

TEMPERATE FRUITS

Béla Berényi

Szent István University, Gödöllő, Hungary

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Contents

1. Peach
 2. Apricot
 3. Cherry
 - 3.1. Pests and Diseases
 4. Strawberry
- Glossary
Bibliography

Summary

In this chapter the major fruits grow in the temperate regions in the world are discussed. According to the Köppen system, locations the middle latitudes lie between the Arctic Circle and the Tropic of Cancer in the Northern Hemisphere, and between the Antarctic Circle and the Tropic of Capricorn in the southern hemisphere.

Middle latitudes locations receive much direct, high intensity sunlight in the summer and less intensity sunlight in the winter. General and up to date information is presented on peach, apricot, cherry, and strawberry. Fruits more typical of colder climates, e.g. apple, pear, plum, currants, gooseberry and raspberry are described in *Fruits Northern Latitudes*. For grape productions see *Subtropical Fruits*.

1. Peach

The peach tree belongs to the rose family, the Rosaceae. Its scientific name is *Prunus persica* L. Batsch. Of the deciduous tree fruits, only the apple and the pear are more widely distributed throughout the world than the peach.

Peach trees grow in most temperate regions. Plant scientists believe that China or Iran is the native home of the peach. They believe the trees grew there at least 4000 years ago (see Figures 1 and 2).

The Romans spread the peach throughout Europe, and Spanish explorers took the peach to the Americas early in the sixteenth century.

Many peach trees are planted in commercial orchards, and some are cultivated in gardens as ornamentals.



Figure 1. Commercial growing of peach trees in China. (Photo: Béla Berényi)



Figure 2. Peach fruit

Peach trees grow 4.6 to 7 meters high. Their slender leaves have toothed edges. The flowers appear before the leaves. The delicate pink blossoms may be large and showy, but are sometimes quite small. They appear early in the spring and can be injured by late frosts. Most commercial peach orchards are located in regions where there are few late frosts. Cultivars are divided into two classes: freestone fruits, which are used for eating fresh and have a soft pulp which separates easily from the stone, and clingstone fruits which have a firm, rubbery flesh which adheres to the stone, and are used primarily for canning.

Peaches and nectarines (also *Prunus persica*) are widely grown throughout the temperate regions of the world. The tree is relatively small and short-lived. Most cultivars are self-fertile. The fruit is hairy except in nectarines, which are a seed mutation with smooth skin. Peaches bear fruit quickly and are therefore termed “precocious”. There are four distinct races of peaches of which the South China race and its hybrids are more adapted to tropical conditions. Peaches are generally grown on seedling rootstocks.

Peaches are potential crops in the upland subtropics and tropics. Peaches have the lowest chilling requirements followed by nectarines, plums, and apricots (see Table 1).

	1989-91	1997	1998	1999
China	1232	3000F	2997F	2997F
USA	1303	430	1311	1340F
Italy	1591	1158	1429	1805
Spain	708	962	897	987
Greece	760	588	500	500F

F = FAO estimate

Source: FAO Production Yearbooks 1999

Table 1. Leading peach- and nectarine-growing countries in the world
(Annual production x1000MT)

Clear hot weather during the growing season is best for peaches. In the USA they are grown southward from the Great Lakes region of the Midwest into the Deep South, and along the Atlantic and Pacific coasts. Many varieties are produced by selective breeding of peaches. They ripen from early summer to fall, some as late as October. The fruit of freestone peaches is usually softer than that of clingstones, but some cultivars of clingstones are very mellow, with fine aroma and excellent texture.

Perhaps the best-known peach cultivar is Elberta, freestone. It originated in 1870 in Marshallville. Other well-known freestone cultivars are J. H. Hale, Redhaven, Hiley, Halehaven, July Elberta, and Golden Jubilee. Important clingstone cultivars include Fortuna, Paloro, Johnson, Gaume, and Sims. Nectarines are similar to peaches. The two fruits are essentially alike except for the skins, and the trees are identical.

Attaching a bud of the desired cultivar to a rootstock from a different cultivar reproduces most commercially important cultivars of peach. This procedure is called budding. Rootstock cultivars are chosen on the basis of their ability to produce stronger or dwarf-type trees. One-year-old rootstocks are budded in late summer. The newly budded trees lie dormant until the next spring, when the buds are forced into growth. The age of a peach tree is determined by the age of the bud, even though the rootstock is one year older. Peach trees grow best on a deep, well-drained, medium-textured soil, such as a sandy loam. Growers' plant standard-sized trees 5.5 to 7.6 meters apart in the orchard, but trees grow on dwarfing rootstocks are planted 3.7 to 4.6 meters apart. A peach orchard begins to bear large crops about 3 or 4 years after it is planted. If the trees are healthy, they live about twenty years. They reach peak production when they are

eight to twelve years old. A single tree may produce from 87 to 220 kilograms of peaches. Peach trees must be watered regularly. The water required varies with climate, soil texture and depth of the root system. Enough water must be used to wet the entire root system. Cultivation of the orchard is necessary to destroy Weeds, which compete with the trees for water and mineral nutrients in the soil. Chemical sprays are often used to control weeds. Peach trees need various mineral nutrients for normal growth. Most of these occur in sufficient quantity in the soil. Usually nitrogen must be added, as special fertilisers.

Pruning is essential for good fruit production. Peach trees are pruned more heavily than most other fruit trees. Trees are pruned low to make spraying and picking easier. Because the fruit is produced on shoots of the previous season's growth, about a third of the last year's growth is kept. All the rest is cut off. The trees produce so many peaches that the fruit must be thinned, early in the season. This technique increases the size and improves the quality of the fruit that remains. Tree-ripened peaches have the best flavour. They are harvested when they are ripe but still firm. Several diseases attack peach, notably brown root, a fungus, which causes serious damage. It rots the fruit and prevents the flowers from opening. Peach leaf curl is also very troublesome. To prevent it, growers spray the trees early in spring before the leaves emerge. Other fungi cause mildew, rust, and blight. Sprays of organic chemical fungicides are used to control these diseases. Peach trees are also susceptible to many viruses diseases. Among the serious ones are peach yellows, X-disease, Western X-disease, ring spot, and peach mosaic. Trees infected with these diseases must be uprooted. Several insects damage peach trees. The peach twig borer, the larva of a moth, may bore into the fruit, but usually it bores into the trunk and branches, sometimes killing the tree. The oriental fruit moth larva destroys twigs and fruit. Many other moth larvae and beetles prey on the foliage. Organic chemical insecticide sprays are used to control insects. Some chemicals for disease and insect sprays may be combined.

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