

## FRUIT IN NORTHERN LATITUDES

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**Keywords:** history, ecology-cultivated plants, methods of cultivation, climate regions.

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### Summary

In this article the major fruits grown in the northern latitudes are discussed. According to the Köppen system, the following climates are included: humid continental climates, continental subarctic climates and tundra climates.

The humid continental climates are primarily northern hemisphere, since land masses are scarce at these latitudes in the Southern Hemisphere. These climate groups occupy a region between latitudes 30° and 60°N.

Continental subarctic climate occurs from about 50° to 70°N. Tundra climates occur between 60° and 75° of latitude.

General up to date information is presented on apple, pear, plum, blackberry, blueberry, cranberry, currants, gooseberry, and raspberry, including their uses and production methods.

## 1. Apples

The apple is one of the most important fruits that grow on trees. It is also one of the most popular of all fruits. More than half of the apples grown are eaten fresh. Apples also are baked into pies and many other tasty dishes. Apples are used in making apple butter, apple juice, apple sauce, apple jelly and apple wine. Apple juice may be made into cider or vinegar. Some grades of apples are canned, dried, or frozen.

Apples contain about 85% water. They contain vitamins A and C, potassium, and pectin.

Apples belong to the rose family, *Rosaceae*. The wild apple of Europe and Asia are *Malus pumilla* L. and *Malus sylvestris* L. Cultivated apples belong to the species *Malus domestica* L.

Apple trees grow almost everywhere except the hottest and coldest regions of the world. The main apple producers are in the Northern Hemispheres. Apples are the most important fruit grown in Canada. They are grown commercially in British Columbia, New Brunswick, Nova Scotia, Ontario, and Quebec. In USA, apple growing is an important industry in several regions, especially the Pacific Northwest. Washington produces more apples than any other state. USA ranks second in production, followed by China, France, and Italy. Other important apple producers are the Russian Federation and Belarus.



Figure 1. Apple fruit

There are thousands of varieties of apples. The trees have beautiful white flowers that blossom in spring and look like tiny roses. The colour of the fruits ranges from various shades of red to green and yellow (see Figure 1), and their flavour varies from tart to sweet.

### **1.1. History**

Since prehistoric times, people have enjoyed the delicious flavour of apples. Indians had already brought seeds from remains of apples. By the third century BC, the ancient Greeks were growing several varieties of apples.

The Romans also cultivated the fruit, and spread various kinds of apples throughout England. Through the ages, apples have appeared in legends, poems, and religious books. In the Swiss legend of William Tell, a tyrant arrests an archer but promises to free him if he shoots an apple off his son's head. Tell does so and later kills the tyrant with another arrow. Many people believe an apple was the fruit that, according to the Bible, Adam and Eve ate in the Garden of Eden.

During the early 1800s, a pioneer apple planter named John Chapman, who planted apples throughout much of England, distributed apple seeds and apple sprouts to settlers in northern and central Ohio, during the conquest of the West. The early American colonists benefited greatly from his apples and he became known as Johnny Appleseed. The colonists dried their apples or used them in making desserts. Through the years, American apple growers have developed many new and improved varieties of the fruit.

### **1.2. Distribution of different varieties of apples**

Although there are thousands of kinds of apples, only a few varieties account for most of the apples grown commercially and in home gardens.

Macintosh and Delicious apples are the main varieties grown in Canada. Three varieties of apples—Delicious, Golden Delicious, and Macintosh—make up about 60% of the apples produced in USA. Two other varieties—Rome Beauty and Jonathan—also rank among the leading U.S. apples. In Hungary the popular varieties are Jonathan and Golden Delicious.

Apple growers in other countries raise several varieties that are seldom cultivated in USA. For example, the Granny Smith is popular in Argentina, Australia, Chile, New Zealand, and South Africa. The Cox's Orange Pippin is grown in Denmark, Great Britain, and the Netherlands. The Bramley is the favourite cooking apple in Britain.

### **1.3. Description of varieties**

The many kinds of apples differ in colour, texture, taste, and size. The colour of the skin may be green, yellow, or various shades of red. The flesh of apples is cream-coloured, white, or yellow.

The texture of the fruit may be soft or firm, and the flavour can be tart or sweet.

Generally, sweet apples are eaten fresh, and tart varieties are used in making such products as apple butter, apple sauce, and vinegar.

There are also 25 to 30 kinds of wild apples, seven of which grow in USA. Most wild apples are crab apples.

Apples are adapted to altitudes above 1300m in many tropical areas although the low-chilling cultivars are often not as good quality as many cultivars requiring colder weather. Grafting or budding onto either seedling or vegetatively reproduced rootstocks propagates trees. Most trees from the East Malling research center in Kent (England) are worthy of trial for increasing pest resistance, decreasing chilling requirement, and to create dwarf trees for easier maintenance and picking. Most apples are partially self-fertile but yield is improved with a pollinator.

#### 1.4. Popular varieties of apple

**Cortland**, a dark red apple with red stripes, is large and has flat ends. It tastes mildly acid to sweet and is tender and juicy. It is eaten fresh and used for cooking.

**Cox's orange pippin** is a medium-sized apple with a round shape. It has a fragrant, orange-coloured skin. Its juicy flesh has an unusual flavour, and it is usually eaten fresh, **Delicious** has a solid dark red colour or is dark red with darker stripes. This sweet-tasting apple is firm and crisp.

**Golden delicious** has a golden-yellow skin and an oval shape. It is large and a generally good all-purpose apple.

**Granny Smith** is a bright green apple with an almost round shape. Its firm flesh has a good flavour. It is eaten fresh as well as being used for cooking.

**Jonathan** is bright red, touched with yellow and green.

**Macintosh**, a bright red apple, is medium sized and round or oval. It tastes mildly acid to sweet.

**Rome beauty** is red with yellow or green marking,

**Stayman Winesap** is dull red with darker red stripes.

#### 1.5. Rising apples and one of important disease

Most apple trees are grown from buds. The buds are cut from a healthy tree that has produced the kind of fruit desired. These are grafted to the rootstocks of trees selected for resistance to cold temperatures and to pests and diseases. A rootstock is a root or a root plus a stem. These trees will produce apples of the same variety as those of the tree from which the buds were cut.

The most damaging disease that attacks apple trees is apple scab, which is caused by a fungus. It often occurs in humid areas. The fungus spends the winter on the Ground in the dead leaves of the trees. In spring, rain releases spores from the fungus, and they infect the flowers, fruit, and leaves. Growers control apple scab by spraying the trees with fungicides before each predicted spring rain.

Fire blight, a disease caused by bacteria, kills blossoms, leaves, and twigs, and gives the trees a scorched appearance. Growers combat fire blight by pruning infected wood and by applying various sprays to the trees. Some growers also fight the disease by

Planting apple trees that can resist the bacteria.

## 1.6. Harvesting and processing

Apple growers start to harvest their crop in late summer or early autumn. The harvest dates vary according to the variety of apples. Apples that will be sold as fresh fruit are picked by hand.

Those to be processed into various products may be harvested by machines that are clamped to the tree trunk. They shake the apples into special catching frames that cushion their fall.

## 2. Pear

Pears are used widely as a dessert fruit. About half of all pears grown are eaten fresh. But many are canned alone or in combinations with other fruits. Some pears are dried. Europeans use pears for pear cider, called perry.

Fresh pears contain about 14.1% carbohydrates and a small amount of protein and fats. They also contain calcium, phosphorus, iron, vitamin A, thiamine, riboflavin, niacin, and ascorbic acid. Pears have as many calories as apples, more calories than peaches, and fewer calories than either plums or cherries.

The pear tree belongs to the rose *family*, Rosaceae. The common, or European, pear is *Pyrus communis* L. which is quite a fleshy fruit. Some pears are large and round at the blossom end and taper inward toward the stem. Others may be almost completely round, like an apple, or as small as a cherry.

The pear tree is closely related to the apple and the quince. It grows in temperate regions throughout the world. *Pyrus communis* is native to southern Europe and Asia. The Japanese and Chinese pears, often called oriental pear, are *Pyrus pyrifolia*. There are several other species of pear, and many hundreds of pear varieties.

The fruit is covered with a smooth, thin skin, which may be yellow, russet, or red. Its juicy flesh is sweet and mellow. It is also tender, though tiny, hard grit cells make the flesh of some pears seem sandy.

European pears contain only a few of these cells, but fruits of other kinds of pear trees may have large numbers of them. Enclosed in the centre of the fleshy portion is a core much like the core of an apple.

This core may contain as many as 10 seeds. Pears from different varieties vary in shape, size, colour, texture, flavour, aroma, time of ripening, and keeping qualities.

The common pear tree may grow 14 meters high and be 8 meters wide. It sometimes lives to be quite old, often more than 75 years. Its leaves are almost oval but have a sharply pointed tip. The white flowers grow in clusters of 4 to 12 blossoms.

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