

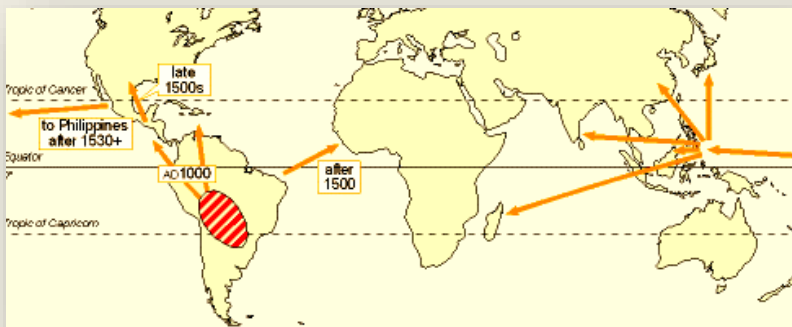
Peanuts

Arachis hypogea

Regardless of the name, peanuts are not ‘nuts’ they’re ‘legumes’ and belong to the pea family (Fabaceae). Nuts are dry fruits with hard, stony walls and each nut contains one seed. Legumes, on the other hand, are dry fruits that develop into a ‘pod’ which usually splits along two sides. Peas, beans, lentils, lucerne, lupins, clover, carob, soybeans and chickpeas, are all legumes and all have the potential to accommodate nitrogen-fixing symbiotic bacteria (*Rhizobia*) in nodules on their roots. Nitrogen is a key component of amino acids, basic building blocks of proteins, thus legumes, including peanuts, provide us with an extremely valuable source of protein.



Franz Eugen Köhler, Köhler's Medizinal-Pflanzen, Public domain, via Wikimedia Commons



Map modified from: Natural History Museum, London - Peanut - Seeds of Trade.

Peanuts probably originated in central South America. Earliest records indicate peanuts were cultivated in Southern Bolivia about 800 BC and they have been recorded from 1500 – 1200 BC in tombs in Peru, but the oldest known remains were

dated ~ 5,600 BC from Peru. These old pods may have been a cultivated wild species, or even *A. hypogaea* in the early period of domestication. However, the two wild parent species don't occur along the coast, and probably originated in southern Bolivia and northern Argentina.

Cultivated peanuts (*A. hypogea*), as we know them today, developed from a hybrid between two diploid species, probably *A. duranensis* and *A. ipaensis*. The original hybrid would have been sterile, but spontaneous chromosome doubling enabled the return of fertility to produce an *allotetraploid*, i.e., a



species containing four complete copies of the genome, with two different species each contributing two copies of the genome. Molecular biologists have determined that this hybridisation gave rise to *A. monticola*, a species that can still be found growing in south-eastern Bolivia and north-western Argentina. These are the regions where peanuts with features most closely associated with the original wild species are grown. The latter are referred to as *landraces*, which are domesticated varieties of species that have developed over time, and adapted to local conditions, both by adaptation to the natural environment, by cultivation by people, and by isolation from other species.



The Portuguese who followed Columbus to the New World took peanuts to West Africa soon after 1500 AD; later peanuts were introduced by the Spanish to the Philippines, and thence Japan, China, Malaysia and India. Premium quality peanuts are grown in Queensland where Kingaroy is known as the ‘Peanut Capital of Australia’. Other growing regions include central and northern Queensland, the Northern Territory

and northern NSW but at present, production is not sufficient to meet local demand. Currently trials are underway by researchers at the Central Queensland University to see if peanuts would be more viable as a crop for farmers if the peanuts could be harvested for human consumption and in addition, the green, above ground components of the plants used as stock feed. The eventual aim would be for Australian farmers to supply 100% of the Australian demand.



Pegs grow downwards from the flowers, pushing into the soil where the pods will eventually develop.

Peanut plants are herbaceous annuals. Flowers are yellow and only last for one day. They are extraordinary, self pollinating pea flowers and do something very unexpected after fertilization. At this time, a stalk at the base of the ovary elongates to a long thin structure referred to as a *peg*. Pegs bend downwards and push into the soil where the legume pods develop underground (geocarpy). In fact, the species name of the peanut, *hypogea* means *underground*. When the pods mature, the whole plant is pulled from the ground

and after soil is removed, they are ready for processing. They are used in a multitude of different ways: roasted and salted peanuts; chocolate coated peanuts; peanut oil; peanut butter; satay sauce. Peanuts are eaten in all cuisines across all continents. The



'nuts' are rich in nutrients, particularly fibre, folate, niacin, vitamin E, magnesium and phosphorus. They contain ~ 25% protein, much higher than 'true' nuts and have a healthy potassium (705 mg per 100 g) to sodium (8 mg per 100 g) balance.

Peanuts can cause allergic reactions in some individuals, ranging from mild symptoms to potentially fatal anaphylactic shock.

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