

PEAR:

Sci.N. (*Pyrus communis* L.)

Family N. Rosaceae

Origin and distribution:

Pear has been grown in Europe since antiquity and wild pear (*Pyrus pashia* mehal.) is found growing in the Himalayan region in large numbers. The cultivated pear (*Pyrus communis* L., common pear) is distinct in their susceptibility to fire blight disease. Pears are temperate fruit grown extensively in Kashmir as well as in the south. It resembles apples in many aspects yet differs in certain details. It is grown on a lower altitude than apple, deterioration of trees is more rampant yet self-unfruitfulness is common to both necessitating the planting of suitable pollinators.

Description:

Pears are popular fruits consumed and produced around the world, growing on a tree and harvested in late summer into October. The pear tree and shrub are a species of genus ***Pyrus***, in the family Rosaceae, bearing the pomaceous fruit of the same name. Several species of pears are valued for their edible fruit and juices, while others are cultivated as trees.

It is a medium-sized tree, reaching 10–17 m tall, often with a tall, narrow crown; a few species are shrubby. And native to coastal and mildly temperate regions of Europe, North Africa, and Asia. Pear wood is one of the preferred materials in the manufacture of high-quality woodwind instruments and furniture. About 3000 known varieties of pears are grown worldwide, which vary in both shape and taste. The fruit is consumed fresh, canned, as juice, or dried.

The leaves are alternately arranged, simple, 2–12 cm long, glossy green on some species, densely silvery-hairy in some others; leaf shape varies from broad oval to narrow lanceolate. Most pears are deciduous, but one or two species in Southeast Asia are evergreen. Most are cold-hardy, withstanding temperatures as low as (–25 to –40 °C) in winter, except for the evergreen species, which only tolerate temperatures down to about (–15 °C).

The flowers are white, rarely tinted yellow or pink, 2–4 cm diameter, and have five petals. Like that of the related apple, in most wild species 1–4 cm diameter, but in some cultivated forms up to 18 cm long and 8 cm broad; the shape varies in most species from oblate or globose, to the classic pyriform

"pear shape" of the European pear with an elongated basal portion and a bulbous end.

The fruit is composed of the receptacle or upper end of the flower stalk (the so-called calyx tube) greatly dilated. Enclosed within its cellular flesh is the true fruit: five 'cartilaginous' carpels, known colloquially as the "core". From the upper rim of the receptacle are given off the five sepals, the five petals, and the very numerous stamens.

Pears and apples cannot always be distinguished by the form of the fruit; some pears look very much like some apples. One major difference is that the flesh of pear fruit contains stone cells.

History:

Pear cultivation in cool, temperate climates extends to the remotest antiquity, and evidence exists of its use as a food since prehistoric times. Pears were cultivated in China as early as 2000 BC. The pear was also cultivated by the Romans, who ate the fruits raw or cooked, just like apples.

A certain race of pears, with white down on the under surface of their leaves, is supposed to have originated from *P. nivalis*, and their fruit is chiefly used in France in the manufacture of perry. Other small-fruited pears, distinguished by their early ripening and apple-like fruit, may be referred to as *P. cordata*, a species found wild in western France and southwestern England.

The genus is thought to have originated in present-day Western China in the foothills of the Tian Shan, a mountain range of Central Asia, and to have spread to the north and south along mountain chains, evolving into a diverse group of over 20 widely recognized primary species.

Asian species with medium to large edible fruit. Other small-fruited species are frequently used as rootstocks for the cultivated forms.

Cultural requirements:

Besides being a temperate crop it needs sun, water-retaining medium of growth and shuns cold winds. Dry hot summer winds are harmful. A deep open sandy loam soil is considered suitable for the crop. Good moisture supply during summers must be ensured. The climatic requirements are a little warmer than that of apple. Soil pH between (5.5 – 6.5) suits well.

Cultivation:

The pear is normally propagated by grafting a selected variety onto a rootstock, which may be of a pear variety or quince. Quince rootstocks produce smaller trees, which is often desirable in commercial orchards or domestic gardens. For new varieties the flowers can be cross-bred to preserve or combine

desirable traits. The fruit of the pear is produced on spurs, which appear on shoots more than one year old.

Three species account for the vast majority of edible fruit production, the European pear *Pyrus communis* subsp. *communis* cultivated mainly in Europe and North America. There are thousands of cultivars of these three species.

Other species are used as rootstocks for European and Asian pears and as ornamental trees. Pear wood is close-grained and at least in the past was used as a specialized timber for fine furniture and making the blocks for woodcuts.

Harvest:

Summer and autumn cultivars of *Pyrus communis*, being climacteric fruits, are gathered before they are fully ripe, while they are still green, but snap off when lifted. In the case of the 'Passe Crassane', long the favored winter pear in France, the crop is traditionally gathered at three different times: the first a fortnight or more before it is ripe, the second a week or ten days after that, and the third when fully ripe. The first gathering will come into eating last, and thus the season of the fruit may be considerably prolonged.

Pears may be stored at room temperature until ripe. Pears are ripe when the flesh around the stem gives to gentle pressure. Ripe pears are optimally stored refrigerated, uncovered in a single layer, where they have a shelf life of 2 to 3 days.

Uses:

Pears are consumed fresh, canned, as juice, and dried. The juice can also be used in jellies and jams, usually in combination with other fruits, including berries. Fermented pear juice is called perry or pear cider and is made in a way that is similar to how cider is made from apples.

Pears ripen at room temperature. Ripening is accelerated by the gas ethylene. If pears are placed next to bananas in a fruit bowl, the ethylene emitted by the banana causes the pears to ripen. Refrigeration will slow further ripening. Pear Bureau Northwest offers tips on ripening and judging ripeness: Although the skin on Bartlett pears changes from green to yellow as they ripen, most varieties show little color change as they ripen. Because pears ripen from the inside out, the best way to judge ripeness is to "check the neck": apply gentle thumb pressure to the neck or stem end of the pear. If it yields to gentle pressure, then the pear is ripe, sweet, and juicy. If it is firm, leave the pear at room temperature and check daily for ripeness.

The culinary or cooking pear is green but dry and hard, and only edible after several hours of cooking. Two Dutch cultivars are "Gieser Wildeman" (a sweet variety) and "Saint Remy (pear)" (slightly sour).

Pear wood is one of the preferred materials in the manufacture of high-quality of wood for instruments and furniture, and was used for making the carved blocks for woodcuts. It is also used for firewood to produce aromatic smoke for smoking meat or tobacco. Pear wood is valued for kitchen for make spoons and scoops, as it does not contaminate food with color, flavor or smell, and resists warping and splintering despite repeated soaking and drying cycles. Pear wood was describes it as "a fairly tough, very stable wood and used for (carving... brush backs, umbrella handles, measuring instruments such as set squares and T-squares... recorders... violin and guitar fingerboards and piano keys... decorative veneering). Pear wood is the favored wood for architect's rulers because it does not warp). It is similar to the wood of its relative, the apple tree (*Malus domestica*) and used for many of the same purposes.

Nutrition:

Pear fruit its content about (84 %) water, (15 %) carbohydrates and contains protein and fat. In a 100 g reference amount, raw pear supplies 57 kilo calories, a moderate amount of dietary fiber, and no other essential nutrients in significant amounts.

Pollination:



It is always best to **pollinate fruit trees** of the same genus with each other (**apples** with **apples**, **pears** with **pears**) but **pears** can **cross-pollinate** with **apples** as long as both trees **bloom** at the same time. Some (but not all) crab apple **trees** work for **cross-pollination**. A few varieties have **sterile pollen**.

Most varieties of European pears (*Pyrus communis*) are not self-fertile. The flowers have **five stigma** and **ten ovules**. If few of these ovules are pollinated, the fruit may be misshapen. Honey bees are the most important pollinators of pears, but they do not find the **flowers** very attractive.

Pears are generally not **self-pollinating**; they require the presence of two varieties of **pear** in order to produce fruits. Even if a **pear** is designated as **self-pollinating**, it usually performs better when another **pear** is present, so when two plant varieties are exists, the pollination may be done clearly.