each. They ripen in the late summer/early fall and have a custard-like texture with a banana flavor and notes of mango, pineapple, and vanilla. Ripeness is indicated when the fruit turns slightly yellow, is soft to the touch, and has a fruity aroma. The flesh but not the skin is edible. Co-author of this publication, Michael McConkey, has a short video on spooning out ripe pawpaw flesh, available online at <https://www.youtube.com/watch?v=dXMPqE1aHlc>.

Ripe fruit can be eaten right off the tree. Once ripe, pawpaws have a relatively short shelf life at room temperature, about three days or so. Despite deer not eating the foliage, other critters like squirrels, birds, opossums, and racoons relish the fruit and will often get the bounty before anyone else does.

Seedling-grown Plants

Plants propagated by seed will make perfectly fine landscape plants. Since seeds occur via sexual means (mixing of genetic material), seedling-grown plants will have variable fruit and other traits and will be unlike the mother plant. To ensure specific fruit traits (e.g., taste, texture, small/few seeds), cultivars (clones) must be selected.

Seedling-grown and grafted cultivars are all hardy in zones 5 to 8.

Pawpaw Cultivars

Remember to have at least two cultivars near each other for cross-pollination and subsequent fruiting. The Peterson pawpaw cultivars noted below were bred and selected by Mr. Neal Peterson after decades of dedicated pawpaw orchard trials. Learn more about his epic clonal selection effort and his cultivars online at <https://www.petersonpawpaws.com/>.

Cultivar	Fruit	Notes
'Mango'	Large size; smooth textured flesh; early ripening	Vigorous growth
'Shenandoah Peterson Pawpaw'	Large size; sweet fruity flavor; low seed to flesh ratio; early to mid-season ripening	Smooth and mellow fruit taste
'Susquehanna Peterson Pawpaw'	Large size; sweet; low seed to flesh ratio	The most highly touted cultivar for rich delicious flavor
'Alleghany Peterson Pawpaw'	Medium size; medium seed to flesh ratio	Fruit set a young age; favorite of those who taste it
'Wabash Peterson Pawpaw'	Medium size; high quality fruit; mid to late season ripening	Excellent fruit quality and quantity
'Potomac Peterson Pawpaw'	Large size; low seed to flesh ratio	Taller and less spreading habit than typical tree size/form

Cultivar	Fruit	Notes
'NC-1'	Large fruit; few seeds	Handsome landscape appeal due to dense, large foliage in conical tree form
'KSU Atwood'	Medium size; mango flavored; few seeds; high yield	Touted for excellent taste
'Overleese'	Medium to large fruit; few seeds	Heirloom cultivar; touted for excellent taste

Apple, Pear, Peach, Plum, Cherry and Nut Trees

Apple, peach, pear, plum, and cherry are small trees that produce very tasty fruit. Their prime visual aspect is that they have very showy flowers and when in full bloom in the spring they are a magnificent site to behold (fig. 25). Apple (*Malus* spp.) flowers have showy flower buds as they open as well as when they are fully expanded (fig. 26). The fruit as well can be considered showy (fig. 27), some more than others.



Figure 25. Apple tree (*Malus* spp.) in full flower (spring); typical small tree size and form.



Figure 26. Close-up of apple blossoms (*Malus* spp.); unopened buds are more colorful than fully open flowers.



Figure 27. 'Liberty' apple (*Malus* spp.) mature fruit.

The culture of these fruits requires three major considerations:

Pollination for fruit cultivars: Fruit set requires the successful transfer of pollen (male sperm) to the female plant part (stigma). Pollination is discussed in this publication's introduction.

Susceptibility to pests: Professional growers of commercial crops are well-versed in this aspect, but homeowners and gardeners require the following information to successfully produce fruit with minimal chemical use.

Pruning: These species require regular pruning to develop a structure and density to allow for continued and maximum fruit yield.

Because of the detailed pollination, pest issues, and pruning maintenance for these species, only a brief discussion will follow. For a comprehensive description of growing these trees, including cultivar recommendations in Virginia, consult Virginia Cooperative Extension's "Tree Fruit in the Home Garden," Publication 426-841, available online at <https://www.pubs.ext.vt.edu/426/426-841/426-841.html>.

Susceptibility to Pests – a solution for home gardeners

A major consideration is that apple, pear, peach, plum, and cherries are in the rose family (*Rosaceae*). Members of the rose family tend to be pest-prone, which means diseases (fungal, bacterial, and viral) as well as insects and mites (small sidlers) may be a problem for those who wish to grow these in a residential landscape setting.

Most commercial growers employ a consistent and targeted spray program to combat these pests. Methods homeowners/gardeners can use to minimize the use of chemical pesticides are outlined below.

When purchasing one of these trees to plant in a home garden, homeowners should make a short list of the cultivars that are climatically adapted for their region and then determine which of those cultivars are the most pest-resistant. Garden centers and online fruit tree vendors should supply the disease and insect resistance ratings for each cultivar. You should know that pest resistance does not mean total resistance, and since there are numerous diseases of fruit trees, your trees may still be afflicted. Some disease and insect damage results in superficial blemishes and will be mostly cosmetic without affecting fruit quality. Site selection is also important, more so for diseases. Most fruit trees do well with full sun exposure and good air circulation.

To control insects from damaging fruit, such as apple maggot and codling moths on apples and pears, you can enclose fruit in an old nylon sock or stocking, as described above under "Pest Control." Another insect control method and an alternative to bagging fruit is to deploy sticky traps (materials impregnated with pheromones), but the number of traps per tree, reapplication, and timing are factors that enter into the success of these traps. Both of these measures (bagging and sticky traps) are most appropriate for dwarf tree cultivars to eliminate climbing.

Apples

To choose among the many cultivars of apples, the most important selection criteria are:

Fire blight resistance (problematic bacterial disease).

Apple scab resistance (problematic fungal disease).

Cedar apple rust (problematic fungal disease).

Selecting cultivars for resistance to these three diseases is ESSENTIAL and should be the first cultivar selection criteria before fruit-eating characteristics are considered. Only then should other primary criteria be applied: fruit size, flavor, texture, and ripening time.

An informative video by co-author Michael McConkey on the disease-resistant 'Liberty' apple is online at: <https://binged.it/3wfFw9L>

Dwarf Pear, Peach, and Cherry Trees

According to Virginia fruit experts, these species are generally not recommended due to their short life span, or because of diseases and pollination compatibility problems. Thus, only a short description will follow.

Pears

The three main types of pear (European, American, and Asian) include many cultivars. The most important cultivar selection criteria are:

Fire blight resistance (problematic bacterial disease).

Fruit size, flavor, texture, ripening time.

Tree size.

European: Some cultivars are self-fruitful and set heavy fruit loads while others are partially self-fruitful but heavier and more consistent loads are produced with cross-pollination. Thus, having a compatible pollen-producing cultivar paired with the fruit-producing cultivar is important. European pears can be picked prior to ripening since they will ripen off the tree (fig. 28). Except for a handful of cultivars, they are typically susceptible to fire blight.



Figure 28. Mature European type pear fruit (*Pyrus* spp.)



Figure 29. Mature Asian type pear fruit (*Pyrus* spp.)

Asian: Asian pears have a round shape, and crisp and firm texture like an apple, and will ripen on the tree (fig. 29). While some cultivars are self-fruitful, fruit number and size will increase with cross-pollination. In contrast to European pears, Asian pears need to fully ripen on the tree and will not further ripen after being picked. There are many cultivars of Asian pears with cultivar selection criteria being:

Disease resistance (fire blight, a bacterial disease, is most problematic).

Fruit flavor, shape, and skin color.

Hardiness.

Cherries, Plums, Apricots, and Peaches

Cherries, plums, apricots, and peaches are also known as “stone fruits” because their fleshy pulp surrounds a large, hard, stone-like pit. Most of these are small to medium-sized trees (up to 30 feet tall) and are relatively short-lived due to disease issues. Most stone fruits are susceptible to insect damage, especially the troublesome plum curculio, a snout beetle that feeds on fruit. Some bloom in early spring, and flowers suffer low temperature damage. Hardiness is also an issue for some of these stone fruits.

Sour cherries: Sour cherries are self-fruitful and fruits ripen in summer. Compared to sweet cherries, trees are smaller (8 to 12 feet tall) and easier to grow.

Sweet cherries: Sweet cherries are not self-fruitful (except for a few cultivars) and therefore require a compatible pollen-producing mate. Fruits are susceptible

to brown rot (fungal disease) and fruit cracking, especially if rainy weather prevails at ripening time.

Plums (Japanese and European): Japanese and European plums are generally not effective in cross-pollinating each other and each is not self-fruitful and therefore require a compatible pollen-producing mate. Fruits ripen in mid to late summer.

Apricots: Apricots are not recommended for Virginia gardens if consistent annual fruit production is desired since their late winter/early spring flowers are easily damaged by frost or low temperatures. Thus, a crop is only produced about one out of every four to five years.

Nut trees: With the exception of almond trees, which have very showy flowers (a member of the rose family), most nut trees are not known for their flowers, fall foliage color, fruit, etc. Many nut trees require cross-pollination. To ensure pollination, plant at least two different cultivars, or two plants of the same species (non-clonal), in close proximity are recommended. Almonds, walnuts, hickory, pecan, and Chinese chestnut hybrids are self-unfruitful and therefore require a pollen source (a second pollinizer cultivar). There are a few exceptions: Some Persian walnut cultivars such as ‘Hansen’ and ‘Colby’ are self-pollinating. Most nut tree vendors will supply the recommended cultivar required for cross-pollination.

Hardy pecans: Hardy pecans produce nuts that ripen in 160 days compared to the 220 of that for southern pecan cultivars. Scab (fungal disease) resistance is a must. ‘Kanza’ (zone 6 to 8) is generally scab resistant and will start producing in three to four years; this cultivar requires a pollinizer such as ‘Major’ or ‘Peruque’.

Hardy almond cultivar: ‘Halls Hardy’ almond (*Prunus dulcis* ‘Halls Hardy’), hardy in zone 5 to 8, is actually a hybrid of peach and almond. This cultivar has showy flowers (like a peach) and can be kept in a manageable size for ease of harvest with regular pruning. This cultivar is self-fertile but sets more nuts with another cultivar (pollinizer). Nuts, eaten fresh, can be bitter but some rate flavor as acceptable. Roasting or boiling them to remove bitterness is suggested. In Virginia, this type is preferable to the typical almond trees due to an earlier bloom period and less leaf disease problems.

Hybrid chestnuts: Two hybrid chestnut types are noted for their nut production. The main issue with these hybrids is that they are resistant to the notorious chestnut blight, a serious fungal disease.

Seedlings of American×Chinese hybrid, zone 5 to 9, will grow to about 35 feet tall. A single seedling is not self-fertile, so more than one plant is necessary for pollination.

Layeroka chestnut, a Chinese×European hybrid, zone 4 to 8, produces an abundance of large, sweet chestnuts. A single seedling is not self-fertile, so more than one plant is necessary for pollination. Trees can grow to 50 feet tall or taller.

Kousa Dogwood

Another notable landscape species with edible fruit is the kousa dogwood (*Cornus kousa*). A small tree, it’s hardy in zones 5 to 8. As a landscape planting, it produces showy white flowers in late spring and showy red fruit in early fall. The bark can also be attractive. Its seedy fruit, about 1 inch in diameter, has a banana/custard-like flavor. Many cultivars are available and are often chosen for their flower traits or fall foliage color. The kousa dogwood is relatively tolerant of adverse environmental conditions.



Figure 30. Kousa dogwood tree (*Cornus kousa*) in full flower; typical small tree size and form.

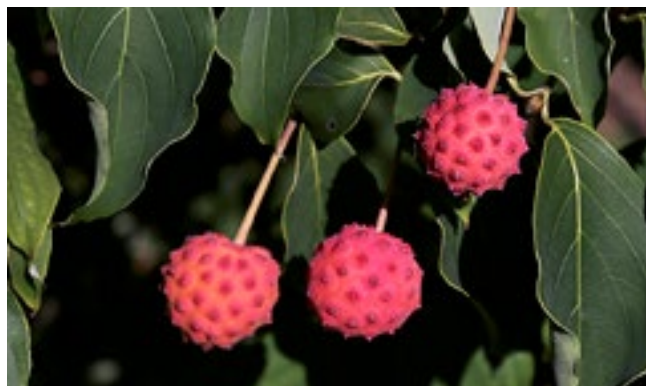


Figure 31. Fruit of the kousa dogwood tree.

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