

# Nut (fruit)

A **nut** is a fruit consisting of a hard or tough nutshell protecting a kernel which is usually edible. In general usage and in a culinary sense, many dry seeds are called nuts, but in a botanical context, "nut" implies that the shell does not open to release the seed (indehiscent).<sup>[1]</sup>

Most seeds come from fruits that naturally free themselves from the shell, but this is not the case in nuts such as hazelnuts, chestnuts, and acorns, which have hard shell walls and originate from a compound ovary.<sup>[2]</sup>

## Definition

A seed is the mature fertilised ovule of a plant; it consists of three parts, the embryo which will develop into a new plant, stored food for the embryo, and a protective seed coat. Botanically, a nut is a fruit with a woody pericarp developing from a syncarpous gynoecium. Nuts may be contained in an involucre, a cup-shaped structure formed from the flower bracts. The involucre may be scaly, spiny, leafy or tubular, depending on the species of nut.<sup>[3]</sup> Most nuts come from the pistils with inferior ovaries (see flower) and all are indehiscent (not opening at maturity). True nuts are produced, for example, by some plant families of the order Fagales. These include beech (*Fagus*), chestnut (*Castanea*), oak (*Quercus*), stone-oak (*Lithocarpus*) and tanoak (*Notholithocarpus*) in the family Fagaceae, as well as hazel, filbert (*Corylus*) and hornbeam (*Carpinus*) in the family Betulaceae.

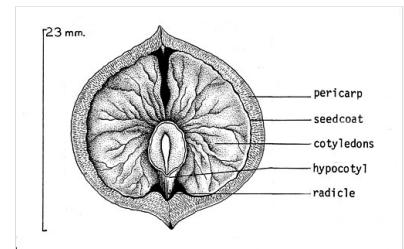


Diagram of a shagbark hickory nut

A small nut may be called a "nutlet" (formerly called a nucule),<sup>[4]</sup> a term otherwise referring to the oogonium of stoneworts.<sup>[5]</sup> In botany, the term "nutlet" can be used to describe a pyrena or pyrene, which is a seed covered by a stony layer, such as the kernel of a drupe.<sup>[6]</sup> Walnuts and hickories, including pecans, (Juglandaceae) have fruits that are difficult to classify. They are considered to be nuts under some definitions but are also referred to as drupaceous nuts.<sup>[3]</sup>

## Evolutionary history

### Toxicity

Nuts used for food are a common source of food allergens.<sup>[7]</sup> Reactions can range from mild symptoms to severe ones, a condition known as anaphylaxis, which can be life-threatening. The reaction is due to the release of histamine by the body in response to an allergen in the nuts, causing skin and other possible reactions.<sup>[8]</sup> Tree nut allergies are distinct from peanut allergy, as peanuts are legumes, whereas a tree nut is a hard-shelled nut; however, experts suggest that a person with an allergy to peanuts should avoid eating tree nuts, and vice versa.<sup>[7][9]</sup>

## Consumption as food

Nuts contain the diverse nutrients that are needed for the growth of a new plant.<sup>[7]</sup> Composition varies, but they tend to have a low water and carbohydrate content, with high levels of fats, protein, dietary minerals, and vitamins.<sup>[7]</sup>



Chocolate cake with hazelnuts

### Constituents

Nuts are the source of energy and nutrients for the new plant. They contain a relatively large quantity of calories, essential unsaturated and monounsaturated fats including linoleic acid and linolenic acid, vitamins, and essential amino acids.<sup>[7]</sup>

## See also

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- [Nut \(food\)](#)
- [List of culinary nuts](#)
- [List of edible seeds](#)
- [Nutmeg](#)
- [Nutcracker](#)
- [Achene](#)

## References

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An [Eastern chipmunk](#) (*Tamias striatus*) with a hazelnut in its mouth

## Further reading

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- Albala, Ken (2014) *Nuts A Global History*. The Edible Series. ISBN 978-1-78023-282-9

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