

Peanuts / Groundnuts

Peanut article was written by American Peanut Council - www.peanutsusa.com

Peanuts (groundnuts) are pulses, the seeds of the leguminous plants (*Arachis hypogaea*) and belong to the same botanical family as beans, peas and lentils.

The peanut, while grown in tropical and subtropical regions throughout the world, is native to the Western Hemisphere. It probably originated in South America and spread throughout the New World as Spanish explorers discovered the peanut's versatility. When the Spaniards returned to Europe, peanuts went with them. Later, traders were responsible for spreading peanuts to Asia and Africa before making their way to North America.

By the end of the nineteenth century, the development of equipment for production, harvesting and shelling peanuts, as well as processing techniques, contributed to the expansion of the peanut industry. The new twentieth century labor-saving equipment resulted in a rapid demand for peanut oil, roasted and salted peanuts, peanut butter and confections.

In the USA four basic varieties of peanuts are commonly grown: Runner, Virginia, Spanish and Valencia. Each type is distinctive in size and flavour.

Runner

Runners have become the dominant type due to the introduction in the early 1970's of a new runner variety, the Floorrunner, which was responsible for a spectacular increase in peanut yields. Runners have rapidly gained wide acceptance because of their attractive kernel size range; a high proportion of runners are used for peanut butter.

Virginia

Virginias have the largest kernels and account for most of the peanuts roasted and eaten as in shells. When shelled, the kernels are sold as salted peanuts.

Spanish

Spanish type peanuts have smaller kernels covered with a reddish-brown skin. They are used predominantly in peanut candy, although significant quantities are also used for salted nuts and peanut butter. They have a higher oil content than the other types of peanuts which is advantageous when crushing for oil.

Valencia

Valencias usually have three or more small kernels to a pod. They are very sweet peanuts and are usually roasted and sold in the shell; they are also excellent for fresh use as boiled peanuts.

Growing and Harvesting

Peanuts are the seeds of an annual legume which grows close to the ground and produces its fruit below the soil surface. U.S. peanuts are planted after the last frost in April or May when soil temperatures reach 65–70° Fahrenheit (20° Celsius). Preplanting tillage ensures a rich, well-prepared seedbed. Seeds are planted about two inches (five centimeters) deep, one every two to four inches (5–10 centimeters) in the Southeast, and four to six inches (10–15 centimeters) in the Virginia-Carolina area, in rows about three feet (one meter) apart. The row spacing is determined to a large extent by the type of planting and harvesting equipment utilized.

Peanuts may be cultivated up to three times, depending on the region, to control weeds and grasses. A climate with approximately 200 frost free days (175 for Spanish peanuts) is ideal for a good crop. Warm weather conditions, coupled with rich, sandy soil, will result in the appearance of peanut leaves 10-14 days after the first planting. Farmers generally follow a three year rotation pattern with cotton, corn or small grains planted on the same acreage in intervening years to prevent disease. In addition, many farmers are utilizing irrigation in an effort to reduce crop stress and thereby enhance opportunities for the production of high quality peanuts.

The peanut harvesting process occurs in two stages. Digging, the first stage, begins when about 70 percent of the pods have reached maturity. At optimum soil moisture, a digger proceeds along the rows of peanut plants driving a horizontal blade four to six inches (10-15 centimeters) under the soil. The digger loosens the plant and cuts the tap root. A shaker lifts the plant from the soil, gently shakes the soil from the peanuts and inverts the plant, exposing the pods to the sun in a windrow. The peanuts are now ready for the second phase of the harvest—curing. After curing in the field for 2 or 3 days, a combine separates the pods from the vines, placing the peanut pods into a hopper on the top of the machine. The vine is returned to the field to improve the soil fertility or baled into hay for livestock feed. Freshly dug peanuts are then placed into drying wagons for further curing with forced hot air slowly circulating through the wagons. In this final stage of the curing process, moisture content is reduced to 8-10 percent for safe storage.

Shelling and Grading

After proper curing, farmers' stock peanuts (harvested peanuts which have not been shelled, cleaned or crushed) are inspected and graded to establish the quality and value of the product. The inspection process determines the overall quality and on-farm value of the shelled product for commercial sales and price support loans.

The inspection and grading of peanuts by the Agricultural Marketing Service of the U.S. Department of Agriculture (AMS/USDA) occurs at buying stations or shelling plants usually located within a few miles of where the peanuts have been harvested. A pneumatic sampler withdraws a representative quantity of peanuts from the drying wagon, and from this sample the USDA inspector determines the meat content, size of pods, damaged kernels, foreign material and kernel moisture content. Once the grade is established, the loan value is determined from USDA price support schedules.

Peanuts are separated into three classifications at this farmers' stock marketing and grading stage: Segregation I, Segregation II, or Segregation III. These classifications based on USDA grades are mainly concerned with the amount and type of damage in the kernels. Peanut shellers can buy only Segregation I for use in edible products. Those peanuts which are not classified as Segregation I are crushed for oil.

Segregation 1 peanuts move on to the shelling process where they are first cleaned; stones, soil, bits of vines and other foreign material are removed. The cleaned peanuts move by conveyor belt through shelling machines in which the peanuts are forced through perforated grates which separate the kernels from the hulls. Shakers separate the kernels and the pods. The kernels are then passed over the various screens where they are sorted by size into market grades.

The edible nuts are individually inspected with electronic eyes which eliminate discolored or defective nuts as well as any remaining foreign material.

Inshell peanuts are usually produced from large Virginia type peanuts or Valencias that have been grown in light colored soil. Very immature and light-weight pods are removed by vacuum. The largest remaining pods are separated into size categories by screens. Stems are removed and any remaining immature pods are removed by specific gravity. Dark or damaged pods are then removed by electronic eyes so that only the most mature, brightest pods remain.

Peanut Oil

Peanut kernels range in oil content from about 43% to 54%, depending on the variety of the peanut and the seasonal growing conditions. Peanuts supply one-sixth of the world's vegetable oil. Oil is extracted from shelled and crushed peanuts by one or a combination of the following methods: hydraulic pressing, expelled pressing and/or solvent extraction. Peanut oil is an excellent quality cooking oil with a high smoke point (440° Fahrenheit), neutral flavour and odour. It allows food to cook very quickly with a crisp coating and little absorption. Peanut oil is liquid at room temperature. Highly aromatic 100% peanut oil and peanut extract are high value products with a strong roasted peanut flavour and nut aroma. These products have applications in flavour compounds, confections, sauces and baked goods.

The World Market

World peanut production totals approximately 29 million MT. India and China are among the largest producers of peanuts, accounting for approximately 2/3 of total world production. The majority of their production is consumed internally, particularly crushed for oil use. Total exports of peanuts top 1.5 million MT, with the largest market being Europe. Among the other major importing countries are Indonesia, Canada and Japan.

The US is one of the world's leading edible peanut exporters, with an average annual export of approximately 240,000 MT. Argentina, China and India are also major suppliers to the world market. Share of world exports varies based on crop conditions and internal market demand (particularly in China). Changing weather patterns, infrastructure improvements, seed varieties – all are factors which influence a market which increasingly demands innovation and quality (at a reasonable price).

Market Demand

Demand for peanuts has been steady in North America and Europe, although under competition within a dynamic snack market. Two significant factors affecting peanuts in the world market are (1) consumer concerns for nutritious foods and (2) stricter import standards for food safety and quality.

Nutrition in a nutshell

Considerable research is pointing to the benefits of regular consumption of peanuts and nuts. Peanuts have traditionally been a central component of the diet in many African and Asian countries, providing an inexpensive source of valuable protein and fiber. Recent studies are now changing consumer perceptions in other countries, particularly in North America and Western Europe, pointing to the role peanuts can play in contributing to a healthy diet.

When comparing peanuts to similar foods, peanuts have more protein than any other legume or nut.

Peanuts contain mostly monounsaturated and polyunsaturated fats. These fats as compared to saturated fats have been shown to help lower blood cholesterol levels.

Peanuts are a good source of folic acid – recent studies have shown that when women get sufficient amounts of folic acid (a B vitamin) during the earliest weeks of pregnancy, it can prevent 50-80% of neural tube defects