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# Avocado

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*For the place in California, see [Avocado, California](#). For the Pearl Jam album, see [Pearl Jam \(album\)](#).*

The **avocado** (*Persea americana*) is a [tree](#) native to Central Mexico,<sup>[1]</sup> classified in the [flowering plant](#) family [Lauraceae](#) along with [cinnamon](#), [camphor](#) and [bay laurel](#). **Avocado** or **alligator pear** also refers to the [fruit](#) ([botanically](#) a large [berry](#) that contains a single seed<sup>[2]</sup>) of the tree.

Avocados are commercially valuable and are cultivated in tropical and Mediterranean climates throughout the world. They have a green-skinned, fleshy body that may be pear-shaped, egg-shaped, or spherical. Commercially, it ripens after harvesting. Trees are partially [self-pollinating](#) and often are [propagated](#) through [grafting](#) to maintain a predictable quality and quantity of the fruit.

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## Avocado



Avocado fruit and foliage, Réunion island



Ripe avocado fruit and cross-section

## Scientific classification

Kingdom: [Plantae](#)  
Phylum: [Angiosperms](#)  
Class: [Magnoliids](#)  
Order: [Lurales](#)  
Family: [Lauraceae](#)  
Genus: *[Persea](#)*  
Species: ***P. americana***

## Binomial name

***Persea americana***

Mill

## Synonyms

Français

한국어

Hrvatski

Bahasa Indonesia

Íslenska

Italiano

עברית

Basa Jawa

Қазақша

Kinyarwanda

Kiswahili

Коми

Kreyòl ayisyen

Kurdî

Кырык мары

Лакку

Latina

Latviešu

Lietuvių

Lingála

Magyar

Nāhuatl

Na Vosa Vakaviti

Nederlands

日本語

Norsk bokmål

Norsk nynorsk

Перем Коми

Polski

Português

Română

Runa Simi

Русский

Shqip

Simple English

Slovenščina

Српски / srpski

Srpskohrvatski /  
српскохрватски

Basa Sunda

Suomi

Svenska

Tagalog

Татарча/tatarça

## History

[edit]

*P. americana*, or the avocado, originated in the state of **Puebla**, Mexico. The native, undomesticated variety is known as a *criollo*, and is small, with dark black skin, and contains a large seed.<sup>[3]</sup> The oldest evidence of avocado use was found in a cave located in Coxcatlán, Puebla, Mexico, that dates to around 10,000 BC. The avocado tree also has a long history of cultivation in Central and South America; a water jar shaped like an avocado, dating to AD 900, was discovered in the pre-Incan city of **Chan Chan**.<sup>[4]</sup> The earliest known written account of the avocado in Europe is that of **Martín Fernández de Enciso** (c.1470–c.1528) in 1518 or 1519 in his book, *Suma De Geographia Que Trata De Todas Las Partidas Y Provincias Del Mundo*.<sup>[5][6]</sup> The first written record in **English** of the use of the word 'avocado' was by **Hans Sloane** in a 1696 index of **Jamaican** plants. The plant was introduced to **Indonesia** in 1750, **Brazil** in 1809, the **Levant** in 1908, and **South Africa** and **Australia** in the late 19th century.

## Etymology

[edit]

The word "avocado" comes from the Spanish *aguacate* which in turn comes from the **Nahuatl** word *āhuacatl* [aˈwakat<sup>[7]</sup>] which goes back to the proto-Aztecan \*paːwa with the same meaning.<sup>[8]</sup> In some countries of South America, such as Argentina, Bolivia, Chile, Peru, and Uruguay, the avocado is known by its **Quechua** name, *palta*. In other Spanish-speaking countries it is known by the Mexican name and in Portuguese it is *abacate*. The fruit is sometimes called an avocado pear or alligator pear (due to its shape and the rough green skin of some **cultivars**). The Nahuatl *ahuacatl* can be compounded with other words, as in *ahuacamolli*, meaning avocado soup or sauce, from which the **Spanish** word *guacamole* derives.<sup>[9]</sup>

The modern English name derives from the Spanish form *avocado*, meaning **advocate** or lawyer, which was formed as a **folk etymology** that substituted for (and obscured) the Nahuatl origins of the word. The earliest known written use in English is attested from 1697 as "Avogato Pear", a term which was later corrupted as "alligator pear".<sup>[10]</sup> The "advocate"-form appears in several other Germanic languages, such as the German *Advogato-Birne*, the Swedish *advokatpäron*, the Danish *advokat-pære* and the Dutch *advocaatpeer*.<sup>[11]</sup> It is known as "butter fruit" in parts of India.<sup>[12]</sup> In eastern China it is known as *è lí* (鳄梨, a direct translation of "alligator pear") or *huángyóu gu* (黄油果, "butter fruit").

## Cultivation

[edit]

The tree grows to 20 m (66 ft), with alternately arranged **leaves** 12 centimetres (4.7 in) – 25 centimetres (9.8 in) long. The **flowers** are inconspicuous, greenish-yellow, 5 millimetres (0.2 in) – 10 millimetres (0.4 in) wide. The **pear**-shaped fruit is 7 centimetres (2.8 in) – 20

*Persea gratissima*

Native "criollo" avocados, the ancestral form of today's domesticated varieties



Worldwide avocado output in 2005

**Food and agriculture**

[Lea faka-Tonga](#)
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*Persea americana*, young avocado plant (seedling), complete with parted pit and roots

centimetres (7.9 in) long, weighs between 100 grams (3.5 oz) – 1,000 grams (35 oz), and has a large central **seed**, 5 centimetres (2.0 in) – 6.4 centimetres (2.5 in) long.<sup>[14]</sup>

The **subtropical** species needs a climate without frost and with

little wind. High winds reduce the humidity, dehydrate the flowers, and affect pollination. When even a mild frost occurs, premature fruit drop may occur, although the **Hass cultivar** can tolerate temperatures down to −1°C. The trees also need well-aerated soils, ideally more than 1 m deep. Yield is reduced when the irrigation water is highly **saline**. These soil and climate conditions are available only in a few areas of the world, particularly in southern **Spain**, **Portugal**, **Morocco**, **Crete**, the **Levant**, **South Africa**, **Colombia**, **Peru**, parts of central and northern **Chile**, **Vietnam**, **Indonesia**, parts of southern **India**, **Sri Lanka**, **Australia**, **New Zealand**, the **Philippines**, **Malaysia**, **Central America**, the **Caribbean**, **Mexico**, **California**, **Arizona**, **Puerto Rico**, **New Mexico**, **Texas**, **Florida**, **Hawai'i**, **Ecuador** and **Rwanda**. Each region has different types of cultivars.

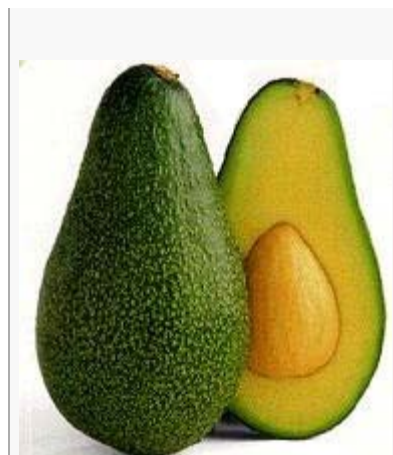
## Harvest and postharvest

[\[edit\]](#)

Commercial orchards produce an average of seven tonnes per hectare each year, with some orchards achieving 20 tonnes per hectare.<sup>[15]</sup> **Biennial bearing** can be a problem, with heavy crops in one year being followed by poor yields the next. The avocado tree does not tolerate freezing temperatures, and can be grown only in subtropical or tropical climates. There are several cold-hardy varieties planted in the region of Gainesville, Florida, which survive temperatures as low as 20 F with only minor leaf damage.<sup>[*citation needed*]</sup>

The avocado is a **climacteric** fruit (the **banana** is another), which means it matures on the tree, but ripens off the tree. Avocados used in commerce are picked hard and green and kept in coolers at 3.3 to 5.6 °C (38 to 42 °F) until they reach their final destination. Avocados must be mature to ripen properly. Avocados that fall off the tree ripen on the ground. Generally, the fruit is picked once it reaches maturity; Mexican growers pick Hass-variety avocados when they have more than 23% dry matter, and other producing countries have similar standards. Once picked, avocados ripen in a few days at **room temperature** (faster if stored with other fruits such as apples or bananas, because of the influence of **ethylene** gas). Some **supermarkets** sell pre-ripened avocados which have been

<sup>[16]</sup>



*Avocado fruit (cv. 'Fuerte'); left: whole, right: in section*

Country	Quantity (Tm)	World Rank <sup>[13]</sup>
Mexico	1,040,390	1
Indonesia	263,575	2
United States of America	214,000	3
Colombia	185,811	4
Brazil	175,000	5
Chile	163,000	6
Dominican Republic	140,000	7
Peru	102,000	8
China	85,000	9
Ethiopia	81,500	10
	<sup>[13]</sup>	

treated with synthetic **ethylene** to hasten ripening. In some cases avocados can be left on the tree for several months, which is an advantage to commercial growers who seek the greatest return for their crop; but if the fruit remains unpicked for too long it falls to the ground.

## Breeding

[[edit](#)]



A seedless avocado, or cuke, growing next to two regular avocados

The species is only partially able to **self-pollinate** because of **dichogamy** in its flowering. This limitation, added to the long juvenile period, makes the species difficult to breed. Most cultivars are propagated via **grafting**, having originated from random seedling plants or minor **mutations** derived from cultivars. Modern breeding programs tend to use isolation plots where the chances of cross-**pollination** are reduced. That is the case for programs at the **University of California, Riverside**, as well as the **Volcani Centre** and the Instituto de Investigaciones Agropecuarias in **Chile**.

The avocado is unusual in that the timing of the male and female flower phases differs among cultivars. There are two flowering types, "A" and "B". "A" cultivar flowers open as female on the morning of the first day and close in late morning or early afternoon. Then they open as male in the afternoon of the second day. "B" varieties open as female on the afternoon of the first day, close in late afternoon and reopen as male the following morning.

- "A" cultivars: Hass, Gwen, Lamb Hass, Pinkerton, Reed.
- "B" cultivars: Fuerte, Sharwil, Zutano, Bacon, Ettinger, Sir Prize, Walter Hole.<sup>[17][18]</sup>

Certain cultivars, such as the Hass, have a tendency to bear well only in alternate years. After a season with a low yield, due to factors such as cold (which the avocado does not tolerate well), the trees tend to produce abundantly the next season. In addition, due to environmental circumstances during some years, seedless avocados may appear on the trees.<sup>[19]</sup> Known in the avocado industry as "cukes", they are usually discarded commercially due to their small size.<sup>[20]</sup>

## Propagation and rootstocks

[[edit](#)]

Avocados can be propagated by seed, taking roughly four to six years to bear fruit. The offspring is unlikely to be identical to the parent cultivar in fruit quality. Prime quality varieties are therefore propagated by grafting to **rootstocks** that are propagated by seed (seedling rootstocks) or by **layering** (clonal rootstocks). After about a year of growing in a greenhouse, the young rootstocks are ready to be grafted. Terminal and lateral grafting is normally used. The scion cultivar grows for another 6–12 months before the tree is ready to be sold. Clonal rootstocks are selected for tolerance of specific soil and disease conditions, such as poor soil aeration or resistance to the soil-borne disease (root rot) caused by *Phytophthora*.



Avocado is usually **treated** with a special technique to assist its sprouting process

## Growing indoors

[[edit](#)]

Usually, avocados are grown from pits indoors. This is often done by removing the pit from a ripe, unrefrigerated avocado. The pit is then stabbed with three or four tooth picks, about one third of the way up. The pit is placed in a jar or vase with tepid water. It should split in four to six weeks and yield roots and a sprout. If there is no change by this time, the avocado pit is discarded. Once the stem



has grown a few inches, it is placed in a pot with soil. It should be watered every few days. Avocados have been known to grow large, so owners must be ready to repot the plant several times.

## Diseases

[[edit](#)]

*Main article: [List of avocado diseases](#)*

Avocado trees are vulnerable to [bacterial](#), [viral](#), [fungal](#) and nutritional diseases (excesses and deficiencies of key minerals). Disease can affect all parts of the plant, causing spotting, rotting, cankers, pitting and discoloration.<sup>[21]</sup>

## Cultivation in California

[[edit](#)]

The avocado was introduced from Mexico to California in the 19th century, and has become a successful [cash crop](#). About 59,000 acres (240 km<sup>2</sup>) – some 95% of United States avocado production – is located in [Southern California](#), with 60% in [San Diego County](#).<sup>[22][23]</sup> [Fallbrook, California](#), claims the title of "Avocado Capital of the World", and both Fallbrook and [Carpinteria, California](#), host annual avocado festivals.

## A cultivars

[[edit](#)]

### Choquette

A seedling from Miami, Florida, on the property of Remi Choquette. Now a favored commercial cultivar in south Florida.

### Hass

While dozens of [cultivars](#) are grown, the [Hass avocado](#) is today the most common. It produces fruit year-round and accounts for 80% of cultivated avocados in the world.<sup>[6][24]</sup> All Hass avocado trees are descended from a single "mother tree" raised by a mail carrier named [Rudolph Hass](#), of [La Habra Heights, California](#).<sup>[5][24]</sup> Hass [patented](#) the productive tree in 1935. The "mother tree", of uncertain subspecies, died of [root rot](#) and was cut down in September, 2002.<sup>[6][24]</sup> Hass trees have

medium-sized (150–250 g), ovate fruit with a black, pebbled skin. The flesh has a nutty, rich flavour with 19% oil. A hybrid Guatemalan type, it can withstand temperatures to −1 °C (30 °F).

### Gwen

A seedling bred from Hass x Thille in 1982, Gwen is higher yielding and more dwarfing than Hass in California. The fruit has an oval shape, slightly smaller than Hass (100-200g), with a rich, nutty



A young avocado sprout



*P. americana*, avocado plant flowers



Two Hass avocados

flavor. The skin texture is more finely pebbled than Hass, and is dull green when ripe. It is frost-hardy down to  $-1$  °C (30 °F).

### Lula

A seedling reportedly grown from a 'Taft' avocado planted in Miami, Florida on the property of George Cellon, named after Cellon's wife Lula. It was likely a cross between Mexican and Guatemalan types. Lula was recognized for its flavor and high oil content and propagated commercially in Florida. It is also very commonly used as a rootstock for nursery production. Hardy to  $-4$  °C (25 °F)

### Pinkerton

First grown on the Pinkerton Ranch in [Saticoy, California](#), in the early 1970s, Pinkerton is a seedling of Hass' Rincon. The large fruit has a small seed, and its green skin deepens in color as it ripens. The thick flesh has a smooth, creamy texture, pale green color, good flavor and high oil content. It shows some cold tolerance, to  $-1$  °C (30 °F) and bears consistently heavy crops. A hybrid Guatemalan type, it has excellent peeling characteristics.

### Reed

Developed from a chance seedling found in 1948 by James S. Reed in California, Reed has large, round, green fruit with a smooth texture and dark, thick, glossy skin. Smooth and delicate, the flesh has a slightly nutty flavor. The skin ripens green. A Guatemalan type, it is hardy to  $-1$  °C (30 °F). Tree size is about 5 by 4 meters.

## B cultivars

[\[edit\]](#)

### Bacon

Developed by a farmer, James Bacon, in 1954, Bacon has medium-sized fruit with smooth, green skin with yellow-green, light tasting flesh. When ripe, the skin remains green, but darkens slightly, and fruit yields to gentle pressure. It is cold-hardy down to  $-5$  °C (23 °F).

### Brogden

Possibly a cross between Mexican and West Indian types, Brogden originated as a seedling grown in Winter Haven, Florida on the property of Tom W. Brogden. The variety was recognized for its cold-hardiness to  $-5$  °C (23 °F) and became commercially propagated as nursery-stock for home growing. It is noted for its dark purple skin at maturity.

### Ettinger

A Mexican/Guatemalan cross seedling of Fuerte, this cultivar originated in Israel, and was put into production there in 1947.

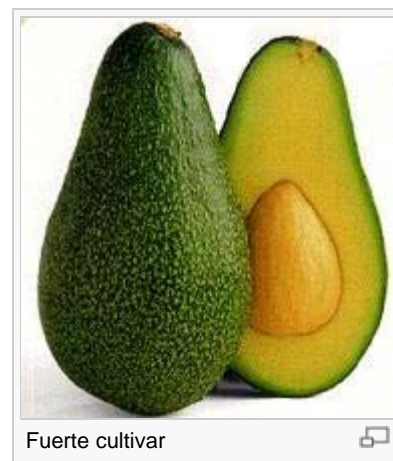
Mature trees tolerate four hours at  $-6$  °C (21 °F). The fruit has a smooth, thin, green skin that does not peel easily. The flesh is very pale green.

### Fuerte

A Mexican/Guatemalan cross originating in [Puebla](#), the Fuerte earned its name, which means strong in Spanish, after it withstood a severe frost in California in 1913. Hardy to  $-3$  °C (27 °F), it has medium-sized, pear-shaped fruit with a green, leathery, easy to peel skin. The creamy flesh of mild and rich flavour has 18% oil. The skin ripens green. Tree size is 6 by 4 meters.

### Monroe

A Guatemalan/West Indian cross that originated from a seedling grown in Homestead, Florida on the property of J.J.L. Phillips, it was patented in 1937 and became a major commercial cultivar due to its cold hardiness and production qualities. The fruit is large, averaging over 2 pounds in



Fuerte cultivar

weight, has an elliptical shape, and green, glossy skin. Hardy to −3 °C (27 °F).

### Sharwil

Predominantly Guatemalan, with some Mexican race genes, Sharwil was selected in 1951 by Sir Frank Sharpe at [Redland Bay](#), southern [Queensland](#), Australia. The name "Sharwil" is an amalgamation of Sharp and Wilson (J.C. Wilson being the first propagator). Scions were sent from Australia to Hawaii in 1966. A medium-sized fruit with rough green skin, it closely resembles the Fuerte, but is slightly more oval in shape. The fruit has greenish-yellow flesh with a rich, nutty flavor and high oil content (20–24%), and a small seed. The skin is green when ripe. It represents more than 57% of the commercial farming in Hawaii, and represents up to 20% of all avocados grown in [New South Wales](#), Australia. It is a regular and moderate bearer with excellent quality fruit, but is sensitive to frost. Disease and pest resistance are superior to Fuerte.

### Zutano

Originated by R.L. Ruitt in Fallbrook in 1926, this Mexican variety is hardy to −4 °C (25 °F). The large, pear-shaped fruit has a shiny, thin, yellow-green skin that peels moderately easily. The flesh is pale green with fibers and has a light flavor.

## Other cultivars

[[edit](#)]

Other avocado [cultivars](#) include [Spinks](#). The fruit of the cultivar Florida, grown mostly outside California, is larger and rounder, with a smooth, medium-green skin, and a less-fatty, firmer and fibrous flesh. These are occasionally marketed as low-calorie avocados. Historically attested varieties (which may or may not survive among [Horticulturists](#)) include the Challenge, Dickinson, Kist, Queen, Rey, Royal, Sharpless, and Taft.<sup>[25]</sup>

## Avocado-related international trade issues

[[edit](#)]



First international air shipment of avocados from [Los Angeles](#), California, to [Toronto](#), Ontario, for the [Canadian National Exhibition](#)

After the [North American Free Trade Agreement](#) (NAFTA) went into effect in 1994, Mexico tried exporting avocados to the [US](#). The US government resisted, claiming the trade would introduce [Tephritidae](#) fruit flies that would destroy California's crops. The Mexican government responded by inviting [USDA](#) inspectors to Mexico, but the U.S. government declined, claiming fruit fly inspection was not feasible. The Mexican government then proposed to sell avocados only to the northeastern US in the winter (fruit flies cannot withstand extreme cold). The US government balked, but gave in when the Mexican government started erecting barriers to US [corn](#).

Another argument is that the lower prices generated by Mexican (and Chilean) imports would increase the popularity of avocados outside of California, thereby

assuaging the loss of profits due to the new competition.

Today, avocados from Mexico are allowed in all 50 states, because USDA inspectors in [Michoacán](#) (where 90% of Hass avocados from Mexico are grown) inspected fruit in [Uruapan](#). Imports from Mexico in the 2005–2006 season exceeded 130,000 [tonnes](#).<sup>[26]</sup><sup>[*clarification needed*]</sup>

In 2009, Peru joined Chile and Mexico as an exporter of avocados to the US.<sup>[27]</sup>

In the US avocados are grown in California and Florida, where land, labor and water are expensive. Avocado trees require frequent, deep watering to bear optimally, particularly in spring, summer, and fall. Due to increased Southern Californian water costs, they are now costly to grow. California produces 90% of the United States' avocados.<sup>[22]</sup>

As of 2013, Mexico leads international exports, with other significant production in California, New Zealand, Peru and South Africa.

## Culinary uses

[[edit](#)]



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The fruit of horticultural cultivars has a markedly higher **fat** content than most other fruit, mostly **monounsaturated fat**, and as such serves as an important staple in the diet of various groups where access to other fatty foods (high-fat meats and fish, dairy products, etc.) is limited.

A ripe avocado yields to gentle pressure when held in the palm of the hand and squeezed. The flesh is prone to **enzymatic browning**; it turns brown quickly after exposure to air. To prevent this, **lime** or **lemon** juice can be added to avocados after they are peeled.



Indonesian-style avocado milkshake with chocolate syrup

The fruit is not sweet, but rich, and distinctly yet subtly flavored, and of smooth, almost creamy texture. It is used in both savory and sweet dishes, though in many countries not for both. The avocado is very popular in **vegetarian cuisine**, as substitute for meats in sandwiches and salads because of its high **fat** content.

Generally, avocado is served raw, though some cultivars, including the common Hass, can be cooked for a short time without becoming bitter. Caution should be used when cooking with untested cultivars; the flesh of some avocados may be rendered inedible by heat. Prolonged cooking induces this chemical reaction in all cultivars.<sup>[28]</sup>

It is used as the base for the **Mexican dip** known as **guacamole**, as well as a spread on **corn tortillas** or toast, served with spices.

In the **Philippines**, **Brazil**, **Indonesia**, **Vietnam**, and southern **India** (especially the coastal **Kerala** and **Karnataka** region), avocados are frequently used for milkshakes and occasionally added to **ice cream** and other desserts. In **Brazil**, **Vietnam**, the **Philippines**<sup>[29]</sup> and **Indonesia**, a **dessert** drink is made with sugar, milk or water, and pureed avocado. **Chocolate syrup** is sometimes added. In **Morocco**, there is a similar chilled avocado and milk drink, that is sweetened with **confectioner's sugar** and hinted with **orange flower water**.

### Avocado, raw (edible parts)

Nutritional value per 100 g (3.5 oz)	
<b>Energy</b>	670 kJ (160 kcal)
<b>Carbohydrates</b>	8.53 g
- <b>Sugars</b>	0.66 g
- <b>Dietary fiber</b>	6.7 g
<b>Fat</b>	14.66 g
- <b>saturated</b>	2.13 g
- <b>monounsaturated</b>	9.80 g
- <b>polyunsaturated</b>	1.82 g
<b>Protein</b>	2 g
<b>Water</b>	73.23 g
Thiamine (vit. B <sub>1</sub> )	0.067 mg (6%)
Riboflavin (vit. B <sub>2</sub> )	0.130 mg (11%)
Niacin (vit. B <sub>3</sub> )	1.738 mg (12%)
Pantothenic acid (B <sub>5</sub> )	1.389 mg (28%)
Vitamin B <sub>6</sub>	0.257 mg (20%)
Folate (vit. B <sub>9</sub> )	81 µg (20%)
Vitamin C	10 mg (12%)
Vitamin E	2.07 mg (14%)
Vitamin K	21 µg (20%)
Calcium	12 mg (1%)
Iron	0.55 mg (4%)
Magnesium	29 mg (8%)
Phosphorus	52 mg (7%)
Potassium	485 mg (10%)
Zinc	0.64 mg (7%)
Percentages are relative to <a href="#">US recommendations</a> for adults. Source: <a href="#">USDA Nutrient Database</a> <span><span></span></span>	



In [Ethiopia](#), avocados are made into juice by mixing them with sugar and milk or water, usually served with [Vimto](#) and a slice of lemon. It is also very common to serve layered multiple fruit juices in a glass (locally called *spreece*) made of avocados, mangoes, bananas, guavas and papayas. Avocados are also used to make salads.

Avocados in savory dishes, often seen as exotic, are a relative novelty in [Portuguese](#)-speaking countries, such as [Brazil](#), where the traditional preparation is mashed with sugar and lime, and eaten as a dessert or snack. This contrasts with Spanish-speaking countries, such as [Mexico](#) or [Argentina](#), where the opposite is true and sweet preparations are often unheard of.

In [Australia](#) and [New Zealand](#), it is commonly served in sandwiches, sushi, on toast, or with chicken. In [Ghana](#), it is often eaten alone in sliced bread as a sandwich. In Sri Lanka, well ripened flesh, thoroughly mashed with sugar and milk, or treacle (a syrup made from the nectar of a particular palm flower) was once a popular dessert. In [Haiti](#) it is often consumed with [cassava](#) or regular bread for breakfast.

In Mexico and Central America, avocados are served mixed with white rice, in soups, salads, or on the side of chicken and meat. In Peru, they are consumed with *tequeños* as mayonnaise, served as a side dish with *parrillas*, used in salads and sandwiches, or as a whole dish when filled with tuna, shrimp, or chicken. In Chile, it is used as a puree with chicken, [hamburgers](#), and [hot dogs](#); and in slices for [celery](#) or [lettuce](#) salads. The Chilean version of [Caesar salad](#) contains large slices of mature avocado. In [Kenya](#) and [Nigeria](#), the avocado is often eaten as a fruit, and is eaten alone, or mixed with other fruits in a fruit salad, or as part of a vegetable salad. In Iran, it is used as a rejuvenating facial cream.

A puree of the fruit was used to thicken and flavor the liqueur [Advocaat](#) in its original recipe, made by the Dutch population of [Suriname](#) and [Recife](#), with the name deriving from the same source.<sup>[*citation needed*]</sup>

Avocado slices are frequently added to hamburgers, *tortas*, [hot dogs](#), and *carne asada*. Avocado can be combined with eggs (in scrambled eggs, tortillas or omelettes), and is a key ingredient in [California rolls](#) and other *makizushi* ("maki", or rolled [sushi](#)).

In southern Africa, Avocado Ritz is a common dish.<sup>[30]</sup>

In the [United Kingdom](#), the avocado became widely available in the 1960s when it was introduced by [Marks and Spencer](#) under the name 'avocado pear'. However, many customers tried to use it as a dessert ingredient like other pears (e.g. with custard), and complained to the store that it was inedible. As a result, Marks and Spencer dropped the word 'pear' and labelled it simply 'avocado'<sup>[*citation needed*]</sup>.

## Nutritional value

[edit]

Avocados have diverse fats. For a typical avocado:

- About 75% of an avocado's calories come from fat, most of which is [monounsaturated fat](#).
- On a 100 g basis, avocados have 35% more [potassium](#) (485 mg) than [bananas](#) (358 mg). They are rich in [B vitamins](#), as well as [vitamin E](#) and [vitamin K](#).<sup>[31]</sup>
- Avocados have a high fiber content of 75% insoluble and 25% soluble fiber.<sup>[32]</sup>

High avocado intake was shown in one preliminary study to lower blood [cholesterol](#) levels. Specifically, after a seven-day diet rich in avocados, mild [hypercholesterolemia](#) patients showed a 17% decrease in total serum cholesterol levels. These subjects also showed a 22% decrease in both [LDL](#) (harmful cholesterol) and [triglyceride](#) levels and 11% increase in [HDL](#) (helpful cholesterol) levels.<sup>[33]</sup> Additionally a Japanese team synthesised the four chiral components, and identified (2R, 4R)-16-heptadecene-1, 2, 4-triol as a natural antibacterial component.<sup>[34]</sup>

Due to a combination of specific [aliphatic acetogenins](#), avocado is under preliminary research for

potential anti-cancer activity.<sup>[35]</sup>

Extracts of *P. americana* have been used in laboratory research to study potential use for treating [hypertension](#) or [diabetes mellitus](#).<sup>[36]</sup>

## As a houseplant

[[edit](#)]



This section **may contain original research**. Please [improve it by verifying](#) the claims made and adding [inline citations](#). Statements consisting only of original research may be removed. *(May 2012)*

While not particularly popular, the avocado tree can be grown domestically and used as a (decorative) [houseplant](#). The pit germinates in normal soil conditions or partially submerged in a container of water. In the latter method, the pit sprouts in four to six weeks, at which time it is planted in fertile soil such as potting soil. The plant normally grows large enough to be prunable; however, it does not bear fruit unless it has ample sunlight. Home gardeners can [graft](#) a branch from a fruit-bearing plant to speed maturity, which typically takes four to six years to bear fruit. To obtain fresh avocado produce, however, more than one tree must be cultivated for crosspollination.<sup>[37]</sup>



20cm avocado houseplant leaf



## Allergies

[[edit](#)]

Some people have [allergic reactions](#) to avocado. There are two main forms of allergy: those with a tree-pollen allergy develop local symptoms in the mouth and throat shortly after eating avocado; the second, known as latex-fruit syndrome,<sup>[38]</sup> is related to [latex allergy](#)<sup>[39]</sup> and symptoms include generalised urticaria, abdominal pain, and vomiting and can sometimes be life-threatening.<sup>[40]</sup>

## Toxicity to animals

[[edit](#)]

Avocado leaves, [bark](#), skin, or [pit](#) are documented to be harmful to animals; cats, dogs, cattle, goats, rabbits,<sup>[41]</sup> rats, birds, fish, and horses<sup>[23][42]</sup> can be severely harmed or even killed when they consume them. The avocado fruit is poisonous to some birds, and the [American Society for the Prevention of Cruelty to Animals](#) (ASPCA) lists it as toxic to many animals including cats, dogs, and horses.<sup>[43]</sup>

Avocado leaves contain a toxic fatty acid derivative, [persin](#), which in sufficient quantity can cause [colic in horses](#) and, without veterinary treatment, death.<sup>[44]</sup> The symptoms include gastrointestinal irritation, vomiting, diarrhoea, respiratory distress, congestion, fluid accumulation around the tissues of the heart, and even death. Birds also seem to be particularly sensitive to this toxic compound. Feeding avocados or guacamole to an animal should be avoided completely.

## Co-evolution

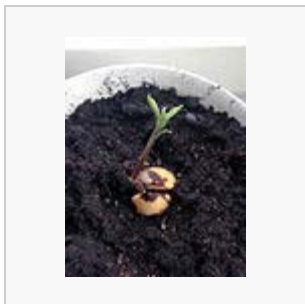
[[edit](#)]

In 1982, the evolutionary biologist [Daniel H. Janzen](#) suggested that the avocado may be an example of an 'evolutionary anachronism', a fruit adapted for [ecological](#) relationship with now-[extinct](#) large mammals (such as giant [ground sloths](#) or [gomphotheres](#)). Most large fleshy fruits serve the function of [seed dispersal](#), accomplished by their consumption by large animals. There are some reasons to think that the fruit, with its mildly toxic pit, may have [co-evolved](#) with [Pleistocene megafauna](#) to be swallowed whole and excreted in their dung, ready to sprout. No extant native animal is large enough

to effectively disperse avocado seeds in this fashion.<sup>[45][46]</sup>

## Image Gallery

[edit]



An avocado sprout about 2 months old, 2013

## See also

[edit]

- Avocado oil
- Florida Lime & Avocado Growers, Inc. v. Paul
- Recalcitrant seed

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[edit]

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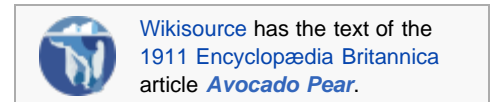
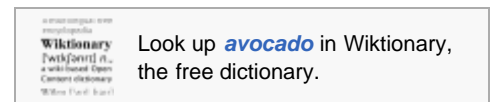
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## External links

[[edit](#)]

- [Definitive illustrated list of avocado varieties](#)
- [Purdue horticultural lecture on Avocados with pictures of cultivation from fertilization to harvest](#)
- [California Rare Fruit Growers](#) , avocados beyond *Persea americana*
- [Avocado Nutrition Information](#)  from USDA National Nutrient Database



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