Peanut

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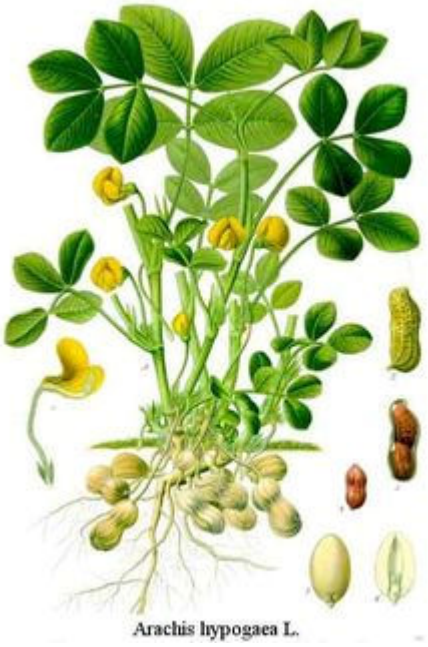
Peanut
 Peanut (*Arachis hypogea*)
Scientific classification
Kingdom: Plantae Division: Magnoliophyta Class: Magnoliopsida Order: Fabales Family: Fabaceae Subfamily: Faboideae Tribe: Aeschynomeneae Genus: *Arachis* Species: ***A. hypogaea***
Binomial name
Arachis hypogaea

The **peanut** or **groundnut** (*Arachis hypogaea*) is a species in the legume family Fabaceae native to South America. It is an annual herbaceous plant growing to 30 to 50 cm (1 to 1 1/2 feet) tall. The leaves are opposite, pinnate with four leaflets (two opposite pairs; no terminal leaflet), each leaflet 1 to 7 cm (1/3 to 2.75 inches) long and 1 to 3 cm (1/3 to 1 inch) broad. The flowers are a typical peaflower in shape, 2 to 4 cm (3/4 to one and a half inches) across, yellow with reddish veining. After pollination, the fruit develops into a legume 3 to 7 cm (1 to 2 inches) long containing 2 to 3 (rarely 1 or 4) seeds, which forces its way underground to mature.

Although a nut in the culinary sense, in the botanical sense the fruit of the peanut is a woody, indehiscent legume or pod and *not* technically a nut.

Peanuts are also known as **earthnuts**, **goobers**, **goober peas**, **pindas**, **jack nuts**, **pinders**, **manila nuts** and **monkey nuts** (the last of these is often used to mean the entire pod, not just the seeds).

Contents

Cultivation of peanuts

Evidence demonstrates that the peanut was domesticated in prehistoric times in South America, where wild ancestors are still found. Cultivation spread as far as Mesoamerica where the Spanish conquistadores found the *tlalcacahuatl* (Nahuatl="earth cacao"=peanut, whence Mexican Spanish, *cacahuate*) being offered for sale in the marketplace of Tenochtitlan (Mexico City), as they are still offered by street vendors there today. The plant was later spread worldwide by European traders. Cultivation in the English colonies of North America was popularized by African Americans, who brought the Kikongo word "goober".

In South America, the peanut (called there *maní* or *amendoim* in Brazil) is thought to have first grown in Argentina or Bolivia, where the most wild strains grow today.

The peanut gained Western popularity when it came to the United States from Africa. It had become popular in Africa after being brought there from Brazil by the Portuguese.

The flower of the *Arachis hypogaea* is borne above ground and after it withers, the stalk elongates, bends down, and forces the ovary underground. When the seed is mature, the inner lining of the pods (called the seed coat) changes color from white to a reddish brown. The entire plant, including most of the roots, is removed from the soil during harvesting.

The pods begin in the orange veined, yellow petaled, pealike flowers, which are borne in axillary clusters above ground. Following self-pollination (peanuts are complete inbreeders), the flowers fade. The stalks at the bases of the ovaries, called pegs, elongate

rapidly, and turn downward to bury the fruits several inches in the ground to complete their development.

The pods act in nutrient absorption. The fruits have wrinkled shells that are constricted between the two to three seeds. The mature seeds resemble other legume seeds, such as beans, but they have paper-thin seed coats, as opposed to the usual, hard legume seed coats.

Peanuts grow best in light, sandy loam soil. They require five months of warm weather, and an annual rainfall of 500 to 1000 mm (20 to 40 in) or the equivalent in irrigation water.

The pods ripen 120 to 150 days after the seeds are planted. If the crop is harvested too early, the pods will be unripe. If they are harvested late, the pods will snap off at the stalk, and will remain in the soil.

Peanuts are particularly susceptible to contamination during growth and storage. Poor storage of peanuts can lead to an infection by the mold fungus *Aspergillus flavus*, releasing the toxic substance aflatoxin. The aflatoxin producing molds exist throughout the peanut growing areas and may produce aflatoxin in peanuts when conditions are favorable to fungal growth.

Cultivars of peanuts

Thousands of peanut cultivars are grown, with four major Cultivar Groups being the most popular: Spanish, Runner, Virginia, and Valencia. There are also Tennessee Red and Tennessee White groups. Certain Cultivar Groups are preferred for particular uses because of differences in flavor, oil content, size, shape, and disease resistance. For many uses the different cultivars are interchangeable. Most peanuts marketed in the shell are of the Virginia type, along with some Valencias selected for large size and the attractive appearance of the shell. Spanish peanuts are used mostly for peanut candy, salted nuts, and peanut butter. Most Runners are used to make peanut butter.

The various types are distinguished by branching habit and branch length. There are numerous varieties of each type of peanut. There are two main growth forms, bunch and runner. Bunch types grow upright, while runner types grow near the ground.

Each year new cultivars of peanuts are bred and introduced somewhere in the peanut belt of the U.S. or in other countries. Introducing a new cultivar may mean change in the planting rate, adjusting the planter, harvester, dryer, cleaner, sheller, and method of marketing.

Spanish group of peanuts

The small Spanish types are grown in South Africa, and in the southwestern and southeastern U.S. Prior to 1940, 90 % of the peanuts grown in Georgia were Spanish types, but the trend since then has been larger seeded, higher yielding, more disease resistant cultivars. Spanish peanuts have a higher oil content than other types of peanuts and in the U.S. are now primarily grown in Oklahoma and Texas.

Cultivars of the Spanish group include 'Dixie Spanish', 'Improved Spanish 2B', 'GFA Spanish', 'Argentine', 'Spantex', 'Spanette', 'Shaffers Spanish', 'Natal Common (Spanish)', 'White Kernel Varieties', 'Starr', 'Comet', 'Florispan', 'Spanhoma', 'Spancross', and 'Wilco I'.

Runner group of peanuts

Since 1940, there has been a shift to production of Runner group peanuts in the southeastern U.S. Runners are found in Georgia, Alabama, Florida, and South Carolina. This shift is due to good flavor, better roasting characterics and higher yields when compared to Spanish types leading to food manufacturers' preference for use in peanut butter and salting.

Cultivars of Runners include 'Southeastern Runner 56-15', 'Dixie Runner', 'Early Runner', 'Virginia Bunch 67', 'Bradford Runner', 'Egyptian Giant' (also known as 'Virginia Bunch' and 'Giant'), 'Rhodesian Spanish Bunch' (Valencia and Virginia Bunch), 'North Carolina Runner 56-15', 'Florunner', and 'Shulamit'.

Virginia group of peanuts

The large seeded Virginia Group peanuts are grown in Virginia, North Carolina, Tennessee, and parts of Georgia. They are increasing in popularity due to demand for large peanuts for processing, particularly for salting, confections, and roasting in the shells.

Virginia Group peanuts are either bunch or running in growth habit. The bunch type is upright to spreading. It attains a height of 45 to 55 cm (18 to 22 inches), and a spread of 70 to 80 cm (28 to 30 in), with 80 to 90 cm (33 to 36 in) rows that seldom cover the ground. The pods are borne within 5 to 10 cm of the base of the plant.

Cultivars of Virginia type peanuts include NC 7, NC 9, NC 10C, NC-V 11, VA 93B, NC 12C, VA-C 92R, Gregory, VA 98R, Perry, Wilson, and Georgia Green.

Valencia group of peanuts

Valencia Group peanuts are coarse, and they have heavy reddish stems and large foliage. In the U.S. they are primarily grown in Eastern New Mexico. They are comparatively tall, having a height of 125 cm (50 inches) and a spread of 75 cm (30 inches). Peanut pods are borne on pegs arising from the main stem and the side branches. Most of the pods are clustered around the base of the plant, and only a few are found several inches away. Valencia types are three seeded and smooth, with no constriction between the seeds. Seeds are oval and tightly crowded into the pods. There are two strains, one with flesh and the other with red seeds. Typical seed weight is 0.4 to 0.5 g.

Tennessee Red and Tennessee White groups of peanuts

These are alike, except for the color of the seed. The plants are similar to Valencia types, except that the stems are green to greenish brown, and the pods are rough, irregular, and have a smaller proportion of kernels.

Uses for peanuts

Peanuts for edible uses account for two-thirds of the total peanut consumption in the United States. The principal uses are salted, shelled nuts, peanut butter (popular in sandwiches), peanut brittle, candy bars, and nuts that have been roasted in the shell. Salted peanuts are usually roasted in oil and packed in retail size, plastic bags or hermetically sealed cans. Dry roasted, salted peanuts are also marketed in significant quantities. The primary use of peanut butter is in the home, but large quantities are also used in the commercial manufacture of sandwiches, candy, and bakery products. Boiled peanuts are a preparation of raw, unshelled green peanuts boiled in brine and typically eaten as a snack in the southern United States where most peanuts are grown. Peanut oil is often used in cooking, because it has a mild flavor and burns at a relatively high temperature. Under the name *Plumpy'nut* 100 g (3.5 ounces), two small bags per day are given by the World Health Organization as a surviving base to many children in Africa. Peanuts are often a major ingredient in mixed nuts because of their inexpensiveness compared to Brazil nuts, cashews, walnuts, and so on. The US airline industry used to be a relatively large purchaser of peanuts for serving during flights (6 million pounds annually) before the nuts were removed from flights by many airlines (largely due to allergy concerns, but also due to cost). [6]

Peanuts are also very widely sold for garden bird feeding. Low grade or culled peanuts not suitable for the edible market are used in the production of peanut oil, seed and feed, although some owners of pet hookbills avoid these kinds for that reason.

Peanuts have a variety of industrial end uses. Paint, varnish, lubricating oil, leather dressings, furniture polish, insecticides, and nitroglycerin are made from peanut oil. Soap

is made from saponified oil, and many cosmetics contain peanut oil and its derivatives. The protein portion of the oil is used in the manufacture of some textile fibers.

Peanut shells are put to use in the manufacture of plastic, wallboard, abrasives, and fuel. They are also used to make cellulose (used in rayon and paper) and mucilage (glue).

Peanut plant tops are used to make hay. The protein cake (oilcake meal) residue from oil processing is utilized as an animal feed and as a soil fertilizer.

Allergies from peanuts

Main article: Peanut allergy

Although many people enjoy foods made with peanuts, some people have severe allergic reactions. For people with peanut allergy, exposure can cause fatal anaphylactic shock. For these individuals, eating a single peanut or just breathing the dust from peanuts can cause a fatal reaction. An allergic reaction also can be triggered by eating foods that have been processed with machines that have previously processed peanuts, making avoiding such foods difficult.

A theory of the development of peanut allergy has to do with the way that peanuts are processed in North America versus other countries like China and India. Peanuts are widely eaten in China and India but the prevalence of peanut allergies is almost unheard of there. According to a 2003 study, roasting peanuts, as more commonly done in North America, causes the major peanut allergen Ara h2 to become a stronger inhibitor of the digestive enzyme trypsin, making it more resistant to digestion.[1] Additionally, this allergen has also been shown to protect Ara h1, another major peanut allergen, from digestion - a characteristic further enhanced by roasting.[1]

Though the allergy can last a lifetime, another 2003 study indicates that 23.3% of children will outgrow a peanut allergy.[2]

Peanut allergy has been *associated* with the use of skin preparations containing peanut oil among children, but the evidence is not regarded as conclusive.[3] Peanut allergies have also been associated with family history and intake of soy products.[4]

Some school districts have banned peanuts, and there is now an experimental drug being tested to combat this allergy, called TNX-901.

As the peanut is a member of the legume family unrelated to other nuts, individuals with peanut allergies may not be allergic to the other types of nuts, and vice-versa.

Trade of peanuts

The major producers/exporters of peanuts are the United States, Argentina, Sudan, Senegal, and Brazil. These five countries account for 71 % of total world exports. In recent years, the United States has been the leading exporter of peanuts. The major peanut importers are the European Union (EU), Canada, and Japan. These three areas account for 78 % of the world's imports.

Although India and China are the world's largest producers of peanuts, they account for a small part of international trade because most of their production is consumed domestically as peanut oil. Exports of peanuts from India and China are equivalent to less than 4% of world trade.

Ninety percent of India's production is processed into peanut oil. Only a nominal amount of hand-picked select-grade peanuts are exported. India prohibits the importation of all oil seeds, including peanuts.

The European Union is the largest consuming region in the world that does not produce peanuts. All of its consumption is supplied by imports. Consumption of peanuts in the EU is primarily as food, mostly as roasted-in-shell peanuts and as shelled peanuts used in confectionery and bakery products.

The average annual U.S. imports of peanuts are less than 0.5 % of U.S. consumption. Two thirds of U.S. imports are roasted, unshelled peanuts. The major suppliers are Singapore, Taiwan, Malaysia, Hong Kong, Mainland China, and Canada. The principal suppliers of shelled peanut imports are Argentina and Canada. Most of Canada's peanut butter is processed from Chinese peanuts. Imports of peanut butter from Argentina are in the form of a paste and must be further processed in the U.S. Other minor suppliers of peanut butter include Malawi, China, India, and Singapore.

Approximately 50 % of all peanuts produced in the United States are grown within a 160 km (100 mile) radius of Dothan, Alabama. Dothan is home to the National Peanut Festival established in 1938 and held each fall to honor peanut growers and celebrate the harvest.

Nutritional benefits of peanuts

Peanuts Nutritional value per 100 g	
Energy 590 kcal 2450 kJ	
Carbohydrates	22 g
- Dietary fiber	9 g
Fat	50 g
- saturated	7 g
- monounsaturated	25 g
- polyunsaturated	16 g
Protein	24 g

Peanuts are a rich source of proteins (roughly 30 grams per cup after roasting) and Monounsaturated fat. Recent research on peanuts and nuts in general have shown their health benefits. [7] Peanuts are a significant source of resveratrol. A handful of peanuts contains approximately 70 micrograms of this curative substance. Resveratrol is also present in red wine, grapes and the Chinese plant *Polygonum cuspidatum* (cholican).

Because peanuts are considered an incomplete protein, containing relatively low amounts of the essential amino acids Lysine, Cystine, and Methionine, it is advised to be sure that a diet or meal with peanuts as a staple also include complementary foods such as dairy or whole grain.

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