UP | with Peanut Butter

FOODSERVICE TRAINING PROGRAM

SOUTHERN PEANUT GROWERS

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Learning Objectives

Individuals successfully completing this module will be able to:

1. Explain to a classmate why the role of Dr. George Washington Carver was so important for the U.S. peanut industry.
2. Describe the first people to use peanuts.
3. Discuss the historical roots of peanut butter.
4. List some important patents that led to the popularity of peanuts and peanut products.
5. Explain where peanuts are thought to have originated.
6. Explain how the peanut plant grows.
7. Identify key areas of the United States where peanuts are grown.
8. Describe how peanuts are planted.
9. Detail the process by which the peanut farmer harvests the peanut crop.
10. List some of the reasons why peanuts are considered a sustainable ingredient.
11. Explain how peanuts are graded, shelled and blanched.
12. Explain how peanuts are marketed and sold.
13. List the key U.S. export markets for peanuts.
14. Explain how peanut butter and peanut spreads are labeled.
15. Discuss the historical roots of peanut butter.
16. Explain how peanut butter is made.
17. Explain other uses of peanuts in addition to peanut butter.
18. Discuss the difference between dry roasting and oil roasting.
19. List some of the benefits of cooking with peanut oil.

Where Peanuts Originated

The peanut plant is thought to have originated in Brazil or Peru. It is believed that, as early as 1500 B.C., the Incas of Peru used peanuts as sacrificial offerings. Portuguese explorers transplanted it to Africa, and from there it was brought to America as an inexpensive, high protein staple, later to be consumed by soldiers during the Civil War.

History of Peanut Butter

There are many claims about the origin of peanut butter. Africans ground peanuts into stews as early as the 15th century. The Chinese have crushed peanuts into sauces for centuries. Civil War soldiers dined on "peanut porridge." In 1884, Marcellus Gilmore Edson patented peanut paste which was made from milling roasted peanuts between two heated surfaces. In 1890, an unknown St. Louis physician supposedly encouraged the owner of a food products company, George A. Bayle Jr., to process and package ground peanut paste as a nutritious protein substitute for people with poor teeth who couldn't chew meat. The physician apparently had experimented by grinding peanuts in his hand-cranked meat grinder. Bayle mechanized the process and began selling peanut butter out of barrels for about 6 cents per pound.

The First American Peanut Butter Patent

About the same time, Dr. John Harvey Kellogg in Battle Creek, Michigan, began experimenting with peanut butter as a vegetarian source of protein for his patients. His brother, W.K. Kellogg, was business manager of their sanitarium, the Western Health Reform Institute, but soon opened Sanitas Nut Company, which supplied foods like peanut butter to local grocery stores.

The Kelloggs' patent for the "Process for Preparing Nut Meal" in 1895 described "a pasty adhesive substance that is for convenience of distinction termed nut butter." However, their peanut butter was not as tasty as peanut butter today because the peanuts were steamed, instead of roasted, prior to grinding. The Kellogg brothers turned their attention to cereals, which eventually gained them worldwide recognition.

Joseph Lambert, a Kellogg employee who had worked on developing food processing equipment, began selling his own hand-operated peanut butter grinders in 1896. Three years later, his wife Almeeta published the first nut cookbook, The Complete Guide to Nut Cookery, and two years later the Lambert Food Company was organized.

Dr. George Washington Carver

In 1903, Dr. George Washington Carver began his peanut research at Tuskegee Institute in Alabama. While peanut butter already had been developed, Dr. Carver convinced farmers to plant peanuts as a rotation to cotton and developed more than 300 uses for peanuts to help develop a market for the crop. He is considered by many to be the father of the peanut industry.

Contemporary Roots of Peanut Butter

In 1922, Joseph L. Rosefield began selling a number of brands of peanut butter in California. These peanut butters were churned like butter so they were smoother than the gritty peanut butters of the day. He soon received the first patent for a shelf-stable peanut butter, which stayed fresh for up to a year because the oil didn't separate from the peanut butter.

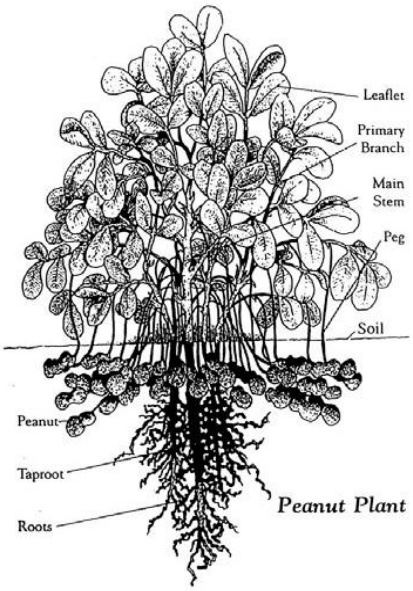
One of the first companies to adopt this new process was Swift & Company, which later marketed Peter Pan Peanut Butter in 1928. In 1932, Rosefield split from Peter Pan and started the Skippy label. He later created the first crunchy style peanut butter. In 1955, Procter & Gamble entered the peanut butter business and later introduced Jif in 1958. Jif is now owned and manufactured by J.M. Smucker Company.

What is a Peanut?

There are as many misconceptions about how peanuts grow as there are recipes for clam chowder! No, peanuts do not grow on trees (like walnuts or pecans) and they are not part of a root, like a potato. A peanut is actually a legume (arachis hypogea), and is the peanut plant's nut-like seed, which grows underground. The peanut's hard surface has a papery brown skin and is encased in a thin, netted brown pod. The peanut also is known by some nicknames including: groundnut, earthnut, goober and goober pea.

How Does the Peanut Plant Grow?

The peanut plant is unusual because it flowers above the ground, but fruits below the ground. Peanut seeds or kernels grow into a green, oval-leaved plant about 18 inches tall, which develops delicate yellow flowers around the lower portion of the plant. These flowers pollinate themselves and then lose their petals as the fertilized ovary begins to enlarge. The budding ovary or "peg" develops a small stem, which grows down away from the plant and ultimately extends to the soil. The peanut embryo is in the tip of the peg, which then penetrates the soil. The embryo turns horizontal to the soil surface and begins to mature, fully underground, taking the form of peanut.



How Long Does It Take For a Peanut to Fully Mature?

The plant continues to grow and flower, eventually producing some 40 or more mature pods. From planting to harvesting, the growing cycle takes about four to five months, depending on the type or variety. A great farming benefit of the peanut is that it is a nitrogen-fixing plant, which means that its roots form modules, which absorb nitrogen from the air, and provides enrichment and nutrition to the plant and soil.

How Are Peanuts Planted?

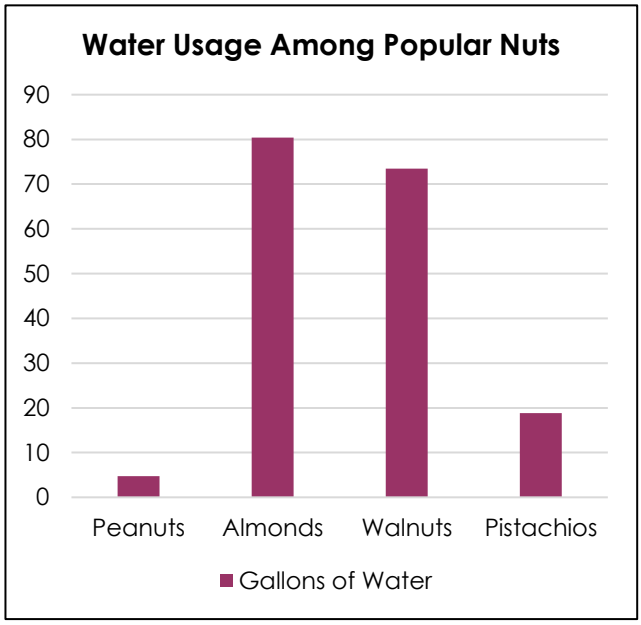
The best time to plant peanuts is after the last frost in April or May, when soil temperatures reach 65 to 70 degrees Fahrenheit. Peanuts grow best in sandy soil, especially soil rich in calcium. The shelled peanut itself also is the seed. Specially grown and treated peanut kernels from the previous year's crop are planted two inches deep, one every three or four inches, in rows about three feet deep.

Peanuts and Water Usage

Peanuts are the most water-efficient nut. It takes 4.7 gallons of water to produce one ounce of peanuts. Peanut plants require less water because they have a compact plant structure and they fruit below ground. How do other snacking nuts compare?

- 80.4 gallons = 1 ounce of shelled or peeled almonds (approximately 2 standard bathtubs of water)
- 73.5 gallons = 1 ounce of shelled or peeled walnuts (approximately 1 large fish tank aquarium of water)

18.8 gallons = 1 ounce of pistachios (approximately 4 water cooler jugs)



How Do Peanuts Grow?

After getting enough water, peanuts will sprout in about two weeks, yielding the first "square" of four leaflets, which unfold and are visible above the farmer's field. Thirty to forty days after these plants have cracked the soil and emerged, the plant's bloom or pegs begin to form and enter the soil. The peanut shells and kernels develop and mature during the next 60-to 70-day period. Depending on the variety, 120 to 160 frost-free days are required for a good harvest, usually in September and October.

How Are Peanuts Harvested?

When the plant has matured and the peanuts are ready to be harvested, the farmer waits until the soil is neither too wet nor too dry (both conditions leave the peanuts stuck in the ground as the plant is pulled free) before digging. The farmer then drives a tractor outfitted with a digger-shaker attachment along the green rows of peanuts. The digger has long blades that run four to six inches under the ground. It loosens the plant and cuts the tap root. Just behind the blade, a shaker lifts the plant from the soil, gently shakes dirt from the peanuts, rotates the plant, then lays the plant back down in a "windrow," peanuts up and leaves down. When dug, peanuts contain 25-50% moisture, which must be dried to 10% or less for storage. Peanuts are generally left in the windrows to dry for two or more days in the field, then are threshed, or combined.

The farmer drives his combine over the windrows. The combine lifts the plants, separates the peanuts from the vine, blows the peanuts into a

hopper on top of the machine, and lays the vine back down in the field. The plants can be baled for cattle feed or mulched into the field. The peanuts are then dumped into wagons or semis and cured to 10% moisture with warm air if necessary. Each wagon load is weighed, graded and inspected by the FederalState Inspection Service to determine the quality and value of the load.

Where Are Peanuts Grown in the United States?

Although there are four basic market types of peanuts (Runner, Virginia, Spanish and Valencia), the Runner peanut is the dominant type grown and harvested in the United States. This is due to the introduction in the early 1970's of a new runner variety, the Florunner, which was responsible for a spectacular increase in peanut yields.

The United States has about 3% of the world's acreage of peanuts, but grows nearly 10% of the world's crop because of higher yields per acre. The United States is one of the world's leading peanut exporters, with average annual exports between 200,000 and 250,000 metric tons. Canada and Mexico are the largest export markets for U.S. peanuts.

Eleven states grow the 2.7 million + ton U.S. peanut crop: Georgia grew 53% of the 2018 peanut crop followed by Alabama (13%), Texas (8.5%), Florida (7.5%), North Carolina (7.1%), South Carolina (4.6%), Mississippi (1.4%) Arkansas (2.3%), Virginia (1.6%), Oklahoma (0.7%), and New Mexico (0.3%).

There are about 7,000 peanut farmers in the United States. Peanut farms are operated by family famers, most of whom are farming land that has been in their family for generations. They are proud to grow a nutritious and affordable food and to be responsible stewards of the land their family lives on and depends on for their livelihood.

USA Quality Control

American peanut farmers grow the highest quality peanuts in the world. The United States is the world leader in peanut research. Land grant universities in the peanut-producing states, along with the Agricultural Research Service of USDA constantly conduct studies designed to improve U.S. peanut quality and competitiveness.

U.S. peanut farm production is governed by strict quality regulations enforced by the Environmental Protection Agency (EPA) and USDA. Peanuts grown in many other countries often are treated with agrichemicals that are not permitted for use in the U.S. because of food safety or worker safety concerns.

Two-thirds of the world peanut crop is crushed for oil, where there is little incentive for quality or proper sanitation procedures. Because the peanuts grown in the United States are intended for the edible market, farmers use the

utmost care and best available technology to ensure premium quality peanuts. Much of the U.S. crop is irrigated and the farmers harvest their crop quickly and efficiently to prevent weather damage and rodent infestation. The United States is the only country in the world that requires all peanuts from every farm to be inspected by government personnel to ensure high quality and safety before they are sold. All peanuts are specifically examined for a soil-borne mold which occasionally grows on crops such as peanuts, corn, wheat, rice, soybeans, coffee beans, figs and tree nuts – generally during drought stress. Some varieties of this mold can lead to aflatoxin.

The U.S. peanut industry has strong safeguards in place to keep aflatoxin out of its products. Every wagonload of peanuts is inspected by Federal State Inspection Services. If even one peanut in the wagonload is found to have a mold on it, the entire wagonload is quarantined and destroyed. Random testing for aflatoxin continues to be done at every stage of shelling and processing.

The U.S. Food & Drug Administration (FDA) has set what level of aflatoxin is safe in food products. They are very conservative in the way they determine safe levels. Their safe level assumes that a child will eat a serving every day with the maximum allowed level and still be completely safe.

FDA considers 20 parts per billion to be a safe level of aflatoxin in peanut butter. The U.S. peanut butter industry has achieved an average level 400% better than that – only five parts per billion (which is the equivalent of one second of time over six years!).

Studies published on flavor and compositional quality of peanuts from various origins have demonstrated that U.S. peanuts have greater intensities of desirable flavors (such as roasted peanut flavor) and lower intensities of off-flavors than Chinese or Argentine peanuts. High oleic to linoleic fatty acid ratios have been shown in U.S. peanuts, which help maintain longer shelf life stability, and thus better flavor especially over time.

In addition, peanuts from Argentina and China have been shown to have higher free fatty acid percentages and peroxide values compared to U.S. peanuts. High free-fatty acid percentages may indicate poor handling, immaturity, mold growth or other quality problems.

As a result of this focus on quality, U.S. peanuts command a higher price on the world market.

Sustainability

Peanuts are sustainable ingredients that you can feel good about eating. Here are just a few reasons why America's most popular nut is good for our planet, our health and communities everywhere:

- Peanuts are nature's zero-waste plant. Everything from the roots to the hulls are utilized.
- Peanuts require less water and have the smallest carbon footprint of any nut. While tree nuts such as almonds and cashews need consistent water, peanuts adjust their growing cycle based on available water.
- Peanut plants have a unique ability to improve soil. They are nitrogen fixing, which means they take nitrogen from the air and produce their own in the ground which benefits other crops.
- The peanut industry is constantly looking for ways to improve sustainability. Thanks to better farming practices, it takes less than half the amount of land to grow a pound of peanuts today than it did just 30 years ago.
- Peanuts fight hunger in communities of need every day – here and around the globe. Because peanut butter is an economical source of protein that doesn't require refrigeration it is one of the most requested items by U.S. food banks.
- In developing countries, peanut-based ready-to-use therapeutic foods (RUTFs) are saving malnourished children. They are often the first food given because of the nutrition they offer, but also because they are portable and have a taste people around the globe love.

Peanut Grading, Shelling and Blanching

After harvesting, the wagonloads of peanuts are taken to a buying station. The buying station is where peanuts are sampled and graded by the Federal-State Inspection service to determine their value. The inspectors establish the meat content, size of pods, kernel size, moisture content, percentage of damaged kernels and amount of foreign material. The results of the inspection determine the overall quality and value of each load.

After the peanuts are purchased, they are placed in dry storage for eventual sale to processors and manufacturers. At the shelling plant, peanuts are taken from storage and cleaned; dirt, rocks, bits of vines and other debris are removed. If they are to be sold in their shells, the peanuts may also pass through a machine that cuts off any remaining stems on the shells. (About 10% of the peanut crop is sold as in-shell peanuts – usually Virginia and Valencia types.)

To sort for size, the peanuts travel over sizing screens that permit the smaller pods to fall through. Peanuts to be shelled are placed in slotted drums containing screens of different sizes. Rotating peanuts rub against each other until the shells are opened and the kernels fall out. The kernels are sized on screens that permit the smaller kernels to fall through. The shelled peanuts are again cleaned to remove foreign materials. This is done with density separators, electronic color sorters and by visual inspection to

ensure that only the best peanuts reach the market. The peanut kernels are then sized, graded and bagged for market.

After shelling, peanuts are cleaned again and "blanched" before they are used in most peanut foods. Blanching is simply the removal of the reddish skin covering the kernels. In whole-nut or split-nut dry blanching, the kernels travel through warm air for a period of time to loosen their skins. Then the kernels go through a blanching machine where large rollers rub the surfaces of the kernels until the skins fall off. These kernels are checked with electronic color sorters to ensure that blanching is complete.

Affordable Source of Protein

In the U.S., peanuts and peanut butter comprise about two-thirds of all nut consumption and they are considered an all-American favorite. Plus, peanuts and peanut butter are an affordable and readily available grocery option. Dollar for dollar, peanuts and peanut butter are less expensive than almost all nut and meat proteins. Pairing the affordability with a very long shelf life – peanuts and peanut butter are excellent staples for most pantries.

How Peanuts are Marketed

Peanuts are sold in various ways. The peanuts may be sold to an end user or a peanut dealer or commission merchant in a large market may buy the peanuts. Peanuts are usually sold to a manufacturer or "end user," who then converts the peanuts to consumer products and markets the peanuts to the public.

Peanut Export Markets

Roughly three-quarters of the peanuts grown in the U.S. are used domestically, predominantly as edible products. About one-fourth of all U.S.-grown peanuts are exported to other countries. Exported peanuts are usually shipped raw, both shelled and in the shell. The largest export market for U.S. peanuts is Canada, followed by Mexico.

How Peanut Butter is Labeled

About one-half of all edible peanuts produced in the United States are used to make peanut butter. By law and industry standard, any product labeled "peanut butter" in the U.S. must be at least 90% peanuts and may contain no artificial colors, flavors or sweeteners. The remaining 10% may be salt, a natural sweetener and an emulsifier. The emulsifier, a partially hydrogenated vegetable oil, prevents the peanut oil from separating and rising to the top. This extends the shelf-life and makes for a creamier peanut butter.

"Peanut butter spreads" contain only 60% peanuts, but are nutritionally equivalent to peanut butter (although they may contain more sugar or salt). "Peanut butter spreads" have the same number of calories per serving as traditional peanut butter, but are generally about 25 percent reduced fat.

How Peanut Butter is Made

Basically, all peanut butter is made by a similar process. First the raw, shelled peanuts are roasted and the skins are removed (blanching). Some manufacturers split the kernels and remove the heart of the peanut as well. The hearts can be saved to make peanut oil and the skins left over from the blanching process can be sold for animal feed. The blanched peanut kernels are electronically sorted and hand-picked one last time to be sure only good, wholesome kernels are used in peanut butter.

The peanuts are ground, usually through two grinding stages, to produce a smooth, even-textured butter. The peanuts are heated during the grinding process to about 170 degrees F. Once the emulsifiers are added and mixed, the butter is cooled rapidly to 120 degrees F. or below. This crystallizes the emulsifiers, thus trapping the peanut oil that was released by the grinding. To make crunchy peanut butter, peanut granules are added to the peanut butter. The peanut butter is then packed into containers for sale at stores.

Roasted Peanuts

To be roasted in the shell, peanuts are cooked at medium heat for about 15 minutes. They may be plain or seasoned. The most popular are salted in-the-shell, however new spicy flavors are becoming popular with consumers as well. To season peanuts in the shell – prior to roasting – the peanuts are washed and then the seasonings, which are dissolved in water, are forced through the shells by a pressure process. When dried through the roasting process, the seasonings remain inside the shells.

Dry Roasting, Oil Roasting and Snack Peanuts

Most often, snack peanuts are shelled, blanched, roasted and salted, (although Spanish peanuts are usually roasted with their skins on). Peanuts may be roasted in oil or by a dry-roasting process. Peanuts are oil-roasted in continuous cookers that take a steady stream of peanuts through hot oil for about five minutes. After draining, the kernels may be salted. Dry-roasted peanuts are cooked in a large oven by dry, hot forced air after which spicy seasonings are applied. The roasted peanuts are then packed in containers ranging in size from bags holding a handful, to large cans and jars.

Peanut Confections

Peanuts are used in candy-making in a variety of ways. A large variety of candy bars combine peanuts (whole, chopped or as butter) with such ingredients as chocolate, nougat, marshmallow, caramel, other nuts and dried fruits. Peanut brittle and chocolate-covered peanuts are also popular. The high protein content of peanuts makes them a highly utilized ingredient for energy snacks and bars.

Peanut Oil and Other Peanut Products

Applying pressure to peanuts squeezes out their oil. This oil is excellent for cooking because it is tasteless and can be heated to very high temperatures before it smokes, as much as 450 degrees F., which is hotter than most cooking oils. With hotter cooking temperatures, food will cook faster and absorb less oil. Peanut oil does not absorb or transfer flavors, so the same oil may be used repeatedly to cook different foods. Specially processed, defatted peanuts are available as roasted snack peanuts. These may be ground into a flour, which can be used to make such foods as high protein drinks and snacks. Or, the defatted nuts may be granulated and added to breakfast or diet bars to raise their protein level.

Peanut Flour

Peanut Flour is made from real peanuts and converted to a free-flowing powdered product that yields a pure peanut flour. The use of this product will provide a unique peanut flavor in a variety of products including baking mixes, toppings, coatings, nut flavorings, health foods, and dry mixes. Some types of peanut flour are defatted which removes the possibility of the flour going rancid from the oil. Peanut flour has been used as a replacement in a variety of baked products to replace animal proteins. Peanut flour blends well with cereal flour to yield products with excellent flavor, texture and color.

Peanut Storage, Handling and Yields

Peanuts, as with tree nuts, should be stored in a cool, dry and well ventilated, dry storage area, away from direct sunlight or extremely lighted conditions. Moisture and heat are the biggest dangers to a dry storage area or storeroom. The temperature of the storeroom should be between 50F and 70F, with a relative humidity level at between 50-60%. All dry storage items, including peanuts, should be stored at least six inches off the floor and away from the walls. Peanuts and peanut butter should be stored in their original containers which should be designed to be tightly fitting and well-sealed. General guidelines for storing peanut butter are 6 to 9 months unopened, and 2 to 3 months after opening.

Some foodservice operators prefer to store peanuts in a refrigerator or freezer if space is available.

Peanuts may be purchased in a variety of foodservice packages. Whole in-shell peanuts are typically sold in 25-pound sacks. Shelled peanuts, both salted and unsalted, are typically sold in two foodservice sizes: a 52-ounce (3 pounds, 4 ounces) and a 38-ounce (2 pounds, 6 ounces). A case typically has 4 cans with resealing lids. These larger sizes may be more convenient and economical for the foodservice operator than the smaller-sized packaging sold to consumers.

The chart below summarizes yields for both shelled and unshelled peanuts, chopped peanuts and peanut butter.

Item	Ounces per Cup	Cups per Pound	Ounces per Pint	Pints per Pound	Pounds per Pint
Peanut Butter	8.47	1.90	16.90	0.90	1.06
Peanuts, Chopped	5.00	3.20	10.00	1.60	0.63
Peanuts, Whole, Roasted, Shelled	5.30	3.00	10.60	1.50	0.66
Peanuts, Whole, Roasted, In-Shell	3.70	4.30	7.40	2.20	0.46

SECTION 2: Allergies and Nutrition

- Food Allergies and Peanuts
- Research and Peanut Safety
- Nutrition Facts
- Key Nutrients in Peanuts

Learning Objectives

Individuals successfully completing this module will be able to:

1. Explain what a food allergy is.
2. Describe how a food allergy is typically treated.
3. Summarize key training considerations for front-of-the-house employees.
4. Summarize key training considerations for back-of-the-house employees.
5. Identify additional foodservice training resources and sources of information.
6. Explain what Aflatoxins are.
7. Overview safety procedures established by the U.S. Department of Agriculture.
8. Highlight some of the research areas being carried out by the peanut industry.
9. Explain the importance of including peanuts and peanut butter as part of a healthy and varied diet.
10. Overview some of the research that indicates long-term health benefits of including peanuts and peanut butter in the diet.
11. Discuss the importance of reducing overall consumption of trans fats in the American diet.
12. Discuss the myths surrounding peanut butter and the presence of trans fats, and note the actual amounts of trans fats contained in peanut butter.

What is a Food Allergy?

A food allergy is an immune system response to an otherwise harmless food or food component, usually a protein. The body reacts by flooding the system with histamines and other chemicals to fight off what is perceived as an invader in the body. A reaction to a food that does not involve the immune system is called a food intolerance or sensitivity (for example: lactose intolerance).

Food allergies are rare. Approximately 2% of American adults have a food allergy. Food allergies can be caused by more than 170 foods. The most common food allergies are caused by milk, eggs, peanuts, tree nuts, fish, shellfish, wheat and soy.

Experts estimate that as many as 5 to 8% of American children may have a food allergy. The most common food allergies among children are milk and eggs, which most children outgrow. Recent research suggests that only 20% of children will outgrow an allergy to peanuts.

Food Allergy Reaction

Food allergy reactions are usually fairly mild. Reactions can include varying degrees of hives, swelling of the throat, difficulty breathing and vomiting. A small number of food allergy suffers are susceptible to severe and potentially fatal anaphylactic shock.

Anaphylaxis can constrict the airways, severely lower blood pressure and swell the tongue or throat. Anaphylaxis is rare, but can be fatal if not treated immediately. Anaphylaxis can be caused by allergies to foods, insect stings, latex and medications.

Food Allergy Treatments

There is currently no treatment to prevent a food allergy reaction—the only certain way to prevent a reaction is strict avoidance. To this end, individuals with food allergies must diligently read food labels. When eating foods prepared by others, food allergy sufferers must ask about the ingredients and preparation of the food before eating.

Food allergy sufferers should always carry self-injectable epinephrine, if prescribed by their doctor, in the event that a reaction does occur. Immediate injection of epinephrine can temporarily arrest symptoms until full medical treatment is available. In the event of a reaction, the sufferer should seek medical attention—even if a dosage of epinephrine appears to have halted the reaction.

Peanut Allergies

Food allergy experts say that 0.6% of the American population is allergic to peanuts. Approximately 1/10 of 1% percent of the American population is believed to be subject to a life-threatening reaction to peanuts.

The U.S. peanut industry works hard to help avoid peanut allergy reactions. The industry works with food product manufacturers on safe manufacturing practices and proper allergen labelling. America's peanut farmers also have contributed more than $21 million towards research and education programs. This research has (1) successfully identified the proteins responsible for most peanut allergy reactions; (2) helped to create and test an oral immunotherapy which can desensitize peanut-allergic individuals; and (3) lead to recent recommendations to introduce peanut as early as 4-6 months to help prevent peanut allergy.

Does Peanut Oil Cause an Allergic Reaction?

The U.S. Food and Drug Administration (FDA) exempts highly refined peanut oil – typically used for frying – from being labeled as a peanut allergen because the allergenic protein has been removed during the refining process. However, cold-pressed, expelled or extruded peanut oil is still allergenic – usually found as aromatic or gourmet oils. Those with a peanut allergy should always ask for clarification if they are unsure about which oil is being used. For more information, visit www.niaid.nih.gov/topics/foodallergy/clinical/documents/faguidelinesexecsummary.pdf.

Allergy Training Considerations for Front of the House Employees

Food-allergic individuals need foodservice staff to provide them with accurate information about ingredients, so that they can make an informed decision about what to order from the menu. Incorrect or incomplete information puts these guests at risk for an allergic reaction. In addition, failure to disclose menu ingredient information could expose the restaurant to potential liability if a food-allergic customer eats the food and has an adverse reaction.

When a guest identifies himself or herself as having a food allergy, the host, hostess, or server should notify the manager. The manager should answer (and be fully knowledgeable about) any questions the guest may have about the menu items, and ensure that the proper procedure is followed for this special meal. A designated kitchen staff member, such as the chef, should be responsible for discussing ingredient information with the guest. It is key that the manager be designated as the point person for food-allergy reactions, and that he set up food allergy procedures including such topics as: how to handle menu selection, meal preparation and serving methods. It is also recommended that during dialogue with the guest, if the establishment cannot be sure (i.e. with convenience, pre-packaged, value added foods) that any or all menu items

are free of the food allergic ingredients, a tactful yet candid response be shared so that the customer can make a safe and informed dining decision.

Allergy Training Considerations for Back of the House Staff

Your kitchen includes some of the most important members of the food allergy team, as the allergic guest will be depending on them to ensure the food ordered is free of the reported allergen. Train kitchen staff not to guess about ingredients—ask the chef or check the food label. If the food label is unavailable, be honest with the guest so they can make another choice. If at all possible, allow the guest to see the ingredient list from the food label themselves as some ingredients may not alert the staff to a particular allergen. For example, albumen indicates the presence of egg, and whey indicates the presence of milk. People with those allergies will be aware of all the words they're looking for while your kitchen staff may not.

Also, be aware that if a menu item contains a pre-made sauce, the sauce label should be checked. For example, Worcestershire sauce contains anchovies, barbecue sauce may contain pecans, and sweet and sour sauce may contain wheat and/or soy.

Kitchen staff should be made aware of the risks of cross-contact. If a menu item does not contain nuts in its preparation, using the same utensils, cutting board or cooking dish that were used for an item containing nuts, it is possible or enough of the allergen to be present to cause a reaction. French fries fried in the same oil as shrimp may have enough of the allergen present to cause a reaction in someone who is allergic to shrimp.

If a mistake is made on an order, make a new one. Taking shortcuts, such as removing the nuts mistakenly added to a nut-free sundae, may land someone in the hospital.

Finally, it's a good idea to come up with a way to flag allergen-free requests so that every person who comes into contact with that order is aware of the allergen. This may be as simple as a post-it note with the allergen written on it with a bold marker.

Allergy Resources for the Restaurant Industry

Managing food allergies in a restaurant or other foodservice environment is no different from managing other food safety issues. Proper planning and training for all staff are critical. The National Restaurant Association (NRA) and Food Allergy Research and Education (FARE) have partnered to develop a comprehensive program for training staff to safely prepare and serve food to guests who have food allergies.

FARE has developed an online resource called SafeFare: Dining out with food allergies at safefare.org. FARE partnered with the NRA and MenuTrinfo to provide

food allergy handling resources for foodservice professionals. They have also partnered with AllergyEats, a website that helps food allergic individuals find food-allergy friendly restaurants.

NRA offers an online, on-demand training in food allergen handling called ServSafe Allergen®. This quick and affordable resource helps foodservice staff learn to keep allergic diners safer in the foodservice environment.

Aflatoxin and Safety Standards and U.S. Quality Control

Aflatoxins are naturally occurring substances produced by some varieties of the soil-based molds aspergillus flavus and aspergillus parasiticus. They are among a group of moldproduced substances called "mycotoxins". In sufficient quantities, these toxins are detrimental to living organisms, including peanut plants.

Peanuts grown in the United States and processed by peanut manufacturers must meet rigorous quality standards during their processing to assure product safety and to minimize the presence of mycotoxins. The U.S. quality standard is the result of technologically advanced production, processing and grading systems, which have been developed by the U.S. industry and approved by the U.S. government. All peanuts produced in the U.S. are required to be inspected by Federal State Inspection Service inspectors and measured against strict quality regulations. Inspections take place at multiple stages throughout the peanut manufacturing process. The U.S. peanut industry also has established extensive guidelines for the handling of export peanuts. These guidelines are highly respected by the European Union, a leading peanut export market for the United States.

Efforts are continuing to focus on improved food handling procedures from farm to manufacturer through the development of aflatoxin-resistant peanut varieties, improved cleaning and sorting techniques to remove damaged raw kernels, and enhanced blanching procedures.

Research and the Peanut Industry

Through the efforts of the peanut industry, improvements and advancements in the areas of production, safety and quality are currently being supported by a variety of ongoing research initiatives. Highlights of this research include such things as development of: an allergy shot for peanut allergy; software programs to manage peanut production; fungal resistant peanut plants; and advanced plant drying techniques.

Peanuts and Good Nutrition

Peanuts and peanut butter provide more than 10% of the recommended daily intake of protein in a one-ounce serving of peanuts or 2 tablespoons of peanut butter. Peanuts and peanut butter are inexpensive sources of protein and menu items incorporating peanuts are popular with vegetarians and others wishing to avoid or reduce consumption of red meat.

Nutrient Analysis of One Ounce of Dry Roasted Peanuts

Calories		166
Protein	13%*	6.7g
Carbohydrates	2%*	6.1g
Total Fat	22%*	14.1g
Saturated Fat	10%*	2.0g
Dietary Fiber	9%*	2.3g
Cholesterol	0%*	0.0mg
Niacin	19%*	3.8mg
Vitamin E	16%*	2.2mg
Magnesium	13%*	49.9mg
Folic Acid	10%*	41.1mcg
Phosphorus	10%*	101.5mg
Copper	9%*	0.19mg
Thiamin	8%*	0.12mg
Zinc	6%*	0.94mg
Potassium	5%*	186.5mg
Iron	4%*	0.64mg
Calcium	2%*	15.3mg

Nutrient Analysis of Two Tbsp Creamy Peanut Butter

Calories		192
Protein	16%*	8g
Carbohydrates	2%*	5.9g
Total Fat	26%*	16.7g
Saturated Fat	16%*	3.2g
Dietary Fiber	8%*	1.9g
Cholesterol	0%*	0.0mg
Niacin	22%*	4.3mg
Vitamin E	18%*	2.4mg
Magnesium	14%*	56.0mg
Folic Acid	6%*	23.7mcg
Phosphorus	11%*	106.0mg
Copper	9%*	0.17mg
Thiamin	2%*	0.03mg
Zinc	6%*	0.94mg
Potassium	5%*	176.6mg
Iron	3%*	0.6mg
Calcium	2%*	15.0mg

* Percentage recommended daily value

Folic Acid

Research shows that folic acid, a B vitamin important in the development of new cells, may help reduce the risk of birth defects of the brain and spinal cord when consumed in sufficient amounts before conception and during the earliest weeks of pregnancy – before many women even know they are pregnant. Peanuts are a good source of folate, the naturally occurring form of folic acid. One ounce of peanuts provides 10% (41mcg) of the recommended daily 400mcg of folic acid. A peanut butter and jelly sandwich provides 18% (73mcg).

Recent research also suggests that there may be a link between folic acid and the reduction of the risk of heart disease and stroke. Folic acid works with Vitamins B6 and B12 to remove homocysteine – an amino acid – from the body. Accumulation of homocysteine can cause a variety of problems such as damaged arteries and plaque build-up in the arteries.

Fat

Peanuts and peanut butter, like many foods, contain fat – an essential part of a healthy diet. Fat is the most concentrated source of energy in your diet. It provides essential fatty acids, carries fatsoluble vitamins such as A, D and E and helps maintain healthy skin. Fortunately, nearly 80% of the fat in peanuts and peanut butter is mono- and polyunsaturated fat. Unsaturated fat is sometimes called the 'good fat' because it may help lower bad LDL-cholesterol levels without lowering the good HDL-cholesterol levels when replacing saturated fat in the diet. In fact, recent studies indicate that frequent consumption of peanuts and nuts, as part of healthy diet, may help lower the risk of heart disease.

Peanut Butter and the Trans Fat Myth

Trans fats are unsaturated fatty acids formed when vegetable oils are partially hydrogenated. Hydrogenation makes the fats more solid or into a more stable liquid. Hydrogenated oils resist rancidity longer than un-hydrogenated oils, which increase the shelf life of products which contain them. Hydrogenated oils also allow for taste and texture improvements such as flakier pie crusts, crisper crackers and spreadable margarine. Recent research suggests a link between trans fat and increased LDL-cholesterol levels, so dieticians now recommend that people limit trans fats in their diet. Until the new nutrition facts labels are on food products (January 2006), dieticians have taught people to look for 'hydrogenated oil' or 'partially hydrogenated oil' on the ingredient list as an indication of trans fat.

While this is generally good advice, it doesn't work for peanut butter. Regular peanut butter does contain a very small amount of partially hydrogenated oil. It keeps the oil from separating out of the peanut butter and rising to the top of the jar, makes the peanut butter creamier, and dramatically increases the shelf life of the peanut butter.

The resulting amount of trans fat in regular peanut butter is less than 0.0032g, according to research conducted by the USDA. Under the new labeling guidelines for trans fats, the peanut butter labels will list 0g trans fats as this amount is almost too small to even measure.

Important Research Studies

Important and ongoing research highlights some exciting news and beneficial findings about the importance of including peanuts and peanut butter in the diet. These findings and report summaries can be found at the following Internet links:

- Peanuts and the Reduction of Cardiovascular Risk Factors
    - https://peanut-institute.com/nutrition-research/disease-prevention/heart-disease/
- Peanuts and Reduced Risk of Type 2 Diabetes
    - https://peanut-institute.com/nutrition-research/disease-prevention/diabetes/Peanuts and Weight Loss & Management https://peanut-institute.com/nutrition-research/weight-management/Peanuts and Cancer https://peanut-institute.com/nutrition-research/disease-prevention/cancer/
- Peanuts and Other Diseases
    - https://peanut-institute.com/nutrition-research/disease-prevention/other-diseases

ADDENDUM

- Tip Sheet for Dealing with a Food-Allergic Diner
- Fill in the Blank Quizzes & Answer Key
- Crossword Puzzle & Answer Key

Tips for Dealing with a Food-Allergic Diner

- Activate your procedure for handling special requests.
- Listen to the diner CAREFULLY.
- Notify the manager, chef or designated person.
- Answer questions honestly and accurately.
- If you don't know, say so – do NOT guess about ingredients.
- Check ingredients again before serving.
- Use care to avoid cross-contact.
- If someone has an allergic reaction, get help (911, ambulance) immediately!

For the latest research and information on managing peanut allergies, please visit **peanutallergyfacts.org**.

PEANUTS AND PEANUT BUTTER

(Module 1)

FILL IN THE BLANK

1. _____ patented the first process of making peanut butter for his patients in Battle Creek, Michigan.
2. Two methods of roasting peanuts are _____ and _____.
3. Peanuts have a high _____content which makes them a highly utilized ingredient for energy snacks and bars.
4. _____ can be heated to very high temperatures before it smokes.
5. _____ is considered to be the father of the peanut industry.
6. In-shell peanuts are usually either _____ or _____ types.
7. On-site inspection and quality control is conducted by _____.
8. Peanuts require <more> or <less> water and have the <smallest> or <largest> carbon footprint of any nut.
9. By law, any product labeled peanut butter must be at least _____ percent peanuts
10. About _____ percent of peanuts grown in the US are exported.
11. _____ is the process of removing the reddish skin covering the kernels.

PEANUTS AND PEANUT BUTTER

(Module 2)

1. As opposed to a food intolerance, an allergic reaction is an _____ system response, usually to a protein.
2. The first thing a wait-staff person should do when it appears that a patron is having a severe reaction is to call _____.
3. Failure to disclose a (n) _____ could put guests at risk.
4. The _____ should be designated as the point person for food-allergy reactions.
5. _____ contact is a culprit in food-allergic situations.
6. Most of the fat in peanuts and peanut butter are _____ fat, often called the "good fat."
7. Peanuts and peanut butter are a good source of _____ providing for more than 10 percent of the recommended daily intake by eating only 2 tablespoons of peanut butter and a 1-ounce serving of peanuts.
8. Peanuts are a good source of _____, the naturally occurring form of the B vitamin folic acid, which can help reduce birth defects when women get sufficient amounts during the earliest weeks of pregnancy.
9. True or False? An allergic reaction to food is always life threatening. _____.
10. The United States peanut industry has strict safeguards in place to keep _____, a mycotoxin that can result from certain types of mold, out of the U.S. peanut crop.

FILL IN THE BLANK

ANSWER KEY

PEANUTS AND PEANUT BUTTER

(Module 1)

1. **Dr. Kellogg** patented the first process of making peanut butter for his patients in Battle Creek, Michigan.
2. Two methods of roasting peanuts are **dry** and **oil**.
3. Peanuts have a high **protein** content which makes them a highly utilized ingredient for energy snacks and bars.
4. **Peanut oil** can be heated to very high temperatures before it smokes.
5. **Dr. Carver** is considered to be the father of the peanut industry.
6. In-shell peanuts are usually either **Virginia** or **Valencia** types.
7. On-site inspection and quality control is conducted by **Federal State Inspection Service.**
8. Peanuts require **less** water and have the **smallest** carbon footprint of any nut.
9. By law, any product labeled peanut butter must be at least **90** percent peanuts
10. About **25** percent of peanuts grown in the US are exported.
11. **Blanching** is the process of removing the reddish skin covering the kernels.

PEANUTS AND PEANUT BUTTER

(Module 2)

1. As opposed to a food intolerance, an allergic reaction to food is an **immune** system response, usually to a protein.
2. The first thing a wait-staff person should do when it appears that a patron is having a severe reaction is to call **911**.
3. Failure to disclose a (**menu) ingredient** could put guests at risk.
4. The **manager** should be designated as the point person for food-allergy reactions.
5. **Cross** contact is a culprit in food-allergic situations.
6. Most of the fat in peanuts and peanut butter is **unsaturated** fat, often called the "good fat."
7. Peanuts and peanut butter are a good source of **protein** providing for more than 10 percent of the recommended daily intake by eating only 2 tablespoons of peanut butter or a 1-ounce serving of peanuts.
8. Peanuts are a good source of **folate**, the naturally occurring form of the B vitamin folic acid, which can reduce birth defects when women get sufficient amounts during the earliest weeks of pregnancy.
9. True or **False**? An allergic reaction to food is always life threatening.
10. The United States peanut industry has strict safeguards in place to keep **aflatoxin**, a mycotoxin that can result from certain types of mold, out of the U.S. peanut crop.

Southern Peanut Growers

Southeastern Peanuts: The Flavor Standard.

For More Information on Peanuts and Peanut Butter, Please Contact:

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