



Encyclopedia of Fruits, Berries & Nuts

A cornucopia of photographs follows. Flavor and color descriptions are included for hundreds of fruit, berry, and nut varieties. Hardiness, time of fruiting, and special care requirements are discussed.

The information in this encyclopedia is designed to help you choose the best possible fruits for your garden. It describes the best and most popular fruits. Some varieties are known by more than one name. In these cases the most common name is used with the less well known alternatives following in parentheses.

Many varieties have chilling requirements that must be met for the fruit to develop properly. The chilling requirements are described, in terms of the number of hours of exposure to winter temperatures below 45° F. Fruits and berries that require chilling fall into one of three general categories:

Low chill 300 up to 400 hours below 45° F

Moderate chill 400 up to 700 hours below 45° F

High chill 700 up to 1000 hours below 45° F

The maps accompanying each fruit show where it is best adapted. The darkest part of the map shows where most varieties are well-adapted; the lighter part shows where you will need to use adapted varieties. You may still be able to raise the fruit in parts of the country uncolored on the map if special varieties are available for your region, or if you use special techniques, such as bringing the plants into a greenhouse for the winter.

Just because a variety is recommended for one area does not necessarily mean that it can't do well in others. Local climate, as well as special treatment from the gardener, can support plants that generally are not expected to do well in a given region.

The home orchardist's reward—a bountiful harvest.

Apples

Well over a thousand apple varieties are available today. Many of these are sports, or accidental mutations of another variety. Others, especially the more recent introductions, are the result of



painstaking crossing and selection by apple breeders. Each parent plant supplies half the heritage of seedlings, but that half may be a set of characteristics either partly or completely hidden in the parent. The seedlings are an unknown mixture until breeders grow them to fruiting size to see what characteristics they have. This work takes time, and many seedlings prove to be inferior to their parents.

Sports, or mutations, may occur at any time, often without apparent reason: Suddenly one branch of a tree is different. Occasionally the odd branch results from mechanical damage, such as pruning; sometimes experimenters purposely change genetic structure with chemicals or radiation. Most sports are worthless, but now and then one turns out to have characteristics that make it worth propagating to create a new strain.

'Delicious', which is by far the most popular and economically important apple in America, first sprouted in an Iowa orchard in 1872. Its parentage is uncertain, but one parent may have been a nearby 'Yellow Bellflower' apple. That 'Delicious' exists at all today is almost a miracle. The owner, Jesse Hiatt, cut the seedling down twice, but it resprouted each time, so finally he let it grow. In about 1880 it bore fruit that Hiatt thought was the best he'd ever tasted. The name 'Delicious' was given at

a fruit show by C. M. Stark of Stark Nurseries. Stark didn't learn the name of the grower until 1894, and by then the apple had already begun its rise to fame.

'Delicious' has produced a number of sports, including the original red sport, 'Starking'; the redder 'Richard', 'Royal Red', 'Hi Early', 'Chelan Red', and 'Red Queen'; and the spur-type 'Starkrimson', 'Redspur', 'Wellspur', 'Hardispur', and 'Oregon Spur'. 'Delicious' is also a parent of 'Melrose'.

The first seedling of 'Jonathan' sprouted in Woodstock, New York, apparently from the fruit of an 'Esopus Spitzenburg'. A Judge Buel of Albany found the apple so good that he presented specimens to the Massachusetts Horticultural Society, naming it for the man who first showed it to him. 'Jonathan' was the most important commercial variety before 'Delicious' took over.

Red sports of 'Jonathan' include 'Jon-A-Red' and 'Jonnee'. Hybrid descendants include 'Jonagold', 'Jonamac', 'Idared', 'Melrose', 'Minjon', and 'Monroe'.

The 'McIntosh' apple came from the McIntosh Nursery in Ontario, Canada. John McIntosh discovered it about 1811 but did not propagate grafted stock until 1835, when the grafting technique was perfected. Well-known descendants of 'McIntosh' include 'Summerred', 'Niagara', 'Early McIntosh', 'Puritan', 'Tydemans Red', 'Jonamac', 'Macoun', 'Empire', 'Cortland', 'Spartan', and the spur variety, 'Macspur'.

Other apples with long lines of descendants include 'Rome', 'Golden Delicious', 'Northern Spy', and 'Winesap'.

The extensive work on dwarfing rootstocks for apples has produced plant sizes ranging from a 4-foot bush to a 30-foot spreading tree. There is



An informal espaliered apple

even a true, or genetic, dwarf that stays small on any rootstock.

Spur-type apple varieties are sports of standard varieties. They grow more slowly than other plants, and their spurs are packed closer together on the branch. This less vigorous growth means that they are a kind of genetic dwarf, but they are still good-sized trees unless grafted to dwarfing roots. Spur varieties are difficult to train formally. If you buy spur varieties on dwarfing roots, use a training method that doesn't call for any particular form.

Pruning methods depend on how you grow the tree. For general pruning of the larger dwarfed trees or standard trees, see pages 40-43. For special training, turn to page 46.

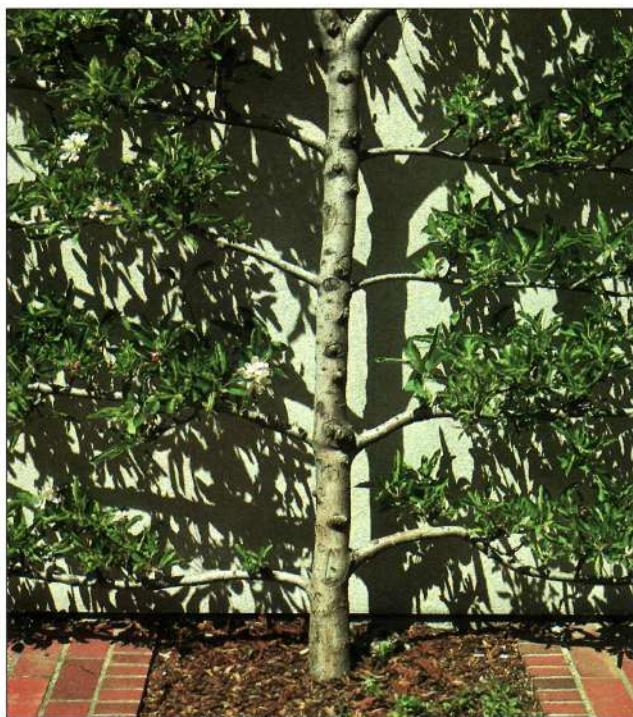
Thinning is crucial with apple varieties. If left alone the trees set too much fruit, and the heavy crop can snap branches. Even more important, many apple varieties tend to bear every other year. If you leave too much fruit you encourage this alternate bear-

ing: The following year you may find that your tree bears only a handful of apples because the large crop of the previous year has depleted the tree's reserves. Most important of all, the quality of the remaining fruit is better after thinning.

There are many thinning methods, but the best method is to make a light first thinning by the time the fruit is pea size. After this, wait for the natural drop of young fruit in June, then thin the remaining fruit so that there is a single apple every 6 inches along the branches. Each spur may have a cluster of fruit. A single fruit is less likely to become diseased, so leave only the largest fruit on each spur.

Thin carefully or you will damage the spurs or even pull them off with the young fruit. If the apples are small one year, thin more heavily the next year. If the fruit set is light but the fruit is large, thin less next season.

Most apples are self-infertile, so for a good crop most varieties need a pollinator.



A formal espalier

Almost any two kinds that bloom together offer good cross-pollination. The following varieties produce poor pollen so cannot pollinate other varieties: 'Jonagold', 'Spigold', 'Mutsu', 'Gravenstein', 'Winesap', 'Stayman', and 'Stayman' sports such as 'Blaxstayman' and 'Staymared'. If you plant one of these varieties, you will need to plant three different varieties in total to get fruit from all of them. Also, if you plant only a very early and a very late variety, they will not cross-pollinate.

All apples need some cool winter weather, but there is an enormous range in this requirement, so varieties are available for any climate except tropical and low desert regions.

Apples are subject to attack by many organisms, but the gardener will have most trouble with codling moth and other fruit-spoiling pests and with the usual aphids, mites, and scales. See the pest and disease section on pages 29–37 for further details. A regular

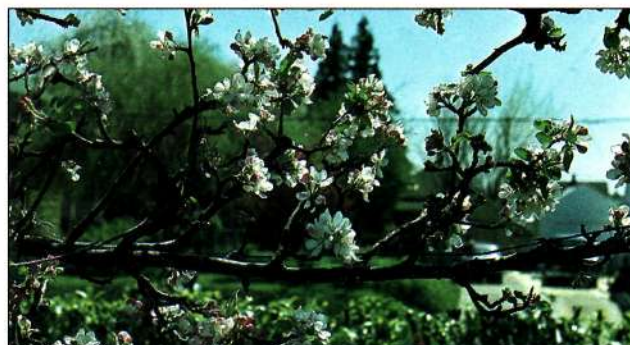
spray schedule is best. Repeated sprays can control diseases such as mildew.

Early Season Varieties

'Akane' A hybrid of 'Worcester Pearmain' and 'Jonathan', 'Akane' has bright red skin; crisp, juicy white flesh; and 'Jonathan'-like flavor. The moderately productive tree is less susceptible to fireblight than the 'Jonathan' parent is. Origin: Japan.

'Jerseymac' A 'McIntosh' cross that ripens in August, this red fruit is medium firm, juicy, and of good quality. The tree produces a crop every year and is generally available. Origin: New Jersey.

'Liberty' The medium-sized fruit is sweet and juicy, somewhat coarse-grained, and abundantly produced; the skin is almost entirely red. The tree's greatest virtue is extreme resistance to rust and scab and high resistance to fireblight and mildew. Origin: New York.



A "spur" type tree



'McIntosh'

'Lodi' The fruit is up to 3 inches in diameter, with light green skin, sometimes with a slight orange blush. The flesh is nearly white with a greenish tinge; fine grained, tender, and juicy; but sour. The eating quality is only fair, but 'Lodi' is excellent in sauce and pies. The tree tends to overset fruit and must be thinned. Widely available. Origin: New York.

'Tydeman's Early' A 'McIntosh' type, similar in shape and ripening four weeks earlier, this apple is almost entirely red from a very early stage. Fruit drops quickly at maturity and should all be picked within a few days for optimum quality and flavor. The eating quality is good and the fruit keeps much longer than most early varieties. When few other varieties are being harvested, early ripening is a virtue. One drawback is growth habit: The branches are undesirably long and lanky and need to be controlled by pruning. For best results grow this one on dwarf or semi-dwarf rootstocks. Widely available. Origin: England.

Early to Midseason Varieties

'Gravenstein' Fruit is large but not uniform, with skin that's red against light green. The greenish yellow flesh is moderately fine textured, crisp, firm, and juicy. It is excellent for eating fresh, in sauce, and in pies. The trees are strong, very vigorous, upright, and spreading. Widely available along with 'Red Gravenstein'. Origin: Germany.

'Jonamac' This 'McIntosh' type dessert apple is of very good eating quality, milder in flavor than the 'McIntosh'. Origin: New York.

'McIntosh' If you write down the attributes of a great apple—medium-to-large fruit with sweet, tender, juicy white flesh; very good fresh or in sauce, pies, or cider—you are describing 'McIntosh'. The skin is yellow with a bright red blush. The tree is strong and very vigorous. Widely available. Origin: Ontario.



'Spartan'

'Paulared' This apple rates high on several counts. It has an attractive solid red blush with a bright yellow ground color. The flesh is white to cream and nonbrowning. Its excellent, slightly tart flavor makes it good both for eating fresh and in sauce and pies. Although it colors early, for quality apples it should not be picked until nearly mature. Fruit holds well on the tree and is harvested in two pickings; it has a long storage life. The tree is everything an attractive tree should be—strong and upright, with good branch structure. Origin: Michigan.

'Prima' This juicy red apple has fair quality, but its main feature is its resistance to scab, mildew, and fireblight. Origin: Illinois.

Midseason Varieties

'Cortland' According to many apple growers, this is excellent—even better than 'McIntosh'—as a dual-purpose

apple, for eating and cooking. The tree bears heavy crops of large, red-striped fruit with white flesh that is slow to turn brown when exposed to air, making it especially suited for use in salads. The tree is strong and very vigorous, with a spreading, drooping growth habit. Widely available. Origin: New York.

'Empire' This cross between 'McIntosh' and 'Delicious' has medium, uniform fruit with dark red striped skin and whitish cream flesh that is firm, medium textured, crisp, very juicy and of excellent eating quality. A major fault is that it develops full color long before maturity, tempting the grower to harvest too early. The trees are moderately vigorous and of spreading form. Origin: New York.

'Gala' This variety gains high marks for quality as a fresh fruit with the advantage of long storage life. The medium-sized fruit is yellow brightly striped with red and borne on a large, upright tree. Origin: New Zealand.



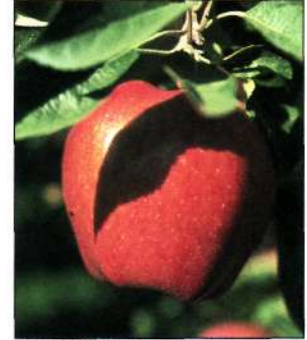
'Golden Delicious'



'Jonagold'

'Jonathan' The standard 'Jonathan' is one of the top varieties grown in commercial orchards in the Central States. The fruit is medium sized and uniform; the skin is washed red and pale yellow; and the flesh is firm, crisp, and juicy. Rich flavor makes it a good choice for snacks, salads, and all culinary uses. Trees bear heavily. Widely available. Origin: New York.

'Spartan' A cross between 'McIntosh' and 'Yellow Newtown', the fruit is medium sized, uniform, and symmetrical. It has solid dark red skin and light yellow, firm, tender, crisp, and juicy flesh. The tree is strong, moderately vigorous, and well shaped. It must be thinned to assure good size and annual bearing. Widely available. Origin: British Columbia, Canada.



'Red Delicious'

Midseason to Late Varieties

'Golden Delicious' For a great eating and cooking apple, 'Golden Delicious' ranks as high as any. The fruit is medium to large and uniform in size. The skin is greenish yellow with a bright pink blush. The flesh is firm, crisp, juicy, and sweet—excellent fresh and in desserts and salads, and very good for sauce. The tree is of medium height, moderately vigorous, upright, and round, with wide-angled crotches. It bears very young and continues to bear annually if thinned. This is an excellent pollinator and will set some crop without cross-pollination. Widely available. Origin: West Virginia.

'Jonagold' A cross of 'Jonathan' and 'Golden Delicious', this is a beautiful large apple with a lively yellow-green ground color and bright red blushes. The cream-colored flesh is crisp and juicy and has good flavor. It is good for cooking, is among the very best apples for fresh eating, and stores well. The trees are vigorous with wide-angled branches. Origin: New York.



'Granny Smith'



'Idared'



'Mutsu'



'Northern Spy'

'Red Delicious' The number one supermarket apple. there is no question about its dessert and fresh-eating quality. The fruit is medium to large with striped to solid red skin. The flesh is moderately firm in texture and very sweet and juicy. Your best choices are the red sports such as 'Wellspur' or 'Royal Red'. The tree tends to produce full crops every other year unless properly thinned for annual bearing. Widely available. Origin: Iowa.

'Yellow Newtown' The medium-sized fruit has greenish yellow skin and crisp, firm flesh. It is good for eating fresh and excellent for sauce and pies. The trees are strong and vigorous. Widely available. Origin: New York.

Late Varieties

'Fuji' This variety is later to ripen than 'Granny Smith' and, like that variety, needs a long growing season (at least 200 days). Origin: Japan.

'Granny Smith' The fruit is medium to large and bright glossy green. The flesh resembles 'Golden Delicious' but is more tart. It is very good eaten fresh or in desserts, salads, sauce, and pies. The tree is strong, vigorous, upright, and spreading, but it can only be grown in areas with a very long growing season. It has recently become the favorite tart apple in groceries. Widely available. Origin: Australia.

'Idared' A cross of 'Jonathan' and 'Wagener', this hybrid has an attractive, nearly solid red skin with a smooth finish. The large, uniform fruit has white, firm, smooth-textured flesh that is excellent for eating fresh and for cooking. It has a long storage life. The tree is vigorous, upright, and productive. Widely available. Origin: Idaho.

'Mutsu' A cross of 'Golden Delicious' and the Japanese 'Indo', this relative newcomer has gained the approval of both growers and consumers. Large, oblong, greenish fruit develops some yellow color when mature. The flesh is coarse, firm, and crisp. The flavor is excellent (tarter than 'Golden Delicious') when eaten fresh, and it is good for sauce, pies, and baking. Unlike 'Golden Delicious' it does not shrivel in storage. The tree is vigorous and spreading. Origin: Japan.

'Northern Spy' Trees of this variety are very slow to begin bearing; sometimes 14 years elapse before they produce their first bushel (but they bear much sooner on dwarf rootstock). The fruit is large, with yellow and red stripes, and the flesh is yellowish, firm, and crisp. The quality is excellent fresh and for pies. The fruit bruises easily, but has a long storage life. Trees are vigorous and bear in alternate years. Widely available. Origin: New York.

'Rome Beauty' This variety and its sports are the world's best baking apples. Many red sports (such as 'Red Rome') are available in a beautiful, solid medium-dark red. The fruit is large and round, and the flesh is medium in texture, firm, and crisp. The tree is moderately vigorous, starts to produce at an early age, and is a heavy producer. The fruit has a long storage life. Widely available. Origin: Ohio.

'Stayman' This variety is a very late ripener. Where it can be grown, it is good for cooking or eating fresh. The fruit is juicy with a moderately tart, rich, winelike flavor. The skin is bright red and has a tendency to crack. The flesh is fine-textured, firm, and crisp. The tree is medium sized and moderately vigorous. Widely available. Origin: Kansas.

Extrahardy Varieties

In cold-winter areas where some of the favorite apple varieties are subject to winter damage, gardeners may choose one of three hardy varieties developed by the University of Minnesota.

'Honeygold' Midseason to Late. This apple boasts a 'Golden Delicious' flavor. The fruit is medium to large with golden to yellowish green skin and yellow flesh that is crisp, smooth, tender, and juicy. It is good for eating fresh and in sauce and pies. The tree is moderately vigorous. Origin: Minnesota.

'Red Baron' Midseason. This cross of 'Golden Delicious' and 'Red Duchess' has round, medium-sized fruit with cherry-red skin. The flesh is crisp and juicy with a pleasantly tart flavor. It is good eaten fresh or in sauce and pies. Origin: Minnesota.

'Regent' Late. This variety is recommended for a long-keeping red winter apple. The fruit is medium sized, with bright red skin and crisp-textured, creamy white, juicy flesh. Rated excellent for cooking or eating fresh, it retains its fine dessert quality late into winter. The tree is vigorous. Origin: Minnesota.

Low-Chill Varieties

'Anna' Early. This apple flowers and fruits in Florida and Southern California. The apple is green with a red blush and fair quality. It is normally harvested in July but sometimes sets another late bloom that produces apples for the fall. Use an early blooming variety such as 'Dorsett Golden' or 'Ein Shemer' as a pollinator. Origin: Israel.

'Beverly Hills' Early. This is a small to medium-sized apple, striped or splashed with red over a pale yellow skin. The flesh is tender, juicy, and

tart. Overall the apple resembles 'McIntosh'. Use it fresh or cook it in sauce or in pies. The tree is suited mainly to cooler coastal areas, since heat spoils the fruit. Locally available. Origin: California.

'Dorsett Golden' Early. This large 'Golden Delicious'-type fruit requires no frost or significant winter chill and performs well in coastal Southern California and the hot-summer regions of the Deep South. Use it for eating fresh or for cooking. A good pollinator for 'Anna' and 'Ein Shemer'. Origin: Bahamas.

'Ein Shemer' Early. This is another 'Golden Delicious'-type fruit that is well-adapted to the Deep South, Texas, and Southern California. The tree begins bearing at an early age. Makes a good copollinator for 'Dorsett Golden'. Origin: Israel.

'Gordon' Early to midseason. The crisp flesh is enclosed in red-striped green skin. The blooming and bearing period is unusually prolonged—August to October in California. It performs particularly well in coastal Southern California. The fruit is good both for eating fresh and for cooking. Self-fruitful. Origin: California.

'Winter Banana' Midseason. The large fruit is strikingly beautiful. The skin color is pale and waxy with a spreading pink blush. The flesh is tender, with a wonderful aroma and tangy flavor. 'Winter Banana' requires a pollinator such as 'Red Astrachan' in order to set a good crop. Locally available. Origin: Indiana.

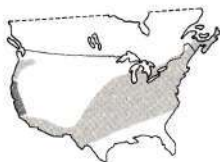
'Winter Pearmain' Midseason. This large green apple has moderately firm flesh of excellent quality. It is a consistent producer in Southern California. Origin: Unknown.



'Sungold'

Apricots

In the colder regions of the country, the selection of apricot varieties is limited because apricots bloom early and may suffer frost damage. In recent years, however, breeders have produced a number of hybrids



with hardy Manchurian apricots, and now varieties such as 'Chinese' will fruit fairly regularly even in the northern plains. The choice of varieties widens in milder regions, and more tender varieties such as 'Moorpark' will bear even in the eastern states.

Dwarfed apricots on special rootstocks produce fair-sized trees, and a full-sized tree will fill a 25-foot-square site, but you can train the tree to branch high and use it in the landscape as a shade tree. Trees are fairly long-lived and

may last from 15 to 30 years, depending on care.

Many apricots are self-fertile, but in colder regions it is usually best to plant a second variety for pollination to encourage the heaviest fruit set possible. Frost may thin much of the young fruit.

Thinning is generally natural, either from frost or from natural drop in early summer. If your tree sets heavily, you will get larger apricots by thinning to 2 inches between each fruit. For pruning and training details, see page 46.

Apricots can also be used as stock plants for grafts. Plums do well on apricot stock, and peaches may take, although the union is weak. Your apricot tree can bear several different fruits over a long season.

Brown rot and bacterial canker are serious pests.



'Moorpark'

Varieties

Check for climate adaptability and pollinating requirements, and be sure to buy hardy trees in the colder regions.

'Blenheim' ('Royal') This is the best eating, drying, and canning apricot in California. The fruit is medium sized and flat orange with some tendency to have green shoulders. It requires moderate chilling and will not tolerate excessive heat (over 90° F) at harvest time. Origin: England.

'Chinese' ('Mormon') Its Utah birthplace marks this variety as a good choice for the coldest regions of the West's apricot climates. Late flowering gives blossoms a chance to escape late frosts. Trees bear heavy crops of small, sweet, juicy fruit at an early age. Origin: Utah.

'Flora Gold' This genetic dwarf apricot reaches about half the size of a full-sized tree. Its small to medium-sized fruit is of high quality—best for eating fresh and for canning. The heavy crop ripens early, about a month before 'Blenheim'. Moderate-chill requirement. Origin: California.

'Goldcot' Late flowering, late bearing, and hardiness to -20°F recommend this variety to midwestern and eastern growers. The medium-sized to large fruit is tough-skinned and flavorful, good for eating fresh and for canning. Self-fruitful. Origin: Michigan.

'Harcot' Another cold hardy variety with late flowering but early ripening. Fruit is medium to large and flavorful. Heavy-bearing, compact trees resist brown rot and are somewhat resistant to bacterial spot. Origin: Ontario, Canada.

'Harogem' Small to medium-sized fruit is blushed bright red over orange; the flesh is firm. This variety ripens in midseason and the fruit is especially long-lasting when picked. The tree is resistant to perennial canker and brown spot. Origin: Ontario, Canada.

'Moorpark' This variety, dating from 1760, is considered by many to be the standard of excellence among apricots. The large fruit is orange with a deep blush, sometimes overlaid with dots of brown and

red. The flesh is orange and has excellent flavor and a pronounced and agreeable perfume. Ripening is uneven, with half the fruit still green when the first half is already ripe. This is an advantage in the home garden, since the gardener does not have to use the fruit all at once. The tree does well in all but the most extreme climates. Widely available. Origin: England.

'Perfection' ('Goldbeck') The fruit is very large, oval and blocky, and light orange-yellow without a blush. The flesh is bright orange and of fair quality. The tree is vigorous and hardy but blooms early and so is uncertain in late-frost areas. Since it requires little winter chill it will grow in mild-winter areas. It needs a separate pollinator and sets a light crop. Good for the South and West. Origin: Washington.

'Rival' Its northwestern origins make 'Rival' especially well adapted there. Large, heavily blushed fruit is firm, mild flavored, and particularly good for canning. The tree is

large and rangy, blooms early, and needs another early-flowering pollinator such as 'Perfection'. Origin: Washington.

'Royal Rosa' This is a good choice for fresh-off-the-tree eating. The bright yellow fruit is firm fleshed and aromatic with a tart tang to its sweetness. The compact, medium-sized tree bears heavy crops early in the season. Origin: California.

'Scout' This variety originally came from a Manchurian fruit experiment station. The flat, bronzy fruit is medium to large with deep yellow flesh. It is good fresh and can also be canned or used in jams. The tree is tall, upright, vigorous, and hardy. The fruit ripens in late July. Good for the Midwest. Origin: Manitoba.

'Sungold' This is a selection from the same cross as 'Moon-gold', and the two must be planted together for pollination. The fruit is rounded and of medium size, with a tender, golden skin blushed orange. The flavor is mild and sweet, and the fruit is good fresh or preserved. The tree is upright, vigorous, and of medium size. The fruit ripens somewhat later than 'Moongold'. Good for all zones. Origin: Minnesota.

'Tilton' The vigorous tree bears heavily most years. The fruit is yellow-orange and tolerates heat when ripening. It has a high-chill requirement (over 1,000 hours below 45° F) but performs well in hot summer climates. Origin: California.

'Wenatchee' The fruit is a large, flattened oval with orange-yellow skin and flesh. Trees are fairly long lived and may last from 15 to 30 years, depending on location and care. The tree does well in the Pacific Northwest and the West. Origin: Washington.



An espaliered cherry tree



'Black Tartarian'

Cherries

Cherries come in three distinct forms with many varieties in each category. The *sweet cherry* sold in markets is planted commercially in the coastal valleys of California and in the Northwest, espe-

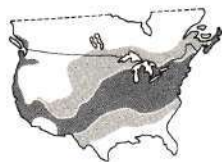


cially Oregon. There are also extensive commercial plantings near the Great Lakes.

All cherries require considerable winter chilling, which rules out planting in the mildest coastal and Gulf climates, but they are also damaged by early intense cold in fall and by heavy rainfall during ripening. Sweet cherries are especially tricky for the home gardener, but try them where summer heat and winter cold are not too intense.

Sour, or pie, cherries are more widely adaptable and are good for cooking and canning. These are the most reliable for home gardeners, and there are

many varieties developed for special conditions. The dwarf 'Meteor' and 'Northstar' pie cherries were developed for



Minnesota winters. These and 'Early Richmond' and 'Montmorency' can all withstand both cold and poor spring weather better than sweet cherries.

Sour cherries are all self-fertile and there are two types: the amarelle, with clear juice and yellow flesh; and the morello, with red juice and flesh. In the coldest northern climates, the amarelle is the commercial cherry.

Duke cherries are hybrids with the shape and color of sweet cherries and the hardiness, flavor, and tartness of sour cherries.

Standard sour cherries and sweet cherries on dwarfing roots both reach 15 to 20 feet. A standard sweet cherry with-

out a dwarfing rootstock is one of the largest fruit trees and can equal a small oak in size if the climate permits. Such cherries can serve as major shade trees.

See page 47 for pruning and training information.

All sweet cherries, with the exception of 'Stella', need a pollinator. 'Windsor', 'Van', and 'Black Tartarian' are good pollinators and bear well, but always plant at least two varieties or use a graft on a single tree. Sour cherries are self-fertile.

Dwarf pie cherries have lovely flowers and make fine hedges and screens. They produce good crops and larger cherries can be grafted onto them for a choice of fruit and good pollination.

Birds are the major pests, but cherries also need protection from fruit flies, pear slugs (actually an insect larva), and bacterial leaf spot.

For any cherry, check the recommended climate. If you try a cherry outside its growing zone, offer protection in fall and winter.

Early Season Varieties

'Black Tartarian' Medium-sized, this sweet black cherry is fairly firm when picked but softens quickly. It is widely planted because it is one of the earliest cherries and an excellent pollinator. The trees are erect and vigorous. Use any sweet cherry as a pollinator. Good for all zones. Widely available. Origin: California.

'May Duke' This duke cherry produces medium-sized, dark red fruit of excellent flavor for cooking or preserves. In cold climates use an early sweet cherry for pollination. In mild climates it is self-fertile. Good for the West. Origin: France.

'Northstar' This is a genetic dwarf sour morello, excellent for the home garden. It has red fruit and flesh and resists cracking. The tree is small, attractive, vigorous, and hardy and resists brown rot. The fruit ripens early but will hang on the tree for up to two weeks. Good for all zones. Widely available. Origin: Minnesota.



'Bing'

'Sam' This medium to large, black-fruited sweet cherry is firm, juicy, and of good quality. The fruit resists cracking, and the tree is very vigorous, bearing heavy crops. Use 'Bing', 'Lambert', or 'Van' as a pollinator. Good for the North and West. Widely available. Origin: British Columbia.

Midseason Varieties

'Bing' This variety is the standard for black sweet cherries. The fruit is deep mahogany red, firm, and very juicy. It is subject to cracking and doubling. The tree is spreading and produces heavy crops but suffers from bacterial leaf spot attack in humid climates. It is not easy to grow, although it is quite popular. Use 'Sam', 'Van', or 'Black Tartarian' as a pollinator (not 'Royal Ann' or 'Lambert'). Good for the West. Widely available. Origin: Oregon.

'Chinook' Like 'Bing' this variety has large, heart-shaped, sweet fruit with mahogany skin and deep red flesh. The tree is spreading,



'Montmorency'

vigorous, and a good producer. It is slightly hardier than 'Bing'. Use 'Bing', 'Sam', or 'Van' as a pollinator. Good for the West. Origin: Washington.

'Corum' This sweet variety is the recommended pollinator for 'Royal Ann' in the Pacific Northwest. The fruit is yellow with a blush and thick, sweet, firm flesh. It is moderately resistant to cracking and is a good canning cherry. The tree is fairly vigorous. Use 'Royal Ann', 'Sam', or 'Van' as a pollinator. Good for the West. Locally available in the Pacific Northwest. Origin: Oregon.

'Emperor Francis' This large, yellow, blushed cherry resembles 'Royal Ann' but is redder and more resistant to cracking. The sweet flesh is very firm. The tree is very productive and hardier than 'Royal Ann'. Use 'Rainier' or 'Hedelfingen' as a pollinator (not 'Windsor' or 'Royal Ann'). Good for the North. Origin: unknown—European.

'Garden Bing' This genetic dwarf plant remains only a few feet high in a container but grows to perhaps 8 feet in the ground. It is self-pollinat-

ing and bears sweet, dark-red fruit like 'Bing'. Good for the West. Origin: California.

'Kansas Sweet' ('Hansen Sweet') This is not really a sweet cherry but a fairly sweet form of the pie cherry group. The fruit is red and has firm flesh that is palatable fresh as well as in pies. The tree and blossoms are hardy in Kansas. It is self-fertile. Good for the North. Origin: Kansas.

'Meteor' This amarelle sour cherry is a genetic dwarf that reaches only about 10 feet tall. The fruit is bright red and large for a pie cherry, with clear yellow flesh. The tree is especially hardy but also does well in milder climates and is an ideal home garden tree for all cherry climates. Good for all zones. Widely available. Origin: Minnesota.

'Montmorency' This amarelle is the standard sour cherry for commercial and home planting. The large, brilliant red fruit has firm yellow flesh and is strongly crack resistant. The tree is medium to large, vigorous, and spreading. Various strains have slightly



'Royal Ann'

different ripening times and fruit characteristics. Good for all zones. Widely available. Origin: France.

'Rainier' In shape this sweet cherry resembles 'Bing', but it is a very attractive blushed yellow like 'Royal Ann' with firm, juicy flesh. The tree is vigorous, productive, and spreading to upright spreading. It is particularly hardy. Use 'Bing', 'Sam', or 'Van' as a pollinator. Good for the South and West. Origin: Washington.

'Royal Ann' ('Napoleon') This very old French sweet variety is the standard for blushed yellow cherries. It is the major cherry used in commercial candies and maraschino cherries. The firm, juicy fruit is excellent fresh and good for canning. The tree is very large, extremely productive, and upright, spreading widely with age. The tree is moderately hardy. Use 'Corum', 'Windsor', or 'Hedelfingen' as a pollinator (not 'Bing' or 'Lambert'). Good for all zones. Widely available. Origin: France.



'Stella'



'Lambert'

'Schmidt' 'Bing' is being replaced by 'Schmidt' as a major commercial black cherry in the East. The fruit is large and mahogany colored with thick skin. The wine-red flesh is sweet but somewhat astringent. The large vigorous tree is upright and spreading. It is hardy, but the fruit buds are fairly tender. Use 'Bing', 'Lambert', or 'Royal Ann' as a pollinator. Good for the North and South. Widely available. Origin: Germany.

'Stella' This is the first true sweet cherry that is self-fertile (requiring no pollinator). The fruit is large, dark in color, and moderately firm. The tree is vigorous and fairly hardy and bears early. It can be used as a pollinator for any other sweet cherry. Good for the South and West. Origin: British Columbia, Canada.

'Utah Giant' This new sweet variety produces large, dark red fruit that has been compared to the quality of 'Bing' and 'Lambert'. The fresh fruit is excellent, and in

canning it retains its color, firmness, and flavor. Good for the West. Origin: Utah.

'Van' Large and dark, this sweet cherry has some resistance to cracking. The tree is very hardy and especially good in borderline areas, since it has a strong tendency to over-set and therefore may produce a crop when other cherries fail. It bears from one to three years earlier than 'Bing'. Use 'Bing', 'Lambert', or 'Royal Ann' as a pollinator. Good for all zones. Widely available. Origin: British Columbia, Canada.

Late Varieties

'Angela' This large, dark cherry is comparable to 'Lambert' but is hardier and late flowering, so its blossoms are not likely to be frost damaged. The sweet fruits are more resistant to cracking than those of 'Lambert'; the tree is easier to manage, vigorous, and very productive. For pollinators, use 'Emperor Francis' or 'Lambert'. Origin: Utah.

'Black Republican' ('Black Oregon') This sweet cherry is firm and very dark with slightly astringent flesh. The

tree is quite hardy but tends to overbear heavily and produce small fruit. Use any sweet cherry as a pollinator. Origin: Oregon.

'English Morello' This late-ripening morello sour cherry is medium sized, dark red, and crack resistant. The tart, firm flesh is good for cooking and canning. The tree has drooping branches and is small and hardy but only moderately vigorous and productive. Good for the North. Origin: Unknown.

'Hedelfingen' The sweet variety bears dark, medium-sized fruit with meaty, firm flesh. One strain resists cracking, but some trees sold under this name do not. The tree is winter hardy, has a spreading and drooping form, and bears heavily. Use any sweet cherry listed here as a pollinator. Good for the North and South. Origin: Germany.

'Lambert' This large, dark, sweet cherry is similar to 'Bing' but ripens later. The tree is more widely adapted than 'Bing' but bears erratically in many eastern areas

and is more difficult to train and prune. The strongly upright growth produces weak crotches if left untrained. Use 'Van' or 'Rainier' as a pollinator (not 'Bing', 'Royal Ann', or 'Emperor Francis'). Good for all zones. Widely available. Origin: British Columbia.

'Late Duke' This large, light red duke cherry ripens in late July. Use it for cooking or preserves. In cold climates it requires a sour cherry pollinator. In mild climates it is self-fertile. Good for the West. Origin: France.

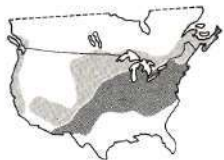
'Windsor' This is the standard late, dark, commercial sweet cherry in the East. The fruit is fairly small and not as firm as 'Bing' or 'Lambert'. Its buds are very hardy, and it can be counted on to bear a heavy crop. A fine choice for difficult borderline areas where others may fail, the tree is medium sized and vigorous with a good spread. For a pollinator, use any sweet cherry except 'Van' and 'Emperor Francis'. Good for the North and South. Widely available. Origin: Unknown.



'Siberian Crab'

Crabapples

Fine for jellies or pickled whole fruit, crabapples are also the most decorative of fruit trees. Flowers range from red to pink to white. The fruits are of many sizes, from tiny cherrylike varieties to large,



yellow, pink-cheeked kinds. The varieties sold for their flowers also have edible fruit, but the large-fruited varieties are better if your aim is to grow the fruit for jelly.

Crabapples range from small, 10-foot trees to spreading trees 25 feet tall. The large-fruited kinds are larger trees. If you have no space but want a light crop for jelly, graft a branch to an existing apple tree. All types are self-fertile, but you can graft several kinds that bloom at different times onto one tree to extend the flowering season.

Crabapples are subject to the same diseases as apples,



'Hyslop' blossom



'Young America'

and scab is a major problem for some varieties. Choose resistant kinds.

Varieties

The following includes both large-fruited kinds and those that are mainly ornamental, but all offer a good crop of smaller fruits. Use red- or pink-fruited varieties if you want pink jelly.

'Barbara Ann' This ornamental offers dark, reddish purple, ½-inch fruit with reddish pulp. The tree produces a profusion of 2-inch, purple-pink, full, double flowers. It grows to about 25 feet tall and is reasonably disease resistant. Origin: Massachusetts.

'Chestnut' This very large, bronze-red crabapple is big enough to make a good dessert or lunchbox fruit, and can also be used to make a deep pink jelly. Its flavor is especially pleasing. The tree is very hardy, medium sized, and reasonably disease resistant. Origin: Minnesota.

'Dolgo' The smallish, oblong red fruit is juicy and, if picked before fully ripened, gels easily into a ruby-red jelly. The tree is hardy, vigorous, and productive. The fruit ripens in September. Widely available. Origin: Russia.

'Florence' The large yellow fruit has an attractive red blush. Use it for pale pink jelly or for pickling whole. The tree is medium sized and somewhat tender, so it is best planted in warmer regions. It ranges from fairly to very productive. Widely available. Origin: Minnesota.

'Hyslop' This medium-sized fruit is yellow blushed with red. Use it whole for relishes or for pale pink jelly. The tree is fairly hardy and ornamental, with single pink flowers. Origin: Unknown.

'Katherine' The tiny fruit of this variety is an attractive yellow with a heavy red blush. It can be made into a pink jelly. The tree is small, slow growing, and fairly hardy, but it flowers and fruits only every other year. It grows about 15 feet tall and is reasonably disease resistant. It has double

flowers that open pink and then fade to white. Origin: New York.

'Montreal Beauty' This medium-sized green crabapple with red striping makes good jelly on its own or is a good base for mint or rose geranium jellies. The tree is medium to large, hardy, and fairly disease resistant. Locally available. Origin: Quebec, Canada.

'Profusion' The tiny scarlet fruit of this variety is good in jellies. The tree spreads only slightly, is small (about 15 feet), and produces small single flowers that are deep red in bud and open to purplish red to blue pink. It is moderately susceptible to mildew. Origin: Holland.

'Siberian Crab' This variety bears an abundance of clear scarlet, medium-sized fruit that can be jellied or pickled whole. The tree is vase-shaped and reaches 15 to 30 feet tall, depending on climate and soil. The 1-inch-wide white flowers are fragrant. Some strains are disease resistant, and some are not. Origin: Russia.

'Transcendent' These large yellow crabapples are blushed with pink on one side. Use them for clear jellies or eat them fresh if you like the wild, astringent flavor. The tree is medium to large and somewhat disease resistant, but not very hardy. Origin: Unknown.

'Whitney' An old favorite, this variety has very large fruit, good for fresh eating, jelly, preserves, and apple butter. The fruit is yellow with red stripes. The tree is hardy, medium to large, and reasonably disease resistant. Widely available. Origin: Illinois.

'Young America' The large and abundant red fruit on this variety makes a clear red jelly with splendid flavor. The tree is especially vigorous, and the fruit ripens about mid-September. Origin: New York.

Figs

Although the fig is generally thought of as a subtropical fruit suited mainly to the warmer parts of the country, some varieties will bear in the milder parts of the



Northwest and Northeast. If a freeze knocks the plant down, it will sprout again quickly.

In warm regions the fig bears big, juicy fruit in early summer, then sets a heavier crop of small fruit, perfect for drying, in the fall. It lives for many years, loves clay soil if drainage is good, and needs next to no attention. You have a choice of dark fruit with red flesh or greenish-yellow fruit with bright pink flesh.

In cold-winter regions fig shrubs reach 10 feet tall and spread that much or more. In warm regions trees reach 15 to 30 feet and spread wide and low, but you can easily cut them back or confine them. Figs can also be grown as container plants for use on a patio, allowing you to protect them in winter by moving the container to a garage or storage area.

Figs are not really fruit in the botanical sense. They are flowers, borne on the inside of a balloonlike stem and accessible to the outside world only through a hole at the base.

Most home garden varieties of figs need no pollination. The California commercial fig, 'Calimyrna', does need a special type of pollinating and is not recommended for home use.

No fruit thinning is necessary and figs need no attention to pests or disease. See page 48 for pruning and training information.



A heavily pruned old fig tree



'Brown Turkey'

Varieties

'Adriatic' The fruit is green skinned with a strawberry-pink pulp. In hot areas the second crop has a paler pulp, and in cool areas the fruit of both crops is larger. The tree is vigorous and large. This fig is used principally for drying and for processing into figbars in California. Locally available. Origin: Italy.

'Brown Turkey' There are two 'Brown Turkey' varieties.

'Brown Turkey' of California ('Black Spanish', 'Negro Largo', 'San Piero') A good variety for fresh use, the large fruit is violet-brown to purplish black on the outside and strawberry-pink inside. Prune heavily. Origin: Italy.

'Brown Turkey' of the eastern United States The medium-sized fruit is coppery brown with strawberry-pink pulp. The flavor is very good. Good for container culture.

'Celeste' ('Blue Celeste', 'Celestial', 'Malta', 'Sugar') The bronzy fruit has a violet tinge and the pulp is amber with rose tones. 'Celeste' is the most widely recommended fig

in the Southeast but is also grown in the West. A hardy plant. Origin: Malta.

'Conadria' One parent is 'Adriatic'. The fruit is thin skinned and white with a violet blush. The red flesh resists spoilage. The tree is vigorous and precocious, producing two crops. Recommended for the hot valleys of California. Locally available. Origin: California.

'Kadota' ('Florentine') The fruit is tough skinned and greenish yellow, and the first crop has a richer flavor. This is principally a canning and drying variety. Recommended for hot California valleys. Origin: Italy.

'King' ('Desert King') The fruit is green with flecks of white; the pulp is violet-pink. The tree comes back from the roots after a freeze and bears in fall. Recommended for Oregon fig climates. Locally available. Origin: California.

'Latterula' ('White Italian Honey Fig') This large greenish yellow fig with honey-colored pulp grows on a very hardy tree that bears



'Mission'

two crops. Recommended for Oregon fig climates. Locally available. Origin: Italy.

'Magnolia' ('Brunswick', 'Madonna') This is a large straw-colored fig on a fairly hardy tree. Recommended for the Southeast. Origin: England.

'Mission' ('Black Mission') This variety bears two heavy crops of black fruit with deep red pulp. The first crop has larger fruit; the second crop can be dried. The tree is large and vigorous. Recommended for California and desert regions but also grown in warmer southeastern zones. Origin: Spain—but came to California via Mexico.

'Texas Everbearing' ('Dwarf Everbearing') The fruit and tree resemble 'Brown Turkey'. This variety will resprout after a freeze kills the top. Recommended for the South.

Also check the local availability of 'Granata', 'Negrone', and 'Neveralla' in Oregon; 'Genoa' ('White Genoa') and 'Osborne Prolific' on the California coast; and 'Green Ischia' and 'Hunt' in the Southeast. Origin: Texas.

Peaches

The peach is one of the most popular of homegrown fruits. Both peaches and their close relatives, the nectarines, are at their best when tree ripened, so a home gardener's time and effort are rewarded



by a product that money can't buy. Probably the biggest drawback is that peaches are susceptible to many pests and diseases and spraying is often necessary for a good harvest. If you choose not to spray your peach trees you will have to be prepared to lose some or all of your crop in a bad year.

Peaches cannot tolerate extreme winter cold or late frost, so in the northern Plains States and northern New England, peaches are purely experimental. The hardiest, such as 'Reliance', may survive and bear in a protected spot, but you can't be sure. Peaches do well in the more temperate climates near the Great Lakes, but choose the warmest site available for planting. A protected sunny spot where cold air can't collect and sit is the right place for your tree.

Some of the greatest peach-growing country in the world is in the West: California alone produces 50 percent of the commercial peaches in the United States. Peaches also do well in South Carolina, Georgia, semicoastal areas of the East, and dry areas of Washington.

To produce great peaches the climate must fulfill high-chill requirements (700 to 1,000 hours of cold winter weather at 45° F or below) unless otherwise stated. This should be followed by warm dry spring weather and hot summers. Gardeners not blessed with this prime cli-

mate can grow satisfactory fruit by selecting the right varieties for their own gardens. Selected low-chill varieties can fruit well in all subtropical climates but southern Florida.

The standard tree on a peach rootstock grows to about 15 feet tall and 15 feet wide. It could grow larger if left alone, but it is best pruned heavily each year to maintain that size and to encourage lots of new growth along the branches.

A totally satisfactory dwarfing rootstock for peaches has yet to be found. However, the genetic dwarf peaches grow in bush shape to about 4 to 7 feet tall and require no pruning to maintain size or force growth. At most you will clip out tangles and remove broken twigs. Genetic dwarfs are a good choice for patio containers or small yards. You won't have any trouble fitting a genetic dwarf peach into whatever space is available to you.

In the home garden peach trees can be planted two or three to a hole if the varieties are well chosen. This will spread the harvest over several weeks. Dig an extra large planting hole and set two to three varieties together with their roots almost touching. You can also graft different limbs to different varieties and have three varieties on a single tree.

Once a crop sets on a peach tree, you may not even see the branches through all the fruit. You can't leave it all on the tree because it will be small and of poor quality, it slows branch growth, and it may snap branches. Thin it out when it reaches thumbnail size. For early-season peaches, leave 6 to 8 inches of space between fruit; for late season peaches, leave 4 to 5 inches between fruit.

If a frost knocks off much of your crop, leave all the remaining fruit, even if it is clustered. What is important is the ratio of leaf surface to peaches, so a sparse crop will do equally well in singles or bunches.

Only a few peach varieties need a pollinator. Normally the trees are self-fertile, although bees are a big help in pollen transfer.

All peaches like a winter rest. Without it they bloom late, open their leaves erratically, and finally die. Be sure to choose varieties that suit your climate. Low-chill peaches have been bred for short, mild winters and may bloom too early or freeze in the North. Be sure to buy hardy, high-chill varieties for the North. A high-chill peach will leaf out and flower erratically in southern Mississippi, while a low-chill peach may try to bloom before the last frost in Tennessee.

The universal peach ailment in the West is leaf curl, but you can control it easily with a copper spray. You will also probably encounter the major insect pest, the peach tree borer, gnawing the trunk at ground level. Brown rot attacks fruit but is controllable with sprays. In the East and South, check the list for varieties resistant to bacterial spot. Brown rot and plum curculio are the chief pests in the North and South. See pages 29-37 for control methods.

Very Early Varieties

'Desert Gold' This medium-sized, round fruit has yellow skin with a red blush. The flesh is yellow, firm, and semifreestone. The tree is fairly vigorous and productive and requires heavy thinning. The chilling requirement is very low: 200-300 hours. Good for the desert and coastal areas of the West. Origin: California.

'Springtime' The small to medium-sized fruit has yellow skin with a high blush and abundant short fuzz. The flesh is white and semifreestone. Good for the West. Origin: California.

'Tejon' The medium-sized fruit is yellow with a red blush over half its surface; light fuzz. The yellow flesh is semifreestone. The tree bears very well. Good for the West, particularly Southern California. Locally available. Origin: California.

Early Varieties

'Fairhaven' This large peach is bright yellow with an attractive red cheek and light fuzz. The firm freestone flesh is yellow with red at the pit. The fruit freezes well. The tree has showy flowers. Good for the West. Origin: Michigan.

'Flavorcrest' A large, firm, yellow freestone with good flavor, its skin is blushed red. Good for California. Origin: California.

'Garnet Beauty' This variety is an early sport of 'Redhaven'. Medium to large semifreestone fruit hangs on the tree until overripe. The firm flesh is yellow streaked with red and is slightly fibrous. The tree is vigorous and hardy and produces heavy crops that achieve good size and color even inside the tree. It is susceptible to bacterial leaf spot. Good for the North. Widely available. Origin: Ontario, Canada.

'Golden Jubilee' An old standby, this medium to large freestone has skin mottled bright red. The flesh is yellow, firm, and coarse. The tree is hardy and sets heavy crops but is self-thinning. Good for all zones. Widely available. Origin: New Jersey.



'Redhaven'

'Redhaven' One of the finest early peaches, this medium-sized freestone is widely recommended. The skin is deep red over a yellow ground. The flesh is yellow, firm, and non-browning. Fruit sets heavily and is good for freezing. This tree needs heavy thinning but rewards with outstanding fruit. The tree is spreading, vigorous, and highly productive and resists bacterial leaf spot. Good for all zones. Widely available. Origin: Michigan.

Note: 'Early Redhaven' is nearly identical, but two weeks earlier.

'Redtop' The large fruit is nearly covered with an attractive blush and light fuzz. The yellow freestone flesh is unusually firm and good for canning or freezing. The tree is moderately vigorous and somewhat susceptible to bacterial leaf spot. The flowers are showy. Good for the West. Origin: California.

'Reliance' A promising home garden variety, this tree is very winter hardy. It will

withstand -20° to -25° F in January and February and will still produce a crop that same year. The large freestone fruit has dark red skin over a yellow background. The flesh is bright yellow, medium firm, and slightly stringy. The flowers are showy. Good for the North and West. Widely available. Origin: New Hampshire.

'Springcrest' This is a medium-sized, flavorful, yellow freestone variety. The tree is vigorous and productive and has showy flowers. The fruit matures in late May. Good for the West. Origin: California.

'Sunhaven' The skin of this medium to large peach is bright red over a golden ground and has short, soft fuzz. The firm, fine-textured, and nonbrowning flesh is yellow flecked with red. The tree is vigorous and consistently productive. Recommended for all zones. Widely available. Origin: Michigan.

'Ventura' This is a good low-chill (400 hours below 45° F), yellow-fleshed free-



'Sunhaven'

stone for Southern California. The tree has average vigor and productivity. The fruit has yellow skin with a red blush, good flavor, and firm flesh. Available in Southern California. Origin: California.

'Veteran' A favorite in western Washington and Oregon, this medium to large fruit is yellow splashed with red and has medium fuzz. The nearly freestone flesh is yellow and soft. The tree is vigorous and highly productive—one of the very best in cool Pacific climates. Good for the West. Origin: Ontario, Canada.

Midseason Varieties

'Babcock' The small to medium-sized fruit is light pink blushed red with little fuzz. The skin peels easily. The white flesh is red near the pit, tender, juicy and has a mild flavor. The medium to large tree is spreading and vigorous, but needs heavy thinning early in the season to produce large fruit. Good for the West, particularly Southern California. Origin: California.

'Early Elberta' (Gleason Strain) This large freestone matures 3 to 10 days before 'Elberta'. The flesh is yellow and is of better flavor than 'Elberta'. It is good for canning and freezing. The tree is hardy and consistently productive. Good for the South and West. Widely available. Origin: Connecticut.

'July Elberta' ('Kim Elberta') This variety is best suited for the Willamette Valley in Oregon. The medium-sized fruit is greenish yellow blushed and streaked with dull red and very fuzzy. The yellow flesh is of high quality. The tree is vigorous and bears heavily but is susceptible to bacterial leaf spot. Good for the West. Origin: California.



'Veteran'

'Loring' This medium-sized freestone has a slight fuzz and is blushed red over a yellow ground. The flesh is yellow, firm, and medium textured. It resists bacterial leaf spot. Good for the North and South. Widely available. Origin: Missouri.

'Suncrest' This firm, large freestone has a red blush over yellow skin. It is susceptible to bacterial leaf spot and should be grown in the West and other areas without this disease. It is hardy in cold sections of the North. Widely available. Origin: California.

Late Varieties

'Belle of Georgia' ('Georgia Belle') The skin of this outstanding white peach is red blushed over creamy white. The flesh is white and firm, has excellent flavor, and is fair for freezing but poor for canning. The tree is vigorous, very winter hardy, and productive but very susceptible to brown rot. Good for the North and South. Widely available. Origin: Georgia.

'Blake' This large freestone has red, slightly fuzzy skin. The flesh is yellow and firm. It is good for freezing and excellent for canning. It is susceptible to bacterial canker. Good for the North and South. Origin: New Jersey.

'Cresthaven' The skin of this medium to large freestone is bright red over a gold ground and almost fuzzless. The flesh is yellow and nonbrowning. The tree is hardy. It is good for canning and freezing. Good for the North and South. Widely available. Origin: Michigan.

'Elberta' This large freestone is the old favorite for a midseason crop. The skin is red blushed over a deep golden yellow. The fruit tends to drop at maturity. It is resistant to brown rot. Good for all zones. Origin: Georgia.

'Fay Elberta' In California this ranks as the most popular all-purpose freestone peach. It equals 'Elberta' for eating fresh, cooking, and canning, and excels it for freezing. It ranks below 'Elberta' in adaptability, growing where winters fall to 20° F. The color is yel-



'Early Elberta'

low heavily blushed with red. This one may require considerable thinning for large fruit. The blossoms are especially showy. Origin: California.

'Jefferson' Especially suited to localities where late spring frosts are a problem, this peach is noted for its fine texture and flavor. The skin is bright red over a bright orange background. The flesh is yellow and firm. It is a reliable producer that cans and freezes well. It has some resistance to brown rot. Good for the North and South. Origin: Virginia.

'Madison' Adapted to the mountain areas of Virginia, this variety has exceptional tolerance to frosts during the blossoming season, setting crops where others fail. The skin of this medium-sized freestone fruit is bright red over a bright orange-yellow ground. The flesh is orange-yellow, very firm, and fine in texture. The growth of the tree is average to vigorous. Good for the North and South. Widely available. Origin: Virginia.

'Raritan Rose' This vigorous, winter hardy tree pro-

duces delicious white-fleshed freestone peaches. The skin is red. Available in the East and North. Origin: New Jersey.

'Redskin' This popular peach ripens after 'Elberta'. It has good red color and handles well. It is excellent for freezing, canning, and eating fresh. Widely available in the East and North. Origin: Maryland.

'Rio Oso Gem' The skin of this large freestone is red over a yellow ground; the flesh is yellow, firm, fine in texture, and nonbrowning. It is good both fresh and for freezing.

The blossoms are light pink, very large, and showy, and appear later than most peach blossoms. The tree is productive but not vigorous. Good for the South and West. Widely available. Origin: California.

'Sunhigh' This is a very good medium to large freestone. The skin is bright red over a yellow ground. The flesh is yellow and firm. The tree is vigorous and spreading. It is very susceptible to bacterial leaf spot and requires thorough summer spraying. Good for the North and South. Origin: New Jersey.

Nectarines

The nectarine is simply a fuzzless peach. Peach trees sometimes produce nectarines as sports, and nectarine trees will produce fuzzy peach sports. The two plants are nearly identical, but nectarines are generally more susceptible to brown rot. Gardeners in the South may have trouble with the disease because hot humid weather encourages it. You will have to spray regularly to control it. Otherwise, nectarines require the same care as peaches.

Early Varieties

'Earliblaze' This is a medium-sized, clingstone, yellow-fleshed fruit that ripens ahead of the 'Redhaven' peach. It has red skin and a prominent suture (seam down the length of the fruit). Good for the North and South. Origin: California.

'Independence' This medium-sized, oval fruit has brilliant cherry-red skin. The freestone flesh is yellow and firm. The tree is productive and moderately vigorous, with showy flowers. It will take warm winters. Good for the South and West. Origin: California.

'Pocahontas' The medium to large oval fruit is bright red. The semifreestone flesh is yellow, slightly stringy, and of good quality. This variety resists brown rot and frost during the blossoming season. The flowers are not showy. Good for the North and South. Origin: Virginia.

'Silver Lode' The skin of this fruit is red. The freestone flesh is white and sweet and of good texture. The tree requires little chilling. Good for the South and West. Origin: California.



'Earliblaze'

'Sungold' This medium-sized freestone has red skin and firm yellow flesh. It is a moderate-chill (555 hours below 45° F) variety and has some resistance to brown rot. Good for the South. Origin: Florida.

'Sunred' This low-chill nectarine (300 hours below 45° F) is adapted to Florida and ripens there in May. It is a small, yellow-fleshed clingstone with red skin. Origin: Florida.

Midseason Varieties

'Fantasia' This fairly large fruit has bright yellow skin covered up to two thirds with a red blush. The freestone flesh is yellow, firm, and smooth. The tree is vigorous and productive with showy flowers. It requires moderate chilling (500-600 hours below 45° F) and is susceptible to brown rot and bacterial leaf spot. Good for the South and West. Origin: California.

'Flavortop' The large oval fruit is mostly red, with firm, smooth, freestone, yellow flesh. The tree is vigorous and productive with showy flowers and needs moderate winter cold. It is susceptible to brown rot and bacterial leaf spot. Good for the South and West. Origin: California.

'Mericrest' An extremely winter hardy, yellow-fleshed, red-skinned nectarine with a large suture. It resists bacterial leaf spot and brown rot. Good for the North. Origin: New Hampshire.

'Nectared 4' The fairly large fruit is yellow with a red blush over much of the surface. The semifreestone flesh is yellow. The tree is productive with showy flowers. Good for the North and South. Origin: New Jersey.

'Nectared 5' The large fruit is smooth with a blush covering most of the yellow skin. The yellow flesh is semifreestone until fully ripe, then freestone. The tree is productive. Good for the South. Origin: New Jersey.

'Panamint' The fruit has a red skin, and the freestone flesh is yellow. The tree is vigorous and productive and needs little winter chilling. Good for the South and West. Origin: California.

'Pioneer' The fruit has a thin red skin. The freestone yellow flesh is red near the pit and has a rich, distinctive flavor. The tree requires little chilling and has large, showy blossoms. Good for the West. Locally available. Origin: California.

'Redchief' This medium fruit is bright red and attractive. The flesh is freestone, white, and fairly firm. The tree is vigorous and productive, has showy flowers, and is very resistant to brown rot. Good for the South. Origin: Virginia.

'Redgold' A hardy, firm, freestone nectarine with glossy red skin, resists brown rot and cracking, but is susceptible to mildew. Good for the North and South. Origin: California.

Late Varieties

'Cavalier' The medium fruit is orange-yellow with splashes and mottles of red. The yellow freestone flesh is firm, aromatic, and slightly bitter. The vigorous and productive tree has showy flowers and resists brown rot. Good for the North and South. Origin: Virginia.

'Fairlane' This very late ripening, red-skinned, yellow clingstone is good for the West. Origin: California.

'Flamekist' This is a large, red-skinned, yellow-fleshed, clingstone nectarine. It has moderate-chill requirements (500–600 hours below 45° F). It is unfortunately susceptible to brown rot and bacterial leaf spot. Good for the West. Origin: California.

'Gold Mine' The large fruit of this favorite old variety is white blushed with red. The juicy white freestone flesh has a sweet aroma and excellent flavor. It is a moderate-chill variety (500 hours below 45° F). Good for the West. Origin: New Zealand.

'Late Le Grand' The large clingstone fruit has yellow skin with a light red blush. This was the first large, firm, yellow commercial nectarine. The spreading tree is productive and has large, showy flowers. It is susceptible to brown rot and bacterial leaf spot. Good for the West. Origin: California.



'Bonanza'

Genetic Dwarf Peaches and Nectarines

The genetic dwarf peaches and nectarines form dense bushes, with long leaves trailing in tiers from the branches. In spring the branches are entirely hidden by flowers that are usually semidouble and always very showy. In winter the bare plants are also visually interesting. The fruit is of normal size.

Most require moderate winter chilling (400–600 hours below 45° F) for good bloom. None are blossom hardy in really cold places, but they can be grown in containers and protected until the warm season. If you try this method in the coldest northern regions, you may have to pollinate the flowers yourself with a pencil eraser, touching it first to pollen, then to the stigma of a different flower.

The plants can be kept in containers until about 5 feet tall, but in the ground they will eventually reach 6 to

8 feet and spread 6 to 9 feet. They can be used as ornamentals and require minimal pruning. Their fruit flavor and texture are not as good as those of standard-sized varieties, so they are not used commercially. The fruit must be thinned, and the trees need normal spraying for all the peach diseases and pests. These dwarfs are more susceptible to mites than normal-sized peach trees.

These dwarf plants were created by breeding numerous varieties, but they all probably share the common heritage of the 'Swataw' peach or the 'Flory' peach, both Chinese genetic dwarf varieties.

Genetic Dwarf Peaches

'Bonanza' A medium-sized, yellow-fleshed freestone with a red blush, this was the original genetic dwarf peach developed for the home gardener from earlier dwarfs like 'Flory'. It has a moderate-chill requirement (about 500 hours below 45° F), and the fruit ripens in mid-June in California. Good for the West and South. Origin: California.

'Compact Redhaven' This tree is larger than other dwarfs (up to 10 feet), and its leaves and growth habit resemble those of standard trees more than genetic dwarfs. The fruit resemble 'Redhaven' in size, quality, and color but are borne on a more compact tree. It tolerates cold better than other genetic dwarfs. Good for all zones, especially the North, Midwest, and East. Origin: Washington.

'Empress' This medium-sized, yellow-fleshed clingstone with glowing pink skin has a sweet flavor and juicy texture. It has a moderate-chill requirement (500–600 hours below 45° F) and ripens in early August in California. Good for the West and South. Origin: California.

'Garden Gold' This is a large, yellow-fleshed freestone with red skin and cavity. A moderate-chill variety (500–600 hours below 45° F) with showy flowers, the fruit ripens in mid-August in California. Good for the West and South. Origin: California.

'Garden Sun' This large, yellow-fleshed freestone has red skin and cavity. A moderate-chill variety (500–600 hours below 45° F), the fruit ripens in early August in California. Good for the West and South. Origin: California.

'Honey Babe' A large, firm, orange-fleshed freestone with red skin, this fruit rates high for flavor and sweetness. It is a moderate-chill variety (500–600 hours below 45° F), ripening before 'Redhaven'—mid-June in California. Good for the West and South and worth trying in the East with protection. Origin: California.

'Southern Flame' A large, yellow freestone with red skin and cavity, this is a good eating fruit that ripens in late July in California. It has low-chill requirements (about 400 hours below 45° F). Good for the West and South. Origin: California.

'Southern Rose' This is a large, firm, yellow-fleshed freestone with red blush. Rated as a low-chill (300–400 hours below 45° F) variety, the fruit ripens in early August in California. Good for low-chill areas of the West and South. Origin: California.

'Southern Sweet' This medium-sized, yellow-fleshed freestone has a red blush and good flavor. This moderate-chill variety (500–600 hours below 45° F) matures in mid-June in California, ahead of 'Redhaven'. Origin: California.

'Sunburst' A large, firm, yellow-fleshed clingstone with a red blush, the fruit is juicy with a red cavity, has good flavor, and ripens in mid-July. It is a high-chill variety (900 hours below 45° F) suggested for warm areas of the East and South and colder areas of the West. Origin: California.



'Nectarina'

Genetic Dwarf Nectarines

'Garden Beauty' This yellow-fleshed clingstone with red skin has a low-chill requirement (about 400 hours below 45° F). It has large double flowers and ripens in late August in California. Good for the South and West. Origin: California.

'Garden Delight' A yellow-fleshed freestone, this has a low-chill requirement and red skin. The fruit ripens in mid-August in California. Good for the South and West. Origin: California.

'Garden King' This yellow-fleshed clingstone with red skin has a low-chill requirement and ripens in mid-August in California. Good for the South and West. Origin: California.

'Golden Prolific' This large, yellow-fleshed freestone with orange skin and a red center has a high-chill requirement (900 hours below 45° F). The fruit ripens in late August. Good only for high-chill areas in the West but worth trying

in the East and North if given winter protection. Origin: California.

'Nectarina' A medium-sized, yellow-fleshed freestone with a red blush and cavity, the fruit of this low-chill variety (300–400 hours below 45° F) ripens in mid-July. Good for the South and West. Origin: California.

'Southern Belle' This is a large, yellow-fleshed freestone with red blush. The fruit of this low-chill variety (300–400 hours below 45° F) ripens in early August in California. Good for the South and West. Origin: California.

'Sunbonnet' This is a large, firm, yellow-fleshed clingstone with a red blush. The fruit of this moderate-chill variety (about 500 hours below 45° F) ripens in mid-July in California. Origin: California.

Pears

Pears, especially dwarf pears, are a fine choice for the home gardener. The trees are attractive even in winter; they require little pruning after they begin to bear; they begin to bear early; and the fruit stores



fairly well without any special requirements. The plants take well to formal or informal training so space is not a problem.

Standard pears will spread 25 feet across and grow as tall or taller. A dwarf in natural shape needs a space about 15 feet square, but with the pruning and training methods described on pages 39–57 you can grow a pear flat against a fence or wall using very little space.

You don't need to thin the fruit, but if a very heavy crop sets, remove fruit that is damaged or very undersized. Thin a few weeks before harvest.



'Bartlett'

All pears need a pollinator. Use almost any other pear. 'Bartlett' is a poor pollinator for 'Seckel', however, and 'Magness' does not pollinate anything.

The one real drawback with pears is fireblight, but a home gardener can work around it by choosing varieties wisely and diligently pruning off diseased wood. Fireblight is at its worst in spring, when insects carry it from tree to tree. Resistant plants are the best answer. Cut off any infected tissue well below the infection and burn it. Other pests are codling moth, mites, pear psylla, and pear slug. See pages 29-37.

Most fruits are best when picked ripe or nearly so. Pears are the exception. A tree-ripened pear breaks down and turns soft and brown at the core. Always harvest pears when they have reached full size but are still green and firm. Hold them in a cool, dark

place if you intend to eat them within a few weeks. For longer storage refrigerate the harvested fruit and remove it from cold storage about a week before you want to use it. Pears ripen faster if they are held with other pears in a poorly ventilated spot. For fast ripening place several in a plastic container.

Early Varieties

'Clapp's Favorite' This large yellow fruit with red cheeks resembles 'Bartlett'. The flesh is soft, sweet, and good both for eating and canning. The tree is attractively shaped and very productive but highly susceptible to fireblight. Since it is hardy, this variety is best in cold, late-spring zones. Good for the North and West. Widely available. Origin: Massachusetts.

'Moonglow' This large attractive fruit is soft and juicy with a mild flavor. Use it for canning or eating fresh. The tree is upright, vigorous, and heavily spurred and begins bearing a good crop when quite young. It resists fireblight, so it is good wherever the disease is a severe problem. Good for all zones. Widely available. Origin: Maryland.

'Orient' This nearly round fruit has firm flesh that makes it a good canner; however, the flavor is too mild for a good fresh pear. The tree produces moderate crops and resists fireblight. Good for the South. Origin: California.

'Red Clapp' ('Starkrimson') An attractive red-skinned sport of 'Clapp's Favorite', it does well in the West or North but is susceptible to fireblight. It has good quality fruit. Good for the West and North. Origin: Michigan.

Midseason Varieties

'Bartlett' This familiar commercial pear is yellow, medium to large, and thin skinned. The flesh is very sweet and tender, fine for eating, and good for canning as well. The tree does not have especially good form and is subject to fireblight. It takes summer heat, provided there is adequate cold in winter. In cool climates it needs a pollinator (any variety but 'Seckel' or 'Magness') to set fruit well. Good for all zones. Widely available. Origin: England.

'Lincoln' Called by some "the most dependable pear for the Midwest," this variety bears large fruit abundantly. The tree is extremely hardy and blight resistant. Good for the North and South. Origin: unknown—Midwest.

'Magness' The medium-sized oval fruit has a slightly russet color. The flesh is highly perfumed. The tree is vigorous and spreads widely even for a pear. This variety produces small amounts of good quality fruit. It will not pollinate any other pear varieties. It is highly resistant to fireblight. Good for the South and West. Origin: Maryland.

'Maxine' ('Starking Delicious') This large and attractive fruit has firm, juicy, sweet white flesh. The tree is somewhat blight resistant. Good for the North and South. Origin: Ohio.

'Parker' This medium to large pear is yellow with a red blush. The flesh is white, juicy, and pleasantly sweet. The tree is upright, vigorous, and fairly hardy but susceptible to fireblight. Good for the North. Origin: Minnesota.



'Anjou'



'Bosc'



'Seckel'



'Comice'

'Sensation Red Bartlett' ('Sensation') Juicy, white, 'Bartlett'-flavored flesh is covered by yellow skin heavily blushed red. The tree form resembles 'Bartlett' but is smaller; leaves and shoots have a reddish tinge. It is susceptible to blight, and in cool climates it needs a pollinator. Good for the West. Origin: Australia.

Late Varieties

'Anjou' The fruit is large and green, with a stocky neck. The firm flesh has a mild flavor and is not especially juicy. It stores well and is good for eating fresh or for canning. The tree is upright and vigorous but susceptible to fireblight. Originating in the mild area near the Loire, it is not recommended for hot-summer areas. Good for the North and West. Widely available. There are also red 'Anjou' selections available. Origin: France.

'Bosc' This long, narrow fruit has a heavy russet color. The flesh is firm, even crisp,

with a heavy perfume that makes some people consider it among the very finest pears. It is good fresh or canned and is especially fine for cooking. The tree is large and susceptible to fireblight. Good for the North and West. Widely available. Origin: France.

'Comice' The large, round fruit is green to yellow-green with a tough skin. This sweet, aromatic, and juicy pear is the finest for eating but is not recommended for canning. The large vigorous tree is slow to bear and moderately susceptible to fireblight. It sets fruit better with a pollinator and should be grown on dwarfing quince rootstock. This is the specialty of the Medford region in Oregon, but it does well in home gardens along the California coast. Good for the West. Origin: France.

'Duchess' This pear is greenish yellow and very large. The flesh is fine textured and of good flavor. The tree is symmetrical and bears annually. Good for the North. Origin: France.

'Gorham' Of excellent quality, this fruit strongly resembles 'Bartlett' but ripens later and can be stored longer. The tree is dense, upright, vigorous, and productive. Good for the North and South. Origin: New York.

'Kieffer' This sand pear hybrid has large yellow fruit that is often gritty and therefore poor for fresh use, but it keeps well in storage and is excellent for cooking and canning. The tree is especially recommended because of a high resistance to fireblight amounting to near immunity. It needs little winter chill but stands both cold and heat well, so its range is wide. Good for the East, North, South, and Midwest. Widely available. Origin: Pennsylvania.

'Mericourt' This pear is green to yellow-green, sometimes blushed deep red and flecked with brown. The creamy white flesh is nearly grit free and is good fresh or for canning. A vigorous tree, it will withstand -23° F during full dormancy. It resists both fireblight and leaf spot. Good for the South. Origin: Tennessee.

'Patten' This large, juicy pear is particularly good fresh and fair for canning. Since the tree is especially hardy, it should be considered for the northern Mississippi valley where 'Bartlett' and 'Anjou' fail. Good for the North. Origin: Louisiana.

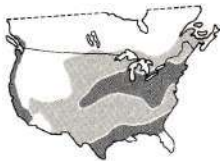
'Seckel' This is a small, yellow-brown fruit that is not especially attractive but has the finest aroma and flavor of any home garden pear. Eat it fresh or use it whole for spiced preserves. The tree is highly productive and very fireblight resistant. It sets fruit best with a pollinator (any pear but 'Bartlett' or 'Magness'). Good for all zones. Widely available. Origin: New York.



'Shenseiki'

Asian Pears (Apple Pears)

Asian pears are true pears, but are a different species than the common pear. The common name "apple pear" has probably been given them because their texture is crisp like an apple, and some of



them are shaped like apples. But they are not crosses between apples and pears. They are a distinctly different fruit, with their own unique flavor. This group of pears is native to Japan and China. They were selected for size, shape, flavor, and lack of grittiness. The fruit is eaten firm like an apple, and it will keep in the refrigerator for four to eight months without getting soft like a 'Bartlett' pear. They bloom and ripen just like a 'Bartlett' pear and the trees

are pruned like ordinary pear trees. Like other pears, they espalier well. The blossom is white and attractive.

The fruit has its own characteristic flavor, texture, and juiciness. All are susceptible to fireblight and need cross-pollination with any other pear that flowers at the same time.

All Asian pears grow well on the West Coast and they may grow in the South or the East if adequate fireblight protection can be provided. They are best grown on Asian rootstocks, although they are very dwarf on quince rootstock. Fruit should be thinned to one fruit per spur and this is best done when fruit is $\frac{3}{4}$ inch in diameter, six to seven weeks after bloom.

The fruit should be picked when it is ripe, not picked early and ripened indoors as with other pears.

Varieties

'Chojuro' A flat, russet-skinned variety with a strong flavor, this fruit is very firm, stores a long time, and bears as regularly as clockwork every year. Origin: Japan.

'Hosui' Golden brown skin covers a large, apple-shaped fruit with notably fine-textured, juicy, sweet flesh. Fruit lasts up to six months after picking. Origin: Japan.

'Kikusui' This flat, yellow pear has good texture and is a very juicy, mild-flavored variety. Pick when the skin begins to turn yellow. Origin: Japan.

'Shenseiki' A flat, yellow pear with good texture and flavor, this is the earliest maturing quality Asian pear and should be picked when the skin is yellow. Origin: Japan.

'Shinko' Perhaps the heaviest bearer of Asian pears, it is also fine textured and rich

flavored. The medium-sized applelike fruit is a glowing golden russet color; lasting time after harvest is two to three months. Origin: Japan.

'Twentieth Century' ('Nijisseiki') A flat, green pear with fine flavor, this is the most popular Asian pear in California. It tends to bear in alternate years since it crops very heavily. Thin to one fruit per cluster. Origin: Japan.

'Ya Li' A pear-shaped fruit with fine texture and flavor. 'Ya Li' is partially self-fertile so it will set fruit without a pollinator but will produce a heavier crop with a pollinator. Because it blooms earlier than most other varieties, it must have an early pollinator such as 'Tsu Li' or 'Seuri'. Thin for best size and annual bearing. An extremely low chill requirement (300 hours below 45° F) means this apple pear will set fruit in warm southern areas. Origin: China.



'Hachiya'



'Fuyu'

Persimmons

The persimmon belongs to the same family of plants as the ebony tree of southern Asia. The American persimmon, *Diospyros virginiana*, grows as a native from Connecticut to Kansas and southward, but



it won't take the extreme cold of the northern plains or northern New England. It has small, edible fruit up to 2½ inches in diameter.

The large persimmon found in the market is the Oriental persimmon, *Diospyros kaki*,



and its many varieties. It could be far more popular than it is if more gardeners realized the great value of both tree and fruit. The tree grows

well in any well-drained soil and makes a fine medium-sized shade tree with large leaves that turn a rich gold to orange-red in the fall. A heavy crop of orange fruit decorates the bare branches until winter. It can be grown in the southern states and on the West Coast.

Persimmon foliage is large and glossy, with leaves reaching 4 to 6 inches in length. The new spring leaves are bronze or reddish, and in fall they turn to shades of yellow, pink, and red. The fruit hangs on into the first frosts and is orange with a red blush.

Store persimmons in the refrigerator and use only after they soften. Placing them in a bag with an apple will hasten the ripening process. Eat them when they soften, or use the flesh as you would applesauce or bananas. If you want to store it, mash the soft pulp out of the skin for freezing, and discard the tough skin. 'Fuyu' is the one persimmon that is

not astringent when firm. You do not need to ripen and soften it before eating.

Use a persimmon tree as an attractive background plant in a shrub border, or in front of evergreens (where it shows off its leaves and fruit best). Since the persimmon grows slowly, it takes well to espalier training. Train it informally against a flat surface, or use a trellis to form a persimmon hedge. It will also grow well as a single lawn tree, but you'll have a problem in late fall when the soft fruit drops and squashes.

American persimmons are normally dioecious, meaning that some trees are male, producing pollen but no fruit, while others are female. You will need a female tree for fruit and a male close by for pollen. Plant both unless you have wild trees near your garden. Some improved varieties bear fruit without requiring a separate pollinator, but these are not yet generally available.

Oriental persimmons set fruit without pollination. The large fruit, 3 to 4 inches in diameter, are usually picked in October before the first frost. Oriental persimmons stand winter temperatures to about 0° F, but they need only a short chill period (100–200 hours below 45° F) to fruit well in southern locations.

In the West the persimmon has no serious pests. In the East a flat-headed borer may attack the trunk, but it can be removed by hand.

Varieties

American Persimmons

Good varieties include 'Early Golden', 'Garretson', 'Hicks', 'John Rick', 'Juhl', and 'Meader', which sets seedless fruit and needs no pollinator.

Oriental Persimmons Good varieties include 'Chocolate', 'Fuyu', 'Hachiya', and 'Tane-nashi'. 'Hachiya' is the popular large fruit sold commercially. 'Chocolate' has dark flesh around its seeds and is a type of persimmon rather than a variety.

Plums

Of all the stone fruits, plums are the most varied. They range from hardy little cherry plums and sand cherries to hybrids with the hardiness of natives, sweet European plums (and the prunes made from them), and sweet or tart Japanese plums.

European plums tend to be small, and most varieties are egg-shaped. The flesh is rather dry and very sweet. Prunes from these plums are the sweetest and easiest to dry. The plants are fairly



hardy, but some varieties do well in mild-winter areas. All varieties are self-pollinating, except for those noted.

Japanese plums have relatively large, soft, and juicy fruit, sometimes with tart flesh near the pit. The plants are the least hardy of the various kinds of plum, although selected varieties are grown in



the milder northern regions. Taste one to test for ripeness before you harvest. Most Japanese plums need cross-pollination. Exceptions include 'Santa Rosa', 'Methley', 'Beauty', and 'Climax', but all plums set fruit better with a pollinator. Most are very susceptible to bacterial leaf spot in the South and East. Some resistant varieties are listed and rated by local extension agencies. Check with your farm advisor or nursery.

Plum trees bear for 10 to 15 years or more, and standard plum trees take space. Expect your tree to fill an area 15 to 20 feet square. Bush and cherry plums reach 6 feet or so and may spread as wide or wider. A dwarfed European plum on Nanking cherry roots will get as tall as 10 to 12 feet in height.

All the large-fruit Japanese plums must be thinned five to eight weeks after bloom. Thin fruit to 4 to 6 inches apart. European plums should have clusters thinned to two or three fruit per spur. The young trees should be pruned as discussed on page 49. Bush varieties need their oldest shoots trimmed off at ground level after about four years of bearing to encourage new growth.

Tree plums don't lend themselves to confinement, so use bush types if your space is limited. Use bush types as shrubby screens or try them in containers.

Brown rot is a major concern and requires summer spraying. See page 34. Bacterial leaf spot is a serious problem for most Japanese plums in the South and the East, but it is not a problem on other types of plums. Japanese types do best in the West; European types are best in the East; and bush types grow well in the South, Midwest, and North.

Early Varieties

'Bruce' This large Japanese plum has red skin, red flesh, and good flavor. The fruit matures early, ripening in June. The tree bears young and heavily. Use 'Santa Rosa' as a pollinator. Good for the North and South. Origin: Texas.



'Early Golden'

'Earliblue' This European blue plum has tender, green-yellow flesh resembling 'Stanley' but softer. Production is moderate, but fine for the home garden and the tree is hardy. It is best planted in the North, and ripens in mid- to late July in Michigan. Origin: Unknown.

'Early Golden' A round, medium-sized Japanese plum, it is yellow and of fair quality. The stone is small and free. The tree is vigorous, outgrowing other varieties, but it has a tendency to bear in alternate years. Thin carefully. Pollinate with 'Shiro' or 'Burbank'. The fruit ripens in Michigan in mid-July. Good for the North. Origin: Canada.

'Mariposa' The large, heart-shaped, Japanese fruit has mottled red and yellow skin enclosing sweet, red, freestone flesh. Fruit is good both for eating fresh and for cooking. The ripening time is mid-July. Because of its low-chill requirement (only 400 hours below 45° F), this is good choice for the mildest winter climates. For pollinators use 'Late Santa Rosa', 'Santa Rosa', or 'Wickson'. Origin: California.

'Methley' This small to medium-sized Japanese fruit is reddish purple with red flesh and excellent flavor. It ripens over a long period, requiring several pickings. The tree is upright with hardy flower buds. For better crops pollinate with 'Shiro' or 'Burbank'. The fruit ripens in Michigan in mid-July, earlier in the South. Good for the North. Widely available. Origin: South Africa.



'Burbank'



'Santa Rosa'



'Green Gage'

'Santa Rosa' This popular large Japanese plum has deep crimson skin. Its flesh is purplish near the skin and yellow streaked with pink near the pit. It is good for dessert or canning. Use any early or mid-season plum for improved pollination. The fruit ripens in California in mid-June, later in the North. Good for all zones. Widely available. Origin: California.

Early Midseason

'Abundance' This purple-red Japanese plum has tender yellow flesh that softens quickly. It is good for dessert or cooking. The tree tends to bear every other year. Use 'Methley' or 'Shiro' as a pollinator. The fruit ripens in Michigan in late July. Good for the North. Origin: California.

'Satsuma' This is a Japanese plum with red juice. The meaty fruit is small to medium, with a dull, dark red skin, mild red flesh, and a small pit. Use it for dessert or preserves. Use 'Santa Rosa' or 'Wickson' as a pollinator. Good for all zones. Widely available. Origin: California.

'Shiro' This medium to large Japanese plum is round and yellow and has a good flavor. Use it fresh or for cooking. The tree produces heavily. Use 'Early Golden', 'Methley', or 'Santa Rosa' as a pollinator. The fruit ripens in early July in California and the South, in late July in Michigan. Good for all zones. Widely available. Origin: California.

Midseason Varieties

'Burbank' This large red Japanese plum has amber flesh of excellent flavor. The trees are fairly small and somewhat drooping. Use the fruit for canning or dessert. Use 'Early Golden' or 'Santa Rosa' as a pollinator. The fruit ripens in early August in the Northwest and in mid-July in California. Good for all zones. Widely available. Origin: California.

'Damson' This old European plum is derived from a different species than other European plums. The smallish blue fruit is best for jam, jelly, and preserves. Improved varieties include 'Blue Damson', 'French Damson', and 'Shropshire Damson'. The trees are small and self-pollinating, and the fruit ripens at the end of August or in September. It is a late plum in the North. Good for all zones. Widely available. Origin: England.

'Green Gage' ('Reine Claude') The greenish yellow European fruit has amber flesh and is good fresh, cooked, or preserved. The trees are medium sized and self-pollinating. The fruit ripens in mid-July, later in the North. Good for all zones because it has a low-chill requirement and is cold hardy. Widely available. Origin: Unknown.

'Ozark Premier' This extremely large, red Japanese plum has yellow flesh. The trees are disease resistant, hardy, and productive. The fruit ripens early in August.

Good for the North, Midwest, and South. Widely available. Origin: Missouri.

'Queen Ann' The large, free-stone purple fruit has golden orange flesh. The combined qualities of juiciness, rich flavor, and no tartness at the pit make it an esteemed Japanese dessert plum. The fruit ripens in mid-July. The tree is less vigorous than other Japanese plums. Use 'Santa Rosa' as a pollinator. Origin: California.

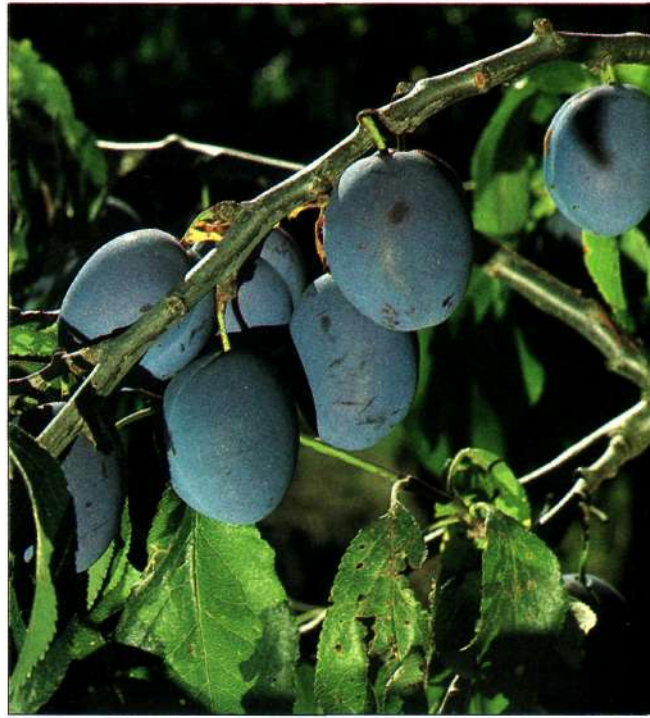
'Stanley' The most widely planted European plum in the East, Midwest, and South, this tree has large, dark blue fruit with firm, richly flavored yellow flesh. It bears heavily every year, is hardy into central Iowa, and is self-pollinating. The fruit ripens after mid-August, into September in northern regions. Good for the North. Widely available. Origin: New York.



'Stanley'



'Yellow Egg'



'Italian Prune'

'Sugar' This very sweet, dark blue European plum is fairly large and excellent for home drying and canning. The trees are self-pollinating and bear in alternate years, with light crops in off years. The fruit ripens after July 15. Good for all zones. Origin: California.

'Yellow Egg' This golden yellow European plum has a thick skin and yellow flesh. The round-topped, vigorous tree is hardy and productive. In the West the tree is planted in Washington. It is self-pollinating, and the fruit ripens in late August. Good for the North and West. Origin: Unknown.

Late Varieties

'Bluefre' This large blue European freestone has yellow flesh. The trees are vigorous and self-pollinating and bear young. The fruit ripens early in September and hangs on well after ripening. It has some sensitivity to brown rot. Good for the North. Origin: Missouri.

'French Prune' The small European fruit is red to purplish black and very sweet with a mild flavor. This is the main prune variety in California. The tree is large and long-lived, often surviving even after orchards have become housing developments. It is self-pollinating, and the fruit ripens in late August to September. Good for the South and West. Widely available in California. Origin: France.

'Italian Prune' ('Fellenberg') This dark blue European plum is very sweet and good for dessert, canning, or drying. It has been the major plum of the Washington-Oregon area. The fruit ripens in late August and September. Good for the South and West. Widely available. Origin: Germany.

'Late Casselman' and 'Late Santa Rosa' These firm, late-ripening Japanese plums resemble regular 'Santa Rosa' in tree shape and appearance of fruit, but the fruit is sweeter and much firmer. They mature six weeks later than 'Santa Rosa'. Origin: California.

'President' This large, dark blue European fruit has amber flesh and ripens very late, after other plums. It lacks outstanding flavor, but use it for winter cooking or canning. Use another late European plum as a pollinator. The fruit ripens in Michigan at the end of September. Good for the North. Origin: England.

Hardy Plums

These plums were especially selected and bred for the coldest northern and Great Plains climates.

'Pipestone' This large red fruit has tough skin that is easy to peel. The flesh is yellow and of excellent quality but somewhat stringy. The tree is vigorous and hardy, performing reliably in cold regions. Use 'Toka' or 'Superior' as a pollinator. Origin: Minnesota.

'Superior' This large, conical red fruit with russet dots and heavy bloom has yellow, firm flesh that is excellent for eating fresh. The tree bears

very young and prolifically. Use 'Toka' as a pollinator. Origin: Minnesota.

'Toka' This large, pointed fruit is medium red, and often described as apricot colored. The flesh is firm and yellow with a rich spicy flavor. The tree is a spreading, medium-sized heavy producer, but it may be short-lived. Use 'Superior' as a pollinator. Origin: Minnesota.

'Underwood' This very large, red, freestone plum has golden yellow flesh that is somewhat stringy but of good dessert quality. Ripening extends over a long season beginning in July. The tree is vigorous and among the hardiest. Use 'Superior' as a pollinator. Origin: Minnesota.

'Waneta' This is a large, tasty, reddish purple plum with yellow flesh. Use 'Superior' as a pollinator. Origin: South Dakota.

Pomegranates

With its shiny leaves, fleshy orange flowers, and bright red fruit, the pomegranate is one of the most beautiful fruiting plants. The leaves have a reddish tint in spring and are bright yellow in fall, providing



a background that makes the fruit especially attractive.

Pomegranates are often thought of as a tropical or desert fruit, but in fact they withstand winter temperatures down to about 10° F. While they do ripen their fruit best in very hot, arid climates, you can harvest edible fruit in cooler areas. They are ideal plants for the desert Southwest because they tolerate drought. Rain or irrigation close to harvest can cause pomegranates to split.

The edible portion of a pomegranate is the juicy scarlet flesh around the abundant seeds. If you score the skin just down to these seeds in about six places, cutting from stem to flower, you can open the fruit and expose all the seeds at once. Pomegranates are good in fruit salads and make an excellent syrup when cooked with sugar and a little water. This syrup is sold commercially as grenadine.

You can grow pomegranates as fountain-shaped shrubs or single- or multiple-trunk trees. They reach about 10 to 12 feet tall under ideal conditions but often remain smaller. A shrub can spread from 6 to 8 feet across.

Blossoms form on the current year's growth, and as the fruit grows heavier it pulls down the slender new branches, making a decorative weeping effect. The plant stands drought well, but keep the moisture level even. Thin-



Pomegranate seeds



'Wonderful'

ning is not necessary. An excess crop is very decorative if left on the tree. The trees are self-fertile, so even a single specimen will bear fruit.

Normally pomegranates have no pest or disease problems, but the leaves can develop fungus diseases in humid climates.

Variety

'Wonderful' This is the most common pomegranate and the only one you're likely to see in nurseries.

Quince

The quince is an underdog among fruits, perhaps because it must be cooked before it is edible. Since this processing is no more difficult than stewing tomatoes, quinces deserve to



be more widely grown both for their distinctive fruit and their ornamental value.

The plants are 15 to 20 feet tall and slow growing so they can be trained as trees or as multiple-stemmed shrubs.

White or pale pink 2-inch blossoms appear at the tips of new growth in spring; flowering is therefore late enough to escape frost damage. The 2- to 4-inch dark green leaves have white, feltlike undersides; foliage rather sparsely covers attractively angled or gnarled branches. The large fruit is decorative, and after harvest the foliage turns yellow before dropping.

Wherever winter temperatures remain above -15° F—except in the low deserts of the Southwest and West—quinces stand a good chance of success. They prefer a heavy but well-drained soil but will tolerate damp soil as well as light soils and even some drought.

Fireblight is the one serious disease of quince, especially in humid regions. Since fireblight attacks new growth, avoid fertilizing and heavy pruning, both of which will stimulate vulnerable shoots. Codling moth is the principal insect pest.



'Smyrna'

The trees are self-fertile and begin bearing at four to five years. They continue to produce for 35 years. The fruit is rounded or somewhat elongated, depending on the variety. Ripening occurs in late summer or early fall, when fruit color changes from green to yellow. The fruit will be hard when ripe but needs careful handling because it bruises easily; storage life is only a few weeks.

Only a few cultivars are available, with little difference among them.

Varieties

'Orange' This is sometimes sold as 'Apple' quince and is apple-shaped with orange flesh. Origin: Southern Europe.

'Pineapple' A rounded fruit with white flesh, this quince can be cooked without the addition of water. Origin: California.

'Smyrna' This variety is larger than the others with elongated fruit and yellow flesh. Origin: Turkey.

BERRIES

Berries are tempting to grow because most offer rich rewards for a small investment of time and space. A little sunlight and a pot, for example, are all you need to grow a crop of luscious strawberries.

The small-fruited plants can return bumper crops with minimal effort on your part, and several of the shrubby or vining plants can also add beauty to your landscape.

In considering berries you must work out the space and number of plants needed for a reasonable supply of fruit. If the plants are right for your climate and are given excellent care, the number of plants necessary to supply a family of five would be something like this:

Strawberries:

25 (20–30 quarts)

Raspberries: 24 (20–30 quarts)

Blackberries:

12 (10–15 quarts)

Blueberries: 4 (15–17 quarts)

Currants: 3 (10–12 quarts)

Gooseberries: 3 (10–12 quarts)

Strawberries are without question the easiest plants to work into any space you may have available. On a south-facing apartment terrace you can produce a crop in containers such as strawberry jars or moss-lined wire strawberry trees. An ideal plant for containers, where you can find it, is the European wild strawberry, or *fraise de bois*. This plant won't make runners. It grows in a clump, so a container planting stays compact.

The cane berries—blackberries and raspberries—take more space, although you can grow a few in large containers. If you train them carefully along a fence or trellis and keep them pruned, they won't take very much space, but they will produce heavy crops of fruit that you just can't buy since the finest flavor disappears during transportation to your grocery store.



Trailing blackberries tied to a trellis

Blueberries and currants make extremely ornamental shrubs, covered with bloom in spring, and with decorative fruit in later seasons. Blueberries require light, acid soil, and constant moisture, so try them where you would grow azaleas. Currants and gooseberries are an interim host to a serious disease of five-needle pines, so in some areas you're not allowed to plant them. Where they are permitted nothing takes less care, is more decorative, or gives a tastier crop.

Grapes, with their lush foliage, fall color, and interesting vines, are among the best landscaping plants. Use them on arbors, against walls, as fences, or as freestanding shrubs on a pole or trellis. Choose varieties recommended for your climate since grapes are especially sensitive to summer heat.

Blackberries

Blackberries and raspberries are closely related and have similar growing requirements, but blackberries are larger and more vigorous, and some varieties are less hardy. Blackberries come in two fairly



distinct forms—erect and trailing—and have a number of different names.

The ordinary blackberry is a stiff-caned, fairly hardy plant that can stand by itself if properly pruned. The trailing kind, generally called *dewberries*, are tender and grown mainly in the South. Trailing plants from the Pacific Coast are sold under their variety names—for example, 'Boysen' and 'Logan'—and are not referred to as dewberries. These varieties will freeze in the East and the North without winter protection.

Blackberries like a light, well-drained soil with a high moisture-holding capacity. Do not plant them where tomatoes, potatoes, or eggplants have grown previously, since the site may be infected with verticillium wilt and the berries cannot grow there.

Plant in early spring a month before the last frost. Set plants 4 to 6 feet apart in rows 6 to 9 feet apart. Before planting, clip canes to 6-inch stubs and plant at the depth they grew in the nursery. As soon as new growth begins, cut any stubs that do not sprout and burn them to protect plants from anthracnose, a fungal leaf-spot disease that can infect bramble plants. It is a problem in moist, warm climates, especially in the South.

Several inches of mulch will help keep soil moist, prevent weed growth, and help prevent suckers. Mulches such as fresh straw or sawdust use up nitrogen in the soil and you must supply extra nitrogen, but in general, don't fertilize too heavily or you'll get lush plant growth at the expense of a fruit crop.

The stiff-caned berries need no support, but can be confined between two wires to save space. Trailing blackberries should be cut to the ground after fruiting and the clippings destroyed to reduce the chances of spreading disease. New growth that sprouts during the last part of summer will fruit the following year.

If you disturb or cut roots of blackberries they will sucker badly. If you want more plants, chop off pieces of root beside the parent plants and set them in the new planting site like seed. If you don't want more plants, mulch the planting instead of cultivating for weed control. Blackberries can be more invasive than any other cultivated plant and, if abandoned, can quickly grow out of control.

Blackberries are subject to many pests and diseases. Save yourself trouble by buying certified plants and keeping them away from any wild plants. Some varieties resist a few diseases. Spray for blackberry mite and don't worry too much about the rest.

Either dewberries or erect blackberries can be planted in much of the South. In colder parts of the South, choose only the erect blackberry or be prepared to offer winter protection by burying canes under 2 inches of soil after the first frost, and then digging them out just as buds begin to swell.

Erect Blackberries

Erect blackberries are not recommended for the very coldest northern regions of the country but may succeed if you bundle up the canes in straw and burlap for the winter.

'Alfred' This plant produces large, firm berries early. Locally available. Good for the North. Origin: Michigan.

'Bailey' The fruit is large, medium firm, and of good quality. The bush is reliably productive. Good for the North and parts of the Pacific Northwest. Origin: New York.

'Black Satin' These vigorous, thornless vines are semi-erect, producing heavy crops of large, elongated, dark berries equally good for fresh eating or for cooking. Ripening time coincides with 'Eldorado'. Good for the South. Origin: Maryland.

'Brainerd' This large, high-quality fruit is excellent for processing. The plant is productive, vigorous, and hardy. Locally available. Good for the South. Origin: Georgia.

'Brazos' This is a popular variety in Texas, Arkansas, and Louisiana. The large fruit matures early and bears over a long period. The plant is vigorous and resistant to disease. Locally available. Good for the South. Origin: Texas.

'Cherokee' This vigorous upright plant produces moderately thorny canes. Heavy crops of good-quality, midseason-sized berries come in midseason. Widely available. Good for the South. Origin: Arkansas.

'Comanche' The plant is similar to 'Cherokee' but the very large berries are better for eating fresh (also good for cooking). The crop ripens two weeks earlier than 'Cherokee'. Widely available. Good for the South. Origin: Arkansas.

'Darrow' The berries are large and irregular, with firm flesh. They ripen over a very long season, sometimes into fall. The bush is hardy and reliable. Grows wherever the cold is not too intense. Origin: New York.

'Ebony King' The large fruit is glossy black, sweet, and tangy. It ripens early and resists orange rust. Widely available. Good for the South, North, and Pacific Northwest. Origin: Michigan.



'Marion'

'Eldorado' This very hardy and productive old variety resembles 'Ebony King' and is totally immune to orange rust. Good for the South and North. Origin: Ohio.

'Flint' This blackberry needs only moderate winter chill. The berries are fairly large in clusters of 8 to 15, and the plant is highly resistant to leaf spot and anthracnose. Locally available. Good for the South. Origin: Georgia.

'Hendrick' The fruit is large, medium firm, and tart. The bush is productive. Locally available. Good for the North. Origin: New York.

'Humble' This low-chill Texas variety has large, somewhat soft berries and comparatively few thorns. Locally available. Good for the South. Origin: Texas.

'Jerseyblack' This vigorous, semitrailing plant is notably rust resistant. It produces a midseason crop of large fruit that is similar to 'Eldorado' in appearance and flavor. Good for the South. Origin: New Jersey.

'Ranger' This large, firm berry is best when fully ripe. It is especially recommended for Virginia and similar climates. Origin: Maryland.

'Raven' This large berry is of high quality fresh or processed. The plant is erect, vigorous, and productive but rather tender. Origin: Maryland.

'Smoothstem' The berries ripen late and are rather soft. Production is quite heavy in large clusters. The plant is thornless and hardy from Maryland southward. Origin: Maryland.

'Thornfree' The medium to large fruit is tart and good. The semi-erect canes reach 8 feet, with up to 30 berries on each fruiting twig. The plant is rather tender. Widely available. Origin: Maryland.

'Williams' The medium-sized fruit ripens in late June and is very good fresh. The bush is semi-erect, vigorous, and thorny. It resists most cane and leaf diseases. Locally available. Good for the South. Origin: North Carolina.



'Olallie'

Trailing Blackberries

All of these berries are tender and need protection from cold.

'Aurora' This very early fruit is large, firm, and of excellent flavor. The canes are most productive on the bottom 5 feet, so they do well planted close together and cut back heavily. Locally available. Origin: Oregon.

'Boysen' ('Nectar') A Pacific Coast variety with large and aromatic fruit produced over a long season, this plant is vigorous and fairly thorny. In California this variety provides an early crop from May 20 to June 20, depending on the area, and a second crop may extend the harvest through August. Also good for the South and Pacific Northwest. Origin: California.

'Carolina' This dewberry is vigorous and productive with very large fruits. It resists leaf spot diseases. Locally available. Good for the South. Origin: North Carolina.

'Cascade' Fresh or preserved, the flavor of this berry is unsurpassed. The plant is productive but tender. Good in milder parts of the Pacific Northwest. Origin: Oregon.

'Early June' The large, round fruit has excellent flavor and is acid enough for jam, jelly, and pies. These dewberries ripen in early June. The plant is semithornless and somewhat resistant to anthracnose and leaf spot. Locally available. Good for the South. Origin: Georgia.

'Flordagrind' The large fruit is very soft and tart, good for cooking and preserves. It ripens very early. Canes are evergreen. This dewberry must be planted with 'Oklawaha' for pollination. Locally available. Good for the South. Origin: Florida.

'Lavaca' This plant is a seedling of 'Boysen' that is hardier than the parent and more resistant to disease. The fruit is firmer and less acid. Locally available. Good for the South. Origin: Unknown.

'Lucretia' This hardy old favorite is a vigorous and pro-



'Thornless Logan'

ductive dewberry with very large, long, soft fruits that ripen early. It needs winter protection in the North. Origin: North Carolina.

'Marion' The fruit of this midseason variety is medium to large, long, good quality, and excellent in flavor. The plants send out a few vigorous canes that are up to 20 feet long and very thorny. Good in milder parts of the Pacific Northwest. Origin: Oregon.

'Oklawaha' This dewberry resembles 'Flordagrind' and should be planted with it for pollination. Locally available. Good for the South.

'Olallie' This is the prime California variety, with large, firm, high-quality berries that are shiny black, firm, and sweet. The canes are thorny and very productive. The plant has a low-chill requirement and resists verticillium wilt and mildew. It is especially good for Southern California. Origin: Oregon.

'Thornless Boysen' This summer-bearing Pacific Coast berry is flavorful with a fine

aroma, and grows on tender plants that must be trained. Bury the canes for the winter in colder climates. Widely available. Origin: California.

'Thornless Evergreen' A top commercial berry in Oregon, this variety produces large, firm, sweet fruit. Plants are vigorous and produce heavily, but are very tender. Pinching canes at 24 inches encourages more canes and laterals. Canes sometimes revert to a thorny type. Origin: Oregon.

'Thornless Logan' This large, reddish, tangy Pacific Coast berry is good for jam, pies, and a syrup base for drinks. Bury the canes in winter in colder climates. A thorny form, 'Logan', is not grown as widely. 'Thornless Logan' can revert to the thorny type. Origin: California.

'Young' This large, purplish black dewberry of excellent flavor is easy to pick. The plant produces few long canes. Anthracnose is a serious threat. Good for the South. Origin: Louisiana.



Keep birds away from berries with plastic netting.



'Bluecrop'

Blueberries

Blueberries demand the right climate and planting soil but take very little care if you provide suitable conditions. They are about as hardy as a peach but need a fair amount of win-



ter chill and will not grow well in mild winter climates.

Blueberries belong to the heath family and count azaleas, rhododendrons, mountain laurel, and huckleberries among their cousins. If any of these grow naturally near your garden, or if you have prepared an artificial site that suits them, then blueberries will also do well.

Blueberries like soil rich in organic material such as peat—very acid, but extremely well drained. Such soils are found in areas of high rainfall, which is lucky, since the berries need constant moisture,

even though they cannot tolerate standing water.

There are major commercial plantings of blueberries in sandy soils in New Jersey, especially Burlington and Atlantic Counties; in certain areas of Michigan; in Washington and Oregon; and to a certain extent in New York, Massachusetts, and Indiana.

Southern gardeners have a choice of two kinds of blueberries, depending on climate. The high-bush blueberry grows commercially in large plantings in southeastern and western North Carolina. A home gardener who hopes to succeed with the plant should live in, or north of, that area. If you know of native blueberries near your home, nursery plantings should do well.

The rabbiteye blueberry, or southern high-bush blueberry, grows wild along streambeds in Georgia and northern Florida. With proper care it thrives where muscadine grapes succeed.

Soil must be extremely well-drained and acid. Plant in raised areas if there is any chance of water standing around the roots.

For both drainage and acidification, add large amounts of peat moss or other organic material to the planting soil, up to three-quarters peat moss by volume for soils that tend to be heavy. Never add manure; it is alkaline. Dig a planting hole somewhat broader and deeper than the roots of the young plant. Never cramp the roots into a small hole, but spread the roots in the hole.

Set high-bush blueberry plants about 4 feet apart. Choose two varieties for cross-pollination. Since the rabbiteye plants grow much larger, you can set them up to 8 feet apart, although they can also be set closer and blended into each other.

Do not feed plants the first year. In succeeding years use cottonseed meal, ammonium

sulfate, or any product suitable for camellias, azaleas, or rhododendrons.

Blueberries require constant light moisture in the soil, and cultivating damages their shallow roots. For both these reasons, you should mulch the plants heavily. Use any organic material such as straw, leaves, peat moss, or a combination, and renew it regularly to keep it about 6 inches deep. Some materials will use nitrogen as they decay, so you will have to compensate with extra feeding.

See page 52 for instructions on pruning blueberries.

Blueberries suffer from very few difficulties, but birds will take them all unless you net the plants. Nurseries carry suitable netting.

Always taste blueberries before picking. Some look fully mature when still quite acid.

Approximately the same varieties are used throughout the country since the conditions for growing them are so similar.



'Coville'

Early Varieties

'Earliblue' One of the best for all areas, this berry is large, light blue, and firm. The picking scar is small, so fruit keeps well and resists cracking. The plants are upright and comparatively hardy. Good for all zones. Widely available. Origin: New Jersey.

'Ivanhoe' One of the best berries, this is large, light blue, and firm. The plant is very tender. Good for the South. Origin: New Jersey.

'Northland' This is a hardy variety. The fruit is medium sized, round, moderately firm, and medium blue. The flavor is good. The plant is spreading but reaches only 4 feet at maturity. Good for the North and West. Locally available. Origin: Michigan.

'Woodward' Among the earliest ripening of rabbiteye types, this is a short and spreading plant. Berries are large, light blue, mildly flavored and somewhat tart until fully ripe. Best performance is in low-elevation areas of the South. Origin: Georgia.

Midseason Varieties

'Berkeley' This large, firm berry is pale blue and resists cracking. The bush is fairly upright and moderately hardy. Good for all zones and especially for the Pacific Northwest. Widely available. Origin: New Jersey.

'Bluecrop' The fruit is large, light blue, and rather tart, but stores well and is good for cooking. The berries stand cold well, which makes the plant good for the shortest Michigan growing seasons. The plant is upright and medium hardy. Widely available. Origin: New Jersey.

'Blueray' The fruit is very large, firm, and sweet. The plant is upright and spreading. Good for all zones, and especially recommended for Washington. Widely available. Origin: New Jersey.

'Croatan' The fruit is medium sized and quick to ripen in warm weather. The plant is canker resistant. Good for the South and especially recommended for North Carolina. Locally available. Origin: North Carolina.



'Dixi'

'Northblue' Developed by the University of Minnesota to withstand the rigors of northern winters, this is a half-high-bush type reaching about 2 feet tall—a size that gives it complete snow cover in most winters. Large berries have outstanding flavor. It needs a pollinator such as 'Northsky'. Origin: Minnesota.

'Northsky' Another blueberry developed for the trying northern winters, this plant is same size as 'Northblue', but its highly flavorful fruit is smaller and produced in smaller quantity. Fall foliage is deep red. Use 'Northblue' as a pollinator. Origin: Minnesota.

'Stanley' This is a widely recommended variety. The fruit is medium sized and firm with good color and flavor. The bush is hardy, vigorous, and upright. Pruning is easy because there are few main branches. Good for the North and West. Origin: New Jersey.

'Tifblue' This rabbiteye type is a Southern favorite because of its dependable production of large, tasty berries. Origin: Maryland.

Late Varieties

'Coville' Origin: New Jersey. This is an inconsistent variety with large, light blue fruit that remains tart until near harvest. The plant is medium hardy. It is good for all zones and widely available. Origin: New Jersey.

'Delite' This is the only rabbiteye variety that develops some sugar early. Picking is easier and flavor is excellent. The berries are medium large and may be reddish under the bloom. Origin: Georgia.

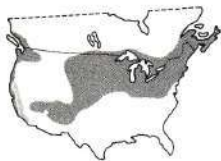
'Dixi' The name is not an affectionate term for the South but Latin for "I have spoken" or, loosely, "That's my last word." It was given by the developer, F. V. Coville, on his retirement. The fruit is large, aromatic, flavorful, and good fresh. Popular in the Northwest. Origin: New Jersey.

'Southland' The firm, light blue berries have a waxy bloom, and the skin may be tough late in the season. This is a particularly good Gulf Coast plant. Locally available. Origin: Georgia.

Currants and Gooseberries

Currants and gooseberries are among the most beautiful of the small fruits, but they are good home garden shrubs for other reasons as well.

You won't often see fresh fruit in the market, since



crops from the limited commercial plantings go to processors for commercial jellies and canned fruits. But since the plants are ornamental, easy to care for, and productive, northern gardeners can tuck a few among other shrubs for the bloom, fruit, and fall color. The crop can be used for jelly, pie, or just fresh eating for those who like a tart fruit.

We discuss only the red and white currants of the species *Ribes sativum* and the gooseberries *Ribes grossularia* and *R. hirtellum*. The black currant, *Ribes nigrum*, so aromatic and rich in vitamin C, was banned almost everywhere in the past because it is part of a disease cycle of five-needle pines. Spores of white pine blister rust from miles away spend part of their lives on the currants and then transfer to pines growing within about 300 feet.

The ban has been lifted in many states, and three rust-resistant varieties have been developed: 'Coronet', 'Cru-sader', and 'Consort'. 'Consort' is the best rust-resistant black currant to plant and makes an attractive hedge. The other *Ribes* species can also take part in transferring this disease, and they, too, are banned in some areas. Do not transport any currant or gooseberry from outside your region.

Fall or winter planting is a good idea, since the plants leaf



'White Imperial' currants

out early. In cold climates, plant right after the leaves drop, and the roots will be established before winter. Space the plants about 4 feet apart, or set them closer if more convenient, but expect them to grow less vigorously. Both do poorly in hot summer areas but may survive if planted against a north-facing wall. In most areas plant in the open, but be sure soil moisture is constant. Set the plants a little deeper than they grew in the nursery.

Currant Varieties

'Jumbo' This American variety has large, pale green, sweet fruit. The plants are upright and vigorous. Origin: Unknown.

'Perfection' This old variety has medium-sized red fruit in loose clusters. The plant has good foliage and is upright, vigorous, and productive. Good for Washington and Oregon. Widely available. Origin: New York.



'Red Lake' currants



Gooseberries

'Red Lake' Recommended everywhere that currants will grow, this variety yields medium to large, light red berries in long, easy-to-pick clusters. The plants are slightly spreading. They produced the highest yield in Canadian trials and also produce well in California. Widely available. Origin: Minnesota.

'Stephens No. 9' This is a good Great Lakes variety, with fairly large, medium red berries in medium clusters. The plants are spreading and productive. Locally available. Origin: Ontario, Canada.

'White Grape' This is a white variety that is widely sold but is perhaps surpassed in quality by 'White Imperial', a relatively rare similar variety. Origin: Europe.

'Wilder' This very old variety from Indiana yields dark red berries that are firm but tender and very tart. Plants are large, hardy, and long-lived. Origin: Indiana.

Gooseberry Varieties

'Clark' This fruit is large and red when ripe. The plants are usually free of mildew.

This is a good Canadian variety. Origin: Ontario, Canada.

'Fredonia' The large fruit is dark red when ripe. Plants are productive and vigorous, with an open growth habit. Origin: New York.

'Oregon Champion' The medium-sized fruit is green, and the plant bears prolifically. Good for the Pacific Coast and the East. Origin: Oregon.

'Pixwell' This is a very hardy variety for the Central and Plains States. The berries hang away from the plant, making them easy to pick, and the canes have few thorns. Fresh flavor is mediocre. Widely available. Origin: North Dakota.

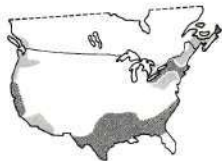
'Poorman' An American variety with red fruit, the plants are spiny and spreading. Good for the Pacific Northwest and the Central States. Locally available. Origin: Utah.

'Welcome' This American variety bears an abundance of wine-red fruit. The flavor is sweet-tart. Widely available. Origin: Minnesota.

Grapes

In the earliest periods of human history, four foods were recognizably important. In the North there were apples and honey. In the South there were olives and grapes.

Two types of grapes are



commonly grown today: the American and the European. The American grape entered our history more recently than the vine of Europe, but it has already played an important role since its roots saved the European grape from extinction during the *Phylloxera vitifoliae* plague of the last century. This plague threatened to destroy the European grapes and the only remedy was grafting these grapes to American rootstocks. More recently American grapes have entered into sturdy hybrids that carry European wine grapes far north of their original climate area.

Grapes send their roots deep where they can, and they prefer a soil that is rich in organic material. You can encourage growth by adding an organic supplement at planting time and mulching the roots afterward. The site should have good air circulation because grapes are subject to disease in stagnant air.

Grapes need to be fed only nitrogen and may not always need that. If the leaves yellow and there is little growth in the early part of the season, they definitely need feeding. If you're not sure, try a feeding to see the result. Late feeding during the ripening period can force excessive growth and spoil the fruit.

Homegrown seedless grapes will never grow as large as those you buy at the market because commercial growers apply sprays of gibberellic acid (a plant growth hormone) to increase the fruit size. The spray simply increases the cell size within each grape and does not increase flavor or sugar content. Therefore, homegrown grapes will be more flavorful and will last on the vine longer because they will not rot the way large, crowded fruit tends to.

Harvest grapes by taste and appearance. When you think the bunch looks ripe, taste a grape near the tip. If it's good, cut the bunch.

Sometimes grapes never taste sweet, no matter how long you wait. This simply means that you have planted the wrong variety for your area. Either switch to another variety or replant the one you stubbornly insist on in a hot spot against a south wall or in a west-facing corner.

If vines overproduce and have too many bunches, the grapes will never get sweet. This can be remedied in future years by more extreme pruning in the dormant season or by thinning the grape bunches to balance the leaf area with the grape berry load.

The two kinds of grapes are pruned differently. (See page 52 for instructions.)

Grapes mildew badly and need good air circulation and often treatment with a fungicide. The classic remedy is copper sulfate. A number of pests attack grapes, especially certain beetles. Birds love grapes, but you can save the fruit by placing whole bunches in paper bags.



'Buffalo'

Grapes for the Northeast and Midwest

Many of the following grapes also grow well in the Pacific Northwest. This is mentioned in the descriptions. The American grapes are listed first, with a note when they are choice juice or wine grapes. French hybrids are listed second.

American Varieties

'**Buffalo**' This grape ripens in midseason. It has fairly large clusters of reddish black berries and is a good grape for wine or juice. Cane prune this vigorous vine. Performs well in the Pacific Northwest. Origin: New York.

'**Catawba**' Good for wine or juice, this red grape is a popular commercial variety. It requires a long season to ripen and will do well in southerly areas with the longest growing seasons. Thinning will hasten development. Widely available. Origin: North Carolina.

'**Cayuga White**' This variety bears white grapes in tight clusters. They are of good dessert quality. Origin: New York.

'**Concord**' This late grape is so well known and widely planted that it hardly needs description. Often the standard of quality in judging American grapes, the dark blue slipskin berries are rich in the characteristic "foxy" flavor, which is retained after processing. Widely available. Origin: Massachusetts.

'**Delaware**' The clusters and berries of this major wine grape are small, good for wine and juice, and excellent for dessert eating. The vines are subject to mildew. Origin: New Jersey.

'**Edelweiss**' This hardy, medium-sized grape is of good dessert quality. Origin: Minnesota.

'Fredonia' This variety should be allowed to set heavily, as it sometimes has difficulty with pollination. This is the top black grape in its season. The vines are hardy. Widely available. Origin: New York.

'Himrod' This is the top white seedless grape throughout the northern states. 'Thompson' types replace it where weather is warmer. The vines are brittle and only moderately hardy. Widely available. Origin: New York.

'Interlaken Seedless' This grape ripens early and has medium-sized clusters of small, seedless berries with greenish-white skin that adheres. The flesh is crisp and sweet. The grape resembles 'Thompson Seedless' but has more interesting flavor overtones. The vine is fairly hardy and does best with cane pruning.

Widely available. A good substitute for 'Thompson Seedless' in the Pacific Northwest. Origin: New York.

'New York Muscat' Good for wine and juice, this variety's reddish black berries in medium clusters have a muscat aroma, which is rich and fruity, not "foxy." Temperatures below -15° F can cause winter injury. Origin: New York.

'Niagara' Good for wine and juice and more productive than Concord, this is the most widely planted white grape. It is vigorous and moderately hardy. Widely available. Origin: New York.

'Ontario' These white berries form fairly loose clusters. The vines are vigorous, productive, and moderately hardy and prefer quite heavy soils. Cane pruning is best. Also grown in the Pacific Northwest. Origin: Ontario, Canada.

'Schuyler' This grape resembles European grapes in flavor. It is soft and juicy with a tough skin. The vines are fairly hardy and disease resistant. Also a good choice in the Northwest. Origin: New York.

'Seneca' The small to medium berries resemble European grapes, with tender golden skin and sweet, aromatic flavor. The vine is hardy and takes cane pruning, although one parent is a European type. Good in the Pacific Northwest. Origin: New York.

'Swenson Red' This hardy red variety has good flavor and medium to large berries. Origin: Minnesota.

'Veesport' Borne in medium clusters, these black grapes are good for wine and juice and acceptable for fresh eating. The vine is vigorous. Origin: Ontario, Canada.

French Hybrids

Spur prune these vines. They are hybrids of European and less well known American grapes (not the 'Concord' type). All are primarily for wine or juice but are also good eaten fresh.

'Aurore' ('Seibel 5279')

This very early white grape is soft, with a pleasant flavor. It is a dependable producer and a vigorous grower, better in sandy than in heavy soils. Choose it if early ripening is needed. Widely available. Origin: France.

'Baco 1' ('Baco Noir')

This midseason variety produces small clusters of small black grapes. It is extremely vigorous and productive, but it tends to bud out early and is subject to frost injury. This is not a cold hardy variety. Widely available. Origin: France.



'Fredonia'



'Interlaken'



'New York Muscat'



'Seneca'

Grapes for the West

The West is grape country wherever you go, and yet many gardeners are disappointed in the fruit they harvest from their vines. The problem is usually a poor choice of varieties. More than any other fruit, grapes require the right climate and amount of heat to produce well. Too many gardeners buy vines because they like the fruit in the market or because they know a famous name.

In general western grape climates are divided into three groups. The first includes all of the West except California and the southwestern desert. Gardeners in these cool regions should choose an American grape of the "foxy"-flavored species, *Vitis labrusca*. Some of the best choices for the Pacific Northwest are indicated in the descriptions of American grapes. 'Concord', often sold by nurseries in the cool regions, is not successful in western Washington and Oregon. It requires more heat.

In California the cooler coastal areas and coastal valleys are suited to American grapes and selected European varieties with a low-heat requirement. 'Concord' does well, but the popular 'Thompson Seedless' will almost always disappoint the home gardener. 'Perlette' is similar, but it was developed for the low heat of this climate. The inland Northwest and parts of Utah, Montana, Colorado, and Idaho can also use 'Concord' and 'Niagara' from the coastal California list.

In the hot inner valleys of the California coast range, there are major commercial vineyards growing all the renowned European wine grapes. The Napa-Sonoma wine region is well known, but there are also many wine grapes grown in newer plantings in southern Santa Clara County, San Benito County near Salinas, and north of Santa Barbara.



'Tokay'

The hot Central Valley climate is perfect for the European table grapes that you see on your grocer's counters. 'Thompson', 'Ribier', and 'Emperor' all do well.

The low and high deserts are not good grape country. The earliest maturing European varieties stand the best chance of producing a crop.

Table Grapes

'Cardinal' These large, dark red berries ripen early and have firm, greenish flesh. The medium-sized clusters are extremely abundant. Use this one to cover an arbor or summerhouse. Spur pruning is best. Performs in both coastal valley and central valley climates. Origin: California.

'Concord' This grape, described earlier, does not like high California heat or the coolest Northwest summers, but does well elsewhere. Cane prune. Origin: Massachusetts.

'Delight' This grape ripens early, yielding well-filled clusters of large, greenish yellow berries with firm flesh and a distinct muscat flavor. Spur

pruning is best. Prefers coastal valley climate; locally available. Origin: California.

'Emperor' This late-ripening, large red grape has flesh so firm it seems to crunch. It is adapted to the hottest part of the San Joaquin Valley. The berries are firm and will store longer than other varieties. Spur prune. Origin: Unknown.

'Flame Seedless' This light red table grape is popular for its crisp texture, sweet flavor, and absence of seeds. Elongated, loose, medium-sized clusters ripen early along with 'Cardinal'. Prefers plenty of heat during the ripening period; the best color develops where nights are cool. Use either spur or cane pruning. Origin: California.

'Muscat of Alexandria' These late midseason, large green berries are splotched with amber and grow in loose clusters. They are not pretty but have an unparalleled musky, rich flavor. They lose flavor if held too long so are best eaten fresh from the home garden. These grapes



'Baco 1'

can also be dried as seeded raisins. Spur pruning is best. This variety requires the moderately high heat of the San Joaquin Valley or other inland valleys but not the desert. Muscats are often used to make sweet dessert wine. Unfortified muscat wine is a treat with desserts or fruit. Origin: North Africa.

'Niabell' Performing well both in coastal valleys and hot interior regions, this midseason variety produces well-filled clusters of large, black berries that are good fresh or as juice. Vines are vigorous, resist powdery mildew, and can be pruned to long canes. Cane pruning is best. Origin: California.

'Niagara' This white variety, described on opposite page, ripens mid- to late midseason. The best crop comes in coastal regions. Cane pruning is best. Origin: New York.

'Pierce' This is the hot-summer 'Concord'. Grow it in the warmer regions of central California where you want a black slipskin. It is very vigorous. Cane prune. Locally available. Origin: New York.

'Ribier' This is a beautiful, early midseason dessert grape with large, jet-black berries. It does best in hot interior valleys. The fruit tends to soften quickly in storage and lose its mild flavor. The vines are overproductive. Use short spur pruning and thin the flowers. Origin: France.

'Thompson Seedless' Ripening in early midseason, this is the top commercial seedless green grape. The clusters are well filled with rather long, mild flavored, fruit. These are excellent fresh if clusters are thinned. They are also used for raisins. Grow only in hot climates. (Try 'Perlette' or 'Delight' instead if in doubt.) Cane pruning is required. Origin: Asia Minor.

'Tokay' This late midseason variety bears large clusters of large, very firm, red grapes that are attractive but have little flavor. It does well in the Lodi area, and the cooler valley climates. Use 'Emperor' in hotter climates. Spur pruning is best. Locally available. Origin: Algeria.



'Chardonnay'



'Pinot Noir'



'Zinfandel'

Wine Grapes

The list includes three each of the best-known red and white grapes. They change character over short distances, so unless you know that they do well near you, don't count on getting the best quality.

'Cabernet Sauvignon' This is the great European black grape used to make the red Bordeaux wines of France. Cane prune for best results. Origin: France.

'Chardonnay' This popular white grape is used to make the famous French white Burgundy. It is a vigorous grower and moderate producer. The clusters of berries are small. It is best in cool coastal areas and should be cane pruned. Origin: France.

'Chenin Blanc' The vines on this white grape variety are vigorous and productive. It yields medium-sized berries and clusters. The coastal valleys and the San Joaquin Valley have the best climates for this variety. It should be cane pruned. Origin: France.

'French Colombard' This productive white variety yields a grape that is high in acid. It is adapted to coastal valleys and the Central Valley of California and bears medium-sized berries and clusters. It can be cane or spur pruned. Origin: France.

'Pinot Noir' This small black grape is used to make the French Burgundy wines. Cane prune. Origin: France.

'Zinfandel' This is a California specialty for both red and white wines. You can probably grow this better than any other, as it seems to make drinkable wine in a variety of climates. Origin: Unknown.

Grapes for the Southeast

Two quite different types of grapes are widely grown in the Southeast. Both are American in origin: the bunch grape and the muscadine grape. The bunch grape is typified by 'Concord', which was described earlier. Although this type prefers a cool climate, varieties are available for most regions. The real southern grape is, of course, the muscadine, with its smaller

clusters of berries and liking for Cotton Belt weather.

Muscadine Varieties

Many muscadines are sterile and need a pollinator. The varieties described below as "perfect" will pollinate themselves and any other variety.

'Hunt' This dull black fruit ripens evenly. The quality is excellent, very good for wine and juice. The vine is vigorous and productive. This variety is unanimously recommended for home and commercial planting by the Muscadine Grape Committee. Origin: Georgia.

'Jumbo' This is a very large black muscadine of good quality. It ripens over several weeks, so it is excellent for fresh home use. The vines are disease resistant. Origin: southern United States.

'Magoon' Perfect. Reddish purple berries are medium sized and have a sprightly, aromatic flavor. The vine is productive and vigorous. Origin: Mississippi.

'Scuppernong' Most people call any similar grape a scuppernong, but this is the real

variety. The fruit color varies from greenish to reddish bronze, depending on sun. It is late ripening, sweet, and juicy with aromatic flavor. Good for eating fresh or for wine. Origin: North Carolina.

'Southland' Perfect. This very large grape is purple and dull skinned with good flavor and high sugar content. The vine is moderately vigorous and productive. Good for the central and southern Gulf Coast states. Origin: Mississippi.

'Thomas' This standard grape has reddish black, small to medium berries that are very sweet and excellent for fresh juice. Locally available. Origin: southern United States.

'Topsail' Clusters of three to five berries have green fruit spotted with bronze. This sweetest of all muscadines is very good for fresh use. It is a poor producer. Vines are not very hardy but are disease resistant. Origin: North Carolina.

'Yuga' These reddish bronze berries are sweet and of excellent quality but ripen late and irregularly. They are fine for home gardens. Origin: Georgia.

Raspberries

Raspberries are the hardiest of the cane berries, and perhaps the most worthwhile home garden crop for several reasons. Prices for the market fruit are high because care and labor are expensive, and



market raspberries are subject to a long enough holding and handling period that fruit loses its finest flavor and may be bruised. Home garden fruit can be eaten at its peak.

The thing that makes a raspberry a raspberry is the fact that it pulls free of its core when you pick it. Other bramble fruits take the core with them.

The red raspberry is the most popular, but raspberries come in a variety of colors and plant forms—red, purple, yellow, and black fruits, with the red and yellow fruits growing either one or two crops on stiff canes and the purple and black fruits growing one crop on trailing canes. Because they are trailing, purples and blacks require trellising.

One-crop (single crop) raspberries produce fruit on canes that grew the previous year. Two-crop (everbearing) raspberries produce some fruit at the top of current-season canes in fall, and then produce a second crop on the rest of the cane the following year.

Raspberries are extremely hardy, so no special protection is needed except in the coldest mountain and plains climates. Where winter temperatures stay extremely low for long periods, and winds add to the chill, you should protect your plants in the following manner: Lay canes of the current season along the row or trellis, pinning portions that arch

upward. Be careful not to snap them. Where mice are not likely to be a problem, cover the canes with straw or sawdust to a depth of several inches, and then cover the mulch with poultry netting to hold it in place. If winter mouse damage is probable, bury the canes under 2 inches of earth.

In spring uncover the canes before they begin to leaf out, just as the buds swell. If the buds break while still covered, they will be extremely tender to even light frost.

Unfortunately for southern gardeners, raspberries do poorly in much of the South. They need cold winters and a long, cool spring. Everbearing plants don't like high heat.

California and Arizona gardeners are similarly unfortunate. Raspberries do not like spring and summer heat. Only the red varieties will grow and they are recommended only for coastal or mountain regions. The prime berry country on the Pacific Coast is western Washington around Puget Sound and the Willamette Valley of Oregon.

Raspberries are subject to all the same troubles as dewberries, but in the cold climates where raspberries grow best you'll have less trouble. Any verticillium in the soil rules them out entirely, however. Because black raspberries are susceptible to virus diseases carried by red raspberries, they should be planted at least 700 feet from any reds. Virus-free stock may spare you this trouble.

If you want to enlarge a planting, it is important to know the difference between black and red raspberries. Blacks and purples arch their canes to the ground and root at the tips to form new plants. If you want more plants, leave a few canes unpruned and in late summer pin the tip to the



'Latham'

ground. Throw on a little soil if you like. Then dig and separate the new plant in spring.

Red raspberries send up root suckers. You can dig and replant them just before growth begins. Take a piece of root and cut back the top.

Red and Yellow One-Crop Varieties

In these varieties, all fruit is borne on laterals that sprout from the year-old canes. There is one crop per season, either in late spring or early summer.

'Amber' This is a yellow berry that is an excellent desert fruit. Good for the North. Origin: New York.

'Boyne' This berry excels where winters are cold and summers no more than warm. The red fruit has a strong, sweet-tart flavor. The moderately vigorous plant is subject to anthracnose. Origin: Manitoba, Canada.

'Canby' These large, firm, midseason berries are good for freezing. The plants are semithornless and do best in light soils in the West and Northwest. Origin: Oregon.

'Cuthbert' Once the leading commercial raspberry, and still unexcelled for dessert, canning, or freezing, this variety is difficult to pick, but this is not a big problem in the home garden. Good for the West. Locally available. Origin: New York.

'Fairview' These berries are large to fairly large and light red. The tall, branched canes are moderately hardy. Especially suited to western Washington and generally good for the West. Origin: Oregon.

'Hilton' This berry is the largest of all the reds, and of excellent quality. The plants are vigorous, productive, and hardy. Good for the North. Origin: New York.

'Latham' This early midseason variety is the standard eastern red raspberry. The berry is large, firm, and attractive, with a tart flavor. The plants are somewhat resistant to viral diseases. Good for the South and West. Widely available. Origin: Minnesota.



'Fallgold'



'Heritage'



'Royalty'

'Meeker' This Pacific Northwest favorite bears firm, sweet, bright red berries. The strong plants are botrytis resistant. Origin: Washington.

'Pocahontas' This recent introduction has large, firm, medium red berries with a tart flavor. The plant is winter hardy and productive. Good for the South. Origin: southern United States.

'Puyallup' These late-ripening large berries are somewhat soft. The plant does best in light soils in the Northwest, and is generally good for the West. Locally available. Origin: Washington.

'Summer' This medium to large berry is firm and sweet, with intense flavor. Some strains crumble badly. The plants do well in heavy soil and are recommended for western Washington or along the coast to Monterey, California. Locally available. Origin: Washington.

'Sunrise' This early variety offers firm, fine-textured fruit of good quality. The plant is hardy and very tolerant of anthracnose, leaf spot, and cane blight. Good for the South. Origin: Maryland.

'Taylor' This variety offers mid- to late season crops of attractive, firm, red berries of excellent quality. The plants are vigorous and hardy. Good for the North. Locally available. Origin: New York.

'Willamette' The berries ripen in midseason and are large, round, firm, and good for freezing or canning. This is a vigorous, widely planted commercial variety. Good for the West. Origin: Oregon.

Red and Yellow Two-Crop Varieties

Two-crop raspberries produce a crop in fall at the end of new canes and another crop in early summer of the following year. In California the second crop may not survive the heat. In the Northwest these varieties may produce some fruit throughout the summer.

'Amity' A bicoastal raspberry developed and popular in the Northwest, it is proving itself also in the Northeast. The dark red, highly flavored fruit is good fresh or canned. Ripens just ahead of 'Heritage'. Origin: Oregon.

'Cherokee' The berries are large and firm, and the plant is winter hardy and productive. Good for the South, particularly the piedmont area of Virginia. Origin: Arkansas.

'Durham' These berries have very good flavor. The plants are very hardy and productive, bearing a second crop early. Good for the North. Origin: New Hampshire.

'Fallred' The fruit is a tawny golden color with very sweet flavor; except for color this variety is similar to 'Heritage', although its performance is poorer in warmer climates. Widely available. Origin: New Hampshire.

'Fallred' The berries are of fair quality but are often crumbly. The plants are nearly thornless. The first crop appears in spring. Good for the South and North. Widely available. Origin: New Hampshire.

'Heritage' The medium-sized, firm fruit ripens in July and September. The vigorous, stiff-caned plants need little support. You can mow all the canes in late winter to get a single August crop and save pruning. Good anywhere. Origin: New York.

'Indian Summer' The fruit is large and of good quality. The first crop is light, the fall crop very late and moderately abundant. Good for all zones. Origin: New York.

'September' These medium to large berries are of good quality. The plant is vigorous and hardy—one of the best in the coldest regions. Good for the North and South. Origin: New York.

'Southland' Recommended for farther south than any other, this berry was developed in North Carolina but is not recommended for the coastal plain. It has large fruit of fair quality. Good for the South. Origin: North Carolina.



Botanically, the strawberry "berry" is a receptacle. The "seeds" are the true fruit.

Purple Varieties

These raspberry plants are tall and stiff and bear a single crop on year-old canes.

'Amethyst' This early berry is of high quality. Good for the North. Origin: Iowa.

'Brandywine' This hybrid berry is of mixed ancestry; growth and fruit are closest to the purple types. Vigorous with 10-foot canes, it produces good crops of tart, red-purple berries especially fine for jam. Origin: New York.

'Clyde' This early berry is large, firm, dark purple, and of excellent quality. The plant is vigorous. Good for the North. Origin: New York.

'Royalty' This very vigorous purple-red hybrid similar to 'Brandywine' produces fruit that is large, sweet, good for eating fresh and for cooking and preserving. The plant is immune to the raspberry aphid, which carries a debilitating virus disease. Origin: New York.

'Sodus' This midseason berry is large, firm, and of good quality but tart. The plants are productive. Good for the North. Origin: New York.

Black (Blackcap) Varieties

Gardeners in the South and West should be aware that black raspberries are least able to tolerate mild climates. They need cold and do poorly in western Washington, although they are planted in the Willamette Valley and elsewhere in Oregon. They bear a single crop on year-old canes.

'Allen' This variety produces large, attractive berries on a vigorous and productive plant. Good for the North. Origin: New York.

'Black Hawk' This late variety bears large berries of good flavor and yield. Good for the North. Widely available. Origin: Iowa.

'Bristol' These attractive, glossy black berries are large, firm, and of good quality. They must be fully ripe or you can't pick them. Good for the South and West. Widely available. Origin: New York.

'Cumberland' This favored variety has large, firm berries of fine flavor. The plants are vigorous and productive. Good for the South and North. Widely available. Origin: Maryland.

'Logan' ('New Logan') This variety produces heavy crops of large, glossy, good-quality berries. The plants hold up in drought and tolerate mosaic and other raspberry diseases. Good for the South and North. Origin: Illinois.

'Manteo' The fruit resembles 'Cumberland', but the plant survives farther south than any other. Good for the South. Locally available. Origin: North Carolina.

'Munger' The medium-sized fruit is of good quality. The plants are especially recommended for western Oregon. They are worth trying in western Washington, but may succumb to disease. Good for the West. Origin: Oregon.

Strawberries

If you have grown strawberries for any length of time, you know that flavor and yield are not predictable but vary from year to year depending on spring growing conditions. Strawberries are also very



regional in their adaptation and the best variety in one state may be only fair in another. A good nursery can be a big help, since the staff keeps abreast of developments in plant breeding and offers plants that should succeed. Your county agricultural agent can help, too, especially if you've had trouble in the past. Two types of strawberries are available: standard and ever-bearing. The traditional "ever-bearing" types actually bear two crops per season, one in summer and one in fall. Recently strawberries have been developed that are truly everbearing, producing fruit spring, summer, and fall. These are listed in catalogs as "everbearers" or "day-neutrals" (since they fruit regardless of day length). These are very good for decorative hanging baskets, since they even fruit on unrooted runners.

To encourage vigorous growth of regular varieties, remove blossoms that appear the year the plants are set out. The year that everbearing kinds are planted, remove all blossoms until the middle of July. The later blossoms will produce a late summer and fall crop.

Plant strawberries in soil with good drainage, and mound the planting site if you're not sure about the drainage. The new leaf bud in the center of each plant should sit exactly level with the soil surface. Never plant strawberries deep.

Gardeners who grow strawberries in containers in a disease-free soil mix don't have to worry about verticillium wilt and red stele (root rot). Both are caused by a soil-borne fungus. Whether growing strawberries in containers or in garden soil, always ask for plants that are certified as disease free.

Winter protection is needed where alternate freezing and thawing of the soil may cause the plants to heave and break the roots. Low temperatures also injure the crowns of the plants. In the fall, after the soil has frozen to a depth of 1 inch, place a straw mulch 3 or 4 inches deep over the plants. Remove most of the mulch in spring when the centers of a few plants show a yellow-green color. You can leave an inch of loose straw, even add some fresh straw between rows. The plants will come up through it, and it will help retain moisture in the soil and keep mud off the berries.

In northern areas, and as far south as North Carolina, strawberries should be set out in early spring. In the warmer regions of North Carolina, plants can be set out in fall or winter as well, and you can expect a light crop from these plants about five months later.

In northern Cotton Belt climates, set out plants in September for the highest yield of spring berries. Waiting until later will diminish the crop.

In the warmest Gulf climates and into Florida, you must order cold-stored plants, or plants from the north, for planting from February to March. You can also obtain a quick crop by planting northern plants in early November for winter fruiting, but the crop will be smaller. The runners from February plantings can be transplanted in May and August to increase the size of your planting.

Western planting seasons impose unique restrictions on strawberry growth. In the coldest areas of California and from the Great Basin to Colorado, plant as early in spring as possible since there is good moisture in the soil to start the plants. If soils are usually too wet for planting, protect a mounded bed with plastic to keep the soil friable.

In the Northwest, especially the coolest areas of western Washington, plant early in fall so plants can become established before real cold sets in, or else wait until early spring. Watch for washouts from heavy fall rain. Weed carefully in spring so weeds don't compete.

In milder-winter areas of California, use chilled plants (stored at 34° F for a short period) and set them out in October and early November. The low desert is a chancy area for strawberries, but October planting may give results.

Anywhere in California, the berries will do better with a plastic mulch, which increases winter soil temperature and keeps the berries off the soil. Irrigate by furrows for raised beds or by drip irrigation.



'Sequoia'

Varieties for the South

'Albritton' This late berry is large and uniform in size and is excellent fresh and for freezing. It develops a rich flavor in North Carolina. Origin: North Carolina.

'Blakemore' These early berries are small and firm, with a high acid and pectin content. They have only fair flavor but are excellent for preserves. The plants are vigorous, with good runner production and high resistance to virus diseases and verticillium wilt. They are adapted to a wide range of soil types from Virginia to Georgia and westward to Oklahoma and southern Missouri. Origin: Maryland.

'Cardinal' These large, firm, dark red berries are sweet and good for fresh eating and processing. The heavy midseason crop comes on plants resistant to leaf spot, leaf scorch, and powdery mildew. Widely available. Origin: Unknown.

'Daybreak' These medium red berries are large and very attractive with good flavor

and preserving quality. The plants are very productive. Locally available. Origin: Louisiana.

'Dixieland' This early berry is deep red, firm, acid in flavor, and excellent for freezing. Plants are sturdy and vigorous. Origin: Maryland.

'Earlibelle' This widely adapted early variety produces large, firm fruit that is good for canning and freezing. The plants are medium sized, with good runner production and resistance to leaf spot and leaf scorch. Origin: North Carolina.

'Florida Ninety' These berries are very large, with very good flavor and quality. The plant is a heavy producer of fruit and runners. Origin: Florida.

'Guardian' These large, deep red, midseason berries are firm, uniform in size, and attractive. They have good dessert quality and freeze well. The plants are vigorous and productive and resist many diseases. Origin: Maryland.



'Surecrop'

'Headliner' These midseason berries are of good quality. The plants are vigorous and productive, make runners freely, and resist leaf spot. Locally available. Origin: Louisiana.

'Marlate' This very large, attractive fruit is good fresh and freezes well. The plant is extremely hardy and is, therefore, a productive and dependable late variety. Origin: Maryland.

'Pocahontas' This berry is good fresh, frozen, or in preserves. The plants are vigorous and resist leaf scorch. They are adapted from southern New England to Norfolk, Virginia. Origin: Maryland.

'Redchief' The fruit is medium to large and of uniform deep red color with a firm, glossy surface. The plant is extremely productive and resistant to red stele (root rot). Origin: Maryland.

'Sunrise' These berries are medium sized, symmetrical, and firm and have very good flavor. The flesh is too pale for

freezing. A vigorous grower, the plant resists red stele, leaf scorch, and mildew. Origin: Maryland.

'Surecrop' This early berry is large, round, glossy, firm, and of good dessert quality. The large plants should be spaced 6 to 9 inches apart for top production. Resists red stele, verticillium wilt, leaf spot, leaf scorch, and drought. Good in all zones. Widely available. Origin: Maryland.

'Suwannee' This is a medium to large, early, tender berry of very good quality either fresh or frozen. It is a poor shipper but excellent for the home garden. Locally available. Origin: Maryland.

'Tennessee Beauty' This late berry is medium sized, attractive, glossy red, and firm and has good flavor. It is good for freezing. The plants are productive of both fruit and runners. They resist leaf spot, leaf scorch, and virus diseases. Origin: Tennessee.



'Olympus'

Varieties for the Northeast and Midwest

'Ardmore' These large, late midseason berries are yellowish red outside and lighter inside and have good flavor. The plants are productive in heavy silt loam. Origin: Missouri.

'Canoga' This late-ripening, heavy-bearing cultivar produces large, sweet fruit that lasts well because of firm flesh and tough skin. Origin: New York.

'Catskill' These large midseason berries are of good dessert quality and are excellent for freezing. The fruit is not firm enough for shipping, but the plant is a productive home garden variety. It can be grown over a wide range of soil types from New England and New Jersey to southern Minnesota. Widely available. Origin: New York.

'Cyclone' This variety yields large, flavorful berries that are good for freezing. The plant is hardy, resists foliage diseases, and is well adapted to the North Central States. Widely available. Origin: Iowa.

'Dunlap' This early to midseason fruit is medium sized, with dark crimson skin and deep red flesh. It does not ship well but is a good home garden fruit. Plants are hardy and adapted to a wide range of soil types in northern Illinois, Iowa, Wisconsin, Minnesota, North Dakota, South Dakota, and Nebraska. Origin: Illinois.

'Earlidawn' If you want the first strawberries in your neighborhood, this is the cultivar to plant. The berries are medium to large on heavy-bearing plants. Origin: Maryland.

'Fletcher' These berries are medium sized, with a medium red, glossy, tender skin and excellent flavor. They are very good for freezing. The plants are well adapted to New York and New England. Origin: New York.

'Holiday' The first fruit ripens at midseason, then ripening continues into summer with full-sized, large, bright red fruit. The plant is a heavy producer. Origin: New York.



'Midway'



'Sparkle'

'Honeoye' This conical, bright red fruit boasts exceptional flavor among the early midseason cultivars. The yield is high, and the fruit is highly resistant to berry rot. Origin: New York.

'Howard 17' ('Premier') These are early, medium-sized berries of good quality. The plants are productive and resistant to leaf and virus diseases. Locally available in the Northeast. Origin: Massachusetts.

'Midland' This very early variety bears large, glossy berries with deep red flesh. They are good to excellent fresh and also freeze well. The plant does best when grown in the hill system. It is adapted from southern New England to Virginia and west to Iowa and Kansas. Origin: Maryland.

'Midway' These large berries are of good to very good dessert quality and are also good for freezing. Plants are susceptible to leaf spot, leaf scorch, and verticillium wilt. They are widely planted in Michigan. Widely available. Origin: Maryland.

'Raritan' These midseason berries are large, firm, and flavorful. The plants are medium sized. Origin: New Jersey.

'Redstar' These late berries are large and of good to very good dessert quality. The plants resist virus diseases, leaf spot, and leaf scorch. They are grown from southern New England south to Maryland and west to Missouri and Iowa. Origin: Maryland.

'Robinson' These exceptionally large, "picture-perfect" strawberries are amply produced on vigorous, easy-growing plants. The prolonged fruiting period begins in mid-season. Origin: Michigan.

'Sparkle' This is a productive midseason variety with bright red, attractive berries that are fairly soft and have good flavor. The berry size is good in early pickings, but small in later ones. Widely available. Origin: New Jersey.

'Trumpeter' These medium-sized late berries are soft and glossy and have very good flavor. This is a hardy and productive home garden variety for the upper Mississippi valley and the Plains States. Origin: Minnesota.

Everbearing Varieties for the Northeast and Midwest

'Gem' ('Superfection', 'Brilliant', 'Gem Everbearing', and 'Giant Gem') This variety yields small, glossy red, tart fruit of good dessert quality. Widely available. Origin: Michigan.

'Geneva' The large, vigorous plants fruit well in June and throughout the summer and early autumn. The berries are soft and highly flavored. Origin: New York.

'Ogallala' Berries are dark red, soft, and medium sized and have a tart flavor that makes them good for freezing. Plants are vigorous and hardy. Widely available. Origin: Nebraska.

'Ozark Beauty' An ever-bearing variety for the cooler climate zones, this plant produces poorly in mild climates. The berries are bright red inside and out, are large, sweet, and of good flavor. Only the mother plants produce in any one season, yielding crops in the summer and fall. Runner plants produce the following season. Widely available. Origin: Arkansas.

'Tribute' This day-neutral strawberry with tart fruit is resistant to disease. Origin: Maryland.

'Tristar' This day-neutral variety is resistant to diseases. The fruit is sweet and highly recommended. Origin: Maryland.



Netting is the best way to protect ripe berries from birds.

Varieties for the West

The western strawberry-growing regions are divided into three areas: the Rockies and the Great Basin, western Washington and Oregon, and California.

The Rockies and the Great Basin

Recommended for these areas are the following varieties described earlier: 'Cyclone', 'Dunlap', 'Gem', 'Ogallala', 'Ozark Beauty', 'Sparkle', and 'Trumpeter'.

Western Washington and Oregon

'Hood' These midseason berries are large, conical, bright red, and glossy. They are held high in upright clusters and are good fresh or in preserves. Plants are resistant to mildew but susceptible to red stele. Origin: Oregon.

'Northwest' This late midseason variety produces large fruit at first, then smaller

fruit later in the season. The berry has crimson skin and red flesh and is firm, well flavored, and good fresh, in preserves, or for freezing. The plants are very productive and so resistant to virus diseases that they can be planted where virus has killed other varieties. Origin: Washington.

'Olympus' The late midseason fruit is held well up on arching stems. The berries are medium to large, bright red throughout, tender, and firm. The plants are vigorous but produce few runners. They resist red stele and virus diseases but are somewhat susceptible to botrytis infection. Origin: Washington.

'Puget Beauty' The large, glossy, very attractive fruit has light crimson skin. The flesh is highly flavored, excellent fresh, and good for freezing and preserves. The plants are large and upright with moderate runner production. They resist mildew but are somewhat susceptible to red stele. Locally available. Origin: Washington.

'Quinault' An everbearer with a moderately early crop, heavier in July through September, the fruit is large and soft with good color. The plant produces good runners. Origin: Washington.

'Rainier' These late midseason berries are large, firm, and of good quality. The plants are vigorous with large leaf blades but moderate runner production. Origin: Washington.

'Shuksan' This midseason variety bears large firm berries that are bright red, glossy, and broadly wedge shaped. The fruit is good for freezing, and the plants are vigorous. Origin: Washington.

California

'Douglas' This large, uniform, midseason fruit is light red and firm. The plant is very vigorous and produces early berries when planted in October. Good in Southern California. Origin: California.

'Pajaro' The large, uniform, early fruit has red skin and firm flesh. This berry does well along the central coast for spring and summer berries. It does well in the Central Valley for early season berries. Locally available. Origin: California.

'Sequoia' This is an early variety that may even bear in December. The exceptionally large fruit is dark red and tender with soft flesh of excellent flavor. Harvest frequently for best quality. The plant is erect and vigorous, with many runners. It is recommended for home gardens on the central and south coast. Plant in October and November. Widely available. Origin: California.

'Shasta' This large midseason berry is bright red and glossy with firm red flesh and is good for freezing or preserves. The plants are fairly vigorous with a moderate number of runners. They have some resistance to mildew and virus diseases. Locally available. Origin: California.

'Tioga' This early berry is medium red and glossy, with firm flesh that is fine for preserves or freezing. The plant is vigorous, moderately resistant to virus, and fairly tolerant of salinity, but highly susceptible to verticillium wilt. It is good for late-summer planting. Origin: California.

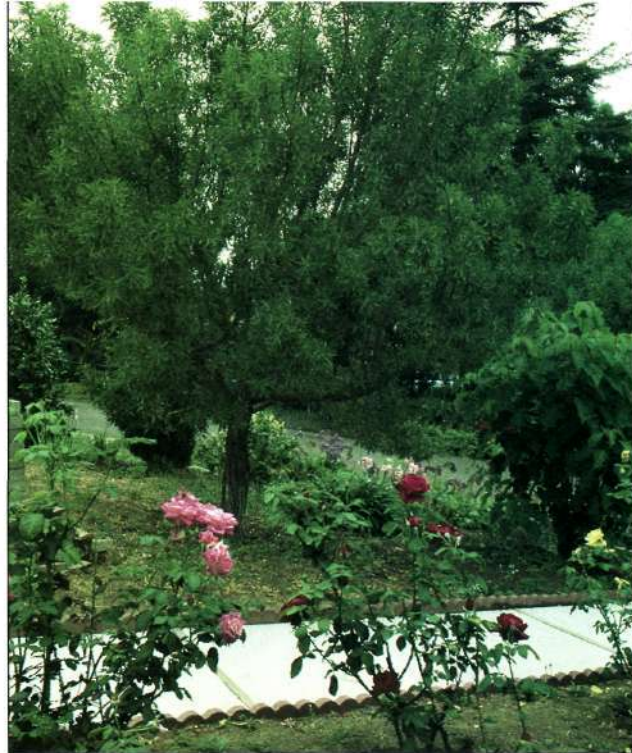
'Tufts' This midseason berry is red, extremely firm, and very large. This is a good variety for Southern California. Origin: California.

Everbearing Varieties for California

These are heavy berry producers and do not form many runners. Plant them anytime, and they will produce medium-sized berries in just 90 days. Try 'Aptos', 'Brighton', 'Fern', and 'Hecker'.



A nut is the "pit" of a fruit.



Almond tree

NUTS

Nut trees—with the exception of the filbert, or hazelnut—grow into extremely large trees. They make excellent shade trees and are beautiful when grown to full maturity, but they are not suitable for small yards. Like any fruit tree, they are subject to a fair amount of disease and insect attack, yet their size makes adequate spraying impossible for the average homeowner. Because of this nut trees should be viewed as large shade trees that often reward you with nuts, but not always. You should not count on a large harvest every year.

All nut trees need plenty of water because they are so large and deep rooted. Where summer rainfall is adequate, little irrigation is needed. In warm dry climates where summer rainfall is uncommon, nut trees need occasional deep watering. Run the hose at a trickle for 24 hours on each quarter of the root system.

That is, water for 4 days, moving the hose to the next quadrant of the root circumference each day. This may be necessary every two weeks, monthly, or only once during the summer, depending on the weather.

Almonds

The almond's kinship to the peach is evident at all times of the year—from bare tree to peachlike blossoms and leaves, and even to the, green, inedible fruit surrounding the edible kernel that is the almond.



Almond trees produce best in California and Arizona where spring frosts and summer rain are rare. But the regions in which they bear well constitute only a fraction of their growing range. Almonds typically flower very early and they are highly vulnerable to frost. If the flowers escape

frost damage and set fruit, the developing fruit may be ruined by late frosts. The best almond climates are areas where the last frost date is not likely to damage blossoms and where summers are long, warm, and dry so the fruit can develop and ripen well.

Gardeners in less-than-ideal climates still have a chance at success with almonds. Where untimely frosts pose potential problems, select only late-flowering cultivars. If possible plant on a north slope where the lower light delays bloom and cold air drains away. Cool, moist summer regions usually don't provide enough heat for ripening fruit well, but some success is possible if you give trees the sunniest (usually western) exposure.

Since almonds are graft-compatible with peaches, nectarines, and plums, some home growers hedge their bets by grafting one or more of these fruits to the almond, assuring some sort of crop.

A mature almond tree is 20 to 30 feet tall and dome shaped with a spread roughly equal to the height. Newly planted trees will start to bear in about 4 years, and the productive lifespan is about 50 years. Most cultivars need another almond as a pollinator (exceptions are noted as self-fertile). If you don't have enough room for two trees, dig an extra large planting hole and plant two almonds close together.

See page 46 for pruning and training instructions.

Almonds grow best in a deep soil (6 feet or more) but are not fussy about type as long as it drains well and is not saline. Almonds are more drought tolerant than most other fruit trees, though drought reduces quantity and quality of the crop. Where summer rainfall is light or lacking, the best watering regime is a thorough, deep irrigation whenever the soil dries to a depth of 3 to 5 inches.



'Hall' almond

Shot hole and *Rhizopus* fungus can ruin crops of almonds if rains occur in spring-time or summer. Navel orange worms make wormy kernels if almonds are not sprayed at hull crack (split-hull) stage or harvested promptly or if old nuts are left on the tree where worms can overwinter. Mites may attack foliage. Birds are a big problem: They will flock to a heavily fruiting tree.

Varieties

'All-in-One' This variety flowers between mid- and late season and is self-fruitful. The tree is small and bears heavy crops of soft-shelled 'Nonpareil'-quality nuts. Use as pollinator for 'Nonpareil' and 'Texas'. Origin: California.

'Garden Prince' The flowers bloom in midseason and the tree is self-fruitful. This is a genetic dwarf that grows only 10 to 12 feet tall at maturity. It is small enough to be used as a container tree. The medium-sized nuts are sweet and soft shelled. Origin: California.

'Hall' ('Hall's Hardy') This late-flowering almond bears heavy crops. The medium-

sized, sweet-flavored nuts have hard shells. The tree is partially self-fruitful but bears heavier crops with pollinator 'Texas'. Origin: Kansas.

'Ne Plus Ultra' ('Neplus') This variety flowers very early and is not a good choice for late-frost regions. Nuts are large, long, and narrow in soft shells. A good pollinator for this one is 'Nonpareil'. Origin: California.

'Nonpareil' A midseason bloomer, this is the standard commercial almond. It is adapted to nearly all almond-growing areas but experiences bud failure in the hottest regions. The nut is large and thin-shelled with excellent flavor. Pollinators are 'All-in-One', 'Hall', 'Ne Plus Ultra', or 'Texas'. Origin: California.

'Texas' ('Mission') The flowers form late, and the tree bears heavily. The nuts are hard shelled and small, with a sweet almond flavor. Pollinators are 'All-in-One', 'Hall', or 'Nonpareil'. Origin: Texas.



Chinese chestnut

Chestnuts

Of all the nut trees, the chestnut must be the most romantic: No poet has immortalized the spreading walnut tree, no lyricist captured the mood of filberts roasting by an open fire. But in the past 80 years



the chestnut romance has been a tragic one, for the American chestnut (*Castanea dentata*)—once an important forest and timber tree and the source of small but flavorful nuts—has been brought to the edge of extinction in its native range by an exotic bark disease. It survives in its old territory as stump sprouts, many of which reach bearing age before being hit again by the blight.

Experimentation continues in the quest for a blight-resistant seedling and the creation of hybrids between the American species and European and Asian chestnuts that will capture the American nut quality.

Currently the American chestnut can be grown safely only in blight-free regions west of the Rocky Mountains.

The chestnuts generally available for home planting include the European chestnut (also called Spanish or Italian), the Chinese chestnut, and hybrids between European and Chinese that involve the American species. The Japanese chestnut, *C. crenata*, produces a large nut but the quality is inferior to that of the others.

Chinese chestnut, *C. mollissima*, will grow in regions that produce good peaches; the tree is hardy to about -15° F. It is slightly susceptible to chestnut blight, but pruning out infected branches usually controls the problem. The mature size is 60 feet high with a spread of 40 feet. Compared to the European chestnut, the nuts are smaller—although nut size varies—and it is drier and not as highly flavored.

European chestnut (*C. sativa*) can reach 100 feet tall by 100 feet wide, though 40 to 60 feet in both directions is more typical in gardens. Its successful range is the same as that for its Chinese counterpart except that blight susceptibility rules it out of eastern gardens. Nuts are larger and more flavorful than are those of the Chinese species. European chestnuts are the chestnuts usually sold in markets.

Hybrid chestnuts are becoming more widely available as nut growers strive for the perfect combination of a large, flavorful nut on a blight-resistant tree. Most hybrids are simply sold as seedlings, usually with ancestry indicated.

Chestnuts grow rapidly, starting to bear three to five years after planting. Despite their fast growth they are long-lived trees. All chestnuts are big trees, definitely a consideration where space is limited. And for a nut crop you need another tree as a pollinator. The trees are an on-going source of litter—from fallen catkins in spring (bearing pollen that many people find foul smelling), burrs at harvest time, and fallen autumn foliage that is prickly and tough.

The best soil is one that is deep, well-drained, not alkaline, and reasonably fertile. Young trees achieve best growth with regular watering; mature trees will need some supplementary watering only where summers are hot and dry. If the soil is good, the trees usually need no fertilizer.

See page 47 for pruning and training instructions.

Chestnut burrs split open in early fall, releasing one to three nuts. Gather up the harvest daily, dry nuts for a day or two in the sun, then store dry at a cool but not freezing temperature.



Chinese chestnut

Chestnut blight, as mentioned above, determines which chestnuts will grow where. In blight-infested regions only the Chinese chestnut and possibly a few hybrids are safe to plant. Wherever oak-root fungus is present in the West, plant the resistant European chestnut, American chestnut, or hybrids between the two.

Varieties

‘Colossal’ One of a few named hybrids, this is sold in the West. In ancestry it is at least part European. The nuts are large, flavorful, and peel easily. Origin: California.

‘Silver Leaf’ This hybrid is so named because the leaf undersides turn silver at the time of nut fall. Smaller than ‘Colossal’ but with similar sweet flavor. Origin: Unknown.

Filberts (Hazelnuts)

Filberts and hazelnuts are one and the same. Species hail from Europe, North America, and eastern and western Asia. One European species, *Corylus avellana*, is called European filbert, and both



North American species, *C. americana* and *C. cornuta*, are often referred to as American hazelnuts. But there is no strict naming convention.

The standard nut-producing filberts are inclined to grow into large, suckering shrubs that form patches or thickets in time. They are usually trained into small trees reaching 15 to 25 feet tall. This adaptability to training and relatively small size make the filbert the most versatile landscape subject of all the nut trees. As a small tree it will easily fit into small gar-

dens with room left over for other plants; treated as a shrub it can be used singly or as a dual-purpose hedge. It is beautiful in either form.

Its rounded, ruffled leaves are attractive in their green spring and summer phase, and in fall they turn a pleasing clear to rusty yellow. During winter the long male catkins decorate bare branches. Filberts usually start to bear at 4 years and have an average 50-year productive lifespan.

The European species, *C. avellana* and *C. maxima*, have produced the principal cultivars that furnish commercial nuts. These same cultivars are top choices for the home gardener in regions where filbert blight—an incurable bark fungus—is not present. In blight-infested regions, look for hybrid filberts: crosses between European filberts and resistant American species. All European and hybrid filberts need a second filbert as a pollinator.



Immature filberts

Climate is a major consideration in choosing which filberts to grow. East of the Rocky Mountains, European filberts are best where winter lows range between -10° F and $+10^{\circ}$ F; in the West the range is -10° F to $+20^{\circ}$ F. The European-American hybrids extend the growing territory to regions that dip to -20° F. The female filbert blossoms appear in mid- to late winter or earliest spring, and they will be ruined if the temperature drops below 15° F.

Filberts do best when planted in a deep, well-drained, fertile, slightly acid soil. But as long as drainage is good, they can grow in soils that are shallow, sandy, or of low fertility. Plant in full sun for best nut production. Where summer rainfall is regular, filberts need little or no supplementary watering. But water regularly during dry spells and in dry-summer areas.

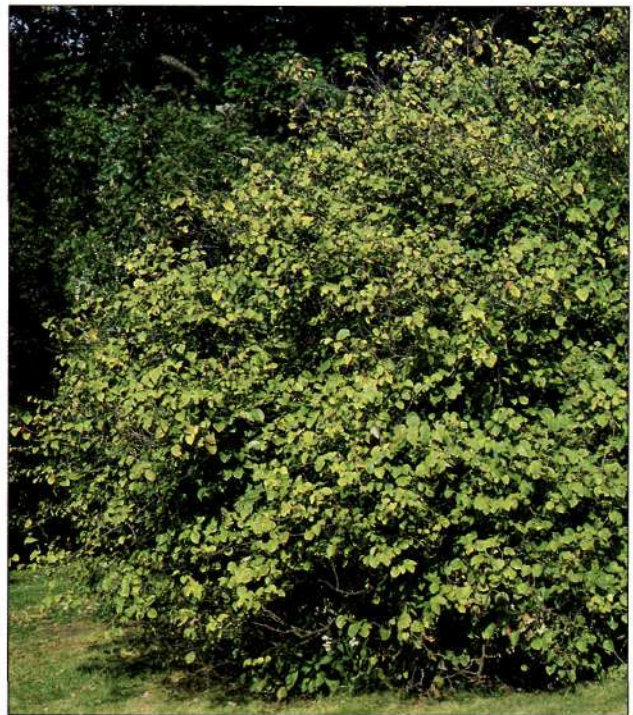
As long as leaf color remains dark green and nut production is good, plants need no fertilizer. If color and growth diminish, give plants nitrogen

at the start of the growing period; check with your county or state agricultural extension for recommended amounts.

See page 48 for pruning and training instructions.

Early autumn harvest involves picking nuts from the ground after they have been released from their enclosing husks. If you want to be certain to beat hungry wildlife to the crop, pick nuts just as soon as you can twist them in their husks. Though nuts are not fully colored at that time, they are completely ripe and will color up after picking. Place nuts in the sun to dry for several days before storing in cool, but not freezing, temperatures. Heavy crops tend to come in alternate years.

The most serious—and geographically limiting—disease is eastern filbert blight, a bark fungus that attacks European filberts in particular. There is no cure; the best way to cope with the disease is to avoid planting susceptible cultivars. The eastern American *C. americana* is a carrier for the



Filbert trained as a shrub

disease but is unaffected by it. The only fairly safe areas for European cultivars east of the Rocky Mountains are where no American hazelnuts grow. The blight also has spread to Washington State, and strict quarantines are in place to prevent its spread to other filbert-growing regions in the West.

A bacterial filbert blight common in the Northwest can be controlled by pruning out infected wood (sterilizing pruning shears after each cut) during the dormant season and by spraying just in advance of fall rains. The filbert-worm can attack developing nuts, burrowing inside and devouring the kernels.

European Varieties

European filberts have the largest and most flavorful nuts, and are usually the best choice if blight is not present.

'Barcelona' This is the standard commercial cultivar and is also sold for home planting. The nuts are round. Both 'DuChilly' and 'Royal' will pollinate 'Barcelona'. Origin: southern Europe.

'Butler' This is a heavy cropper that will pollinate either 'Barcelona' or 'Ennis'. Origin: Oregon.

'Daviana' This light producer of thin-shelled nuts is grown mainly to pollinate 'Barcelona', 'DuChilly', and 'Royal'. Origin: England.

'DuChilly' This produces a flavorful, elongated nut that must be hand picked since most nuts do not fall freely from the husk. Origin: England.

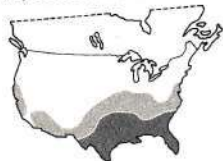
'Ennis' This newer cultivar has the high quality of 'Barcelona' but a heavier production of larger nuts. Origin: Oregon.

'Royal' This produces a larger nut than 'Barcelona' and ripens three to four weeks ahead of all other cultivars. Origin: Oregon.

Hybrid filberts have generally smaller nuts than the European types, and the flavor is less distinctive, but plants are hardier (as mentioned above) and have some resistance to eastern filbert blight. Standard cultivars are 'Bixby', 'Buchanan', 'Potomac', 'Reed', 'Rush', and 'Winkler'.

Pecans

At heights of 70 feet or more, with a spread nearly as great, pecans are imposing shade trees. For best nut production, most pecan varieties need another tree nearby as a pollinator, so commitment to a



pecan crop requires a considerable investment in space.

One word describes the best pecan climate: hot. A tree needs a long summer with hot days and nights in order to produce fully ripe nuts. Outside of native pecan territory in the southern and south-central United States, the southwest desert regions (with irrigation) offer congenial conditions. In the upper South and central Midwest, choose from among the short-season cultivars referred to below.

Pecan cultivars fall into two broad groups. The larger and more widely planted of the two is the group often called "papershell" pecans. They are reliably hardy where winter temperatures descend no lower than 0° F, and for nut production they need a growing season of 270 to 290 days. The smaller second group includes the northern or hardy pecans, which grow in regions where winter low temperatures range from -10° to +10° F; these varieties ripen where the growing season is as short as 170 to 190 days.

Papershell pecans are divided into two categories based on resistance to pecan scab disease, which is prevalent where summer weather is hot and humid. The eastern varieties are disease resistant and will grow throughout papershell territory; susceptible western cultivars are limited to desert and dry southwest areas.



'Wichita' pecan

Pecans need deep, well-drained soil that is slightly acid (pH 6 to 7 is best). They will not tolerate saline soils, a limitation in some otherwise acceptable desert regions. Within their native range, pecans get plenty of rainfall during the growing season. In dry-summer regions, or where rainfall is skimpy, give trees a deep soaking at least every 14 days so that nuts will fill out well.

See page 49 for pruning and training instructions.

Trees will start to bear at 5 to 8 years after planting and have a productive life extending at least 70 years beyond that.

Where soil is above pH 7 (neutral), zinc deficiency may show in a condition called pecan rosette—clusters of stunted leaves at branch ends. Contact your county or state agricultural agent for the best corrective measures in your area. Harvest time runs from late summer well into fall, depending on the variety. Most nuts do not fall free from the tree but have to be knocked free with a long pole.

Pecan scab is the most serious disease, especially in humid-summer regions. Proper cultivar selection will lessen the problem, though even eastern papershells are not totally immune. Aphids may appear throughout pecan territory. In the South and Southeast, the season's first generation of an insect known as the pecan nut casebearer may damage new shoots; later the second generation may infest the developing nuts. The pecan weevil is the last pest to appear, attacking nearly mature and mature nuts.

Eastern Papershell Varieties

'Desirable' This is a heavy cropper with brittle wood. Pollinate with 'Cheyenne', 'Stuart', or 'Western Schley'. Origin: Mississippi.

'Mahan' This produces a very large nut. Pollinators are 'Cheyenne' or 'Western Schley'. Origin: Mississippi.

'Stuart' The nuts are large, and the tree is partially self-fruitful but bears better crops if pollinated by 'Desirable'. Origin: Mississippi.

Southeastern Papershell Varieties

The United States Pecan Field Station in Texas has developed a number of varieties, all bearing Indian-tribe names, that will succeed in the humid southeastern pecan territory. The following are widely available.

'Cherokee' This bears a medium-sized nut. Pollinators are 'Mohawk' or 'Wichita'. Origin: Texas.

'Cheyenne' This medium-sized nut variety can be pollinated by 'Mohawk', 'Sioux', or 'Wichita'. Origin: Texas.

'Kiowa' This bears a large nut. Pollinators are 'Cherokee' or 'Cheyenne'. Origin: Texas.

'Mohawk' The tree bears very large nuts and is partially self-fruitful, but will produce better if it is pollinated by 'Cheyenne' or 'Western Schley'. Origin: Texas.

'Sioux' This is a smaller-than-average tree. Pollinators are 'Cheyenne' or 'Western Schley'. Origin: Texas.



'Eureka' walnut



'Hartley' walnut

Western Papershell Varieties

'Western Schley' ('Western')

This is a heavy producer of elongated nuts. It has a wide soil adaptability and is less affected by zinc deficiency than other cultivars. Pollinators are 'Cheyenne', 'Mohawk', or 'Wichita'. Origin: Texas.

'Wichita' This produces highly flavored, medium-sized nuts. Weak crotches and brittle wood leave it vulnerable to wind damage, and its blossoms are sensitive to late frosts. The best pollinators are 'Cherokee', 'Cheyenne', or 'Western Schley'. Origin: Texas.

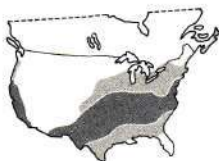
Northern (Hardy) Varieties

'Major' This cultivar is the standard pecan in northern gardens. The nut is medium to small, and cracks easily. It needs pollination from a late pollen-shedding cultivar such as 'Colby' or 'Greenriver'.

Other widely available cultivars are 'Colby', 'Fritz', 'Greenriver', and 'Peruque'. 'Major' and 'Peruque' will pollinate the other cultivars. Origin: Kentucky.

Walnuts

Walnuts are both domestic and foreign. Most familiar in the marketplace—and certainly most important to the home gardener—is the so-called English or Persian walnut (*Juglans regia*), which hails



from southeastern Europe and southwestern Asia. The nuts are large, flavorful, and enclosed in relatively thin shells.

The black walnut (*J. nigra*) from the eastern United States is famous for its fine-tasting nut encased in a shell of rocklike hardness. Another eastern tree with a similar reputation is the butternut (*J. cinerea*). The western states have one important native, *J. hindsii*, the California black walnut; it is valued more as a rootstock on which to graft English walnut cultivars than for its nuts.

English walnuts are fast-growing, heavy-textured trees. The limb structure is thick and sturdy, and mature height may reach 60 feet with a spread to match. These walnuts will grow over quite a climatic range, but the key to a successful crop is proper cultivar selection.

Where winter lows are normally -20° to -30° F, plant only those designated as Carpathian walnuts. These are frequently seedling-grown trees (rather than individual varieties), the original stock of which stems from the Carpathian Mountains of eastern Europe. If late spring frosts are a feature of your area, choose cultivars that leaf out and shed their pollen late. And if your winters are fairly mild, select one of the cultivars that needs little winter chill. Where summers are hot and humid, the pecan will be a better nut tree to plant because it is not nearly as disease prone as the walnut under those conditions.

Some walnut varieties are self-fruitful, and some need pollinators—an important distinction if you have room for only one tree. If you are allergy prone, take note that walnut pollen is a well-known allergen.

Good soil for English walnuts is fairly deep and definitely well-drained. The trees need regular deep watering for production of top-quality nuts (trees are actually somewhat drought tolerant) but cannot tolerate moist soil continually at the trunk base. Countless old orchard trees have succumbed to crown rot when the orchard has been converted to a subdivision and the trees subjected to lawn watering.

If a walnut and garden must coexist, it's better to have the tree at the garden margin where routine watering won't reach the trunk. The best watering method for walnuts is basin irrigation beneath the tree's canopy. Form an inner earth ring about a foot out from the trunk so the trunk will remain dry during waterings.



Black walnut

Young trees may begin bearing at 5 years and have a life expectancy of around 100 years. Planted in good soil, young trees should need no fertilizer. Established bearing trees may be helped by an annual fertilizer application just before they break dormancy.

Harvest time begins when husks start to split and release the enclosed nuts; this usually occurs in late summer or early autumn. At that time knock all the nuts out of the trees (if you wait for natural fall, squirrels may beat you to much of the crop), remove the husks, spread the nuts in a single layer, and dry for several days.

Codling moth can damage the nut crop in all walnut-growing areas; the walnut husk fly also zeros in on the developing nuts but is more prevalent in the west. Aphids and spider mites are two pests that favor walnut leaves, as does the fungus anthracnose; oystershell scale may affect twigs and small branches.

English Walnut Varieties for Western States

'Carmelo' This variety leafs out late and bears extremely large nuts. Origin: California.

'Chandler' The leaves fill out midseason to late season. The tree bears heavily. Yields increase with 'Hartley' or 'Franquette' as the pollinator. Origin: California.

'Chico' This fairly small tree leafs out early. Origin: California.

'Concord' This variety leafs out in midseason. Along with 'Placentia', this is a good bet for the mildest-winter regions. Origin: California.

'Eureka' This variety leafs out in midseason. Both the tree and the nut are large. The tree is slower to bear than most. Use 'Chico' as a pollinator. Origin: California.

'Franquette' This variety leafs out late, which makes it well-adapted to the Northwest. The large tree is slower than average to bear and produces light crops. Use 'Chandler' or 'Hartley' as a pollinator. Origin: California.

'Hartley' This variety bears good quality nuts at an early age. The leaves fill out in mid-season. Origin: California.

'Howard' This variety leafs out in midseason. The tree is small but a heavy producer. Origin: California.

'Payne' This variety leafs out early and bears heavily at an early age. Use 'Chico' or 'Eureka' as the pollinator. Origin: California.

'Placentia' Early to leaf out, this large, early-bearing tree needs very little winter chill. Good for the mild winters of Southern California. Origin: California.

English Walnut Varieties for Midwestern and Eastern States

'Adams', 'Broadview', 'Colby', and 'Mesa' are hardy named cultivars of Carpathian stock that do well in the coldest regions where walnuts can be grown.

Among standard (non-Carpathian) English walnuts, the following cultivars have proven their worth.

'Hansen' This small tree leafs out in midseason and produces thin-shelled nuts. Widely adapted. Origin: Ohio.

'McKinster' Fairly late to leaf out, this variety is a favorite in Ohio and Michigan. Origin: Ohio.

'Metcalfe' Late to leaf out, this is a productive English walnut in New York. Origin: New York.

'Somers' This tree leafs out in midseason and ripens a crop early. Origin: Michigan.

Black Walnut Varieties

'Stabler' This variety produces a nut that is fairly easy to crack for a black walnut. Origin: Maryland.

'Thomas' This is the most popular and widely available walnut. The large nuts have excellent flavor. Origin: Pennsylvania.

Catalog Sources For Fruits, Berries, and Nuts

The best place to buy fruit and nut trees is your local nursery, where you can see the plants you are buying, and don't have to pay shipping charges. But if your local nursery can't get the varieties you want, try some of these fruit and nut nurseries. In addition to the specialists listed here, many general nurseries carry fruit and nut trees.

Adams County Nursery

Box 108
Aspers, PA 17304
(717) 677-8105
Fruit specialists. Wholesale and retail.

Ahrens Strawberry Nursery

RR 1
Huntingsburg, IN 47542
(812) 683-3055
Strawberries plus other berries, grapes, and dwarf fruit trees.

W. F. Allen Co.

Box 1577
Salisbury, MD 21801
Strawberry specialists. Catalog and planting guide lists over 30 varieties. Wholesale and retail.

Bear Creek Nursery

Box 411
Northport, WA 99157
Large selection of antique and hardy apples and nuts.

Bountiful Ridge Nurseries, Inc.

Box 250
Princess Anne, MD 21853
(800) 638-9356
Fruit and nut specialists.

Brittingham Plant Farms

Box 2538
Salisbury, MD 21801
Catalog includes virus-free strawberries, also raspberries, blackberries, blueberries, and grapes.

Bunting's Nurseries

Box 306
Selbyville, DE 19975
(302) 436-8231
Strawberry specialists.