

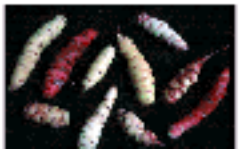


The Brazil Nut (*Bertholletia excelsa*)

By Tim Hennessey

The Brazil Nut is the fruit of a tree that grows mostly wild in rainforests. *Castanheiro do Para*, which is the Brazilian name given to this tree, is found in many Amazonian states of Brazil, Peru, Columbia, Venezuela and Ecudor. It is most pervalent in the Brazilian states of Marahao, Mato Grosso, Acre, Para, Rondonia, and the Amazonas. The tree is enormous, Frequently attaining the height of 160 feet or more. The fruit is a large spherical woody capsule or pod and measures an average of six inches in diameter and can weigh up to 5 pounds. The fruit pods grow at the ends of thick branches, then ripens and falls from the tree from January to June. Inside each fruit pod is 12 to 25 Brazil nuts with their own indvidual shell(1).

Brazil nuts are harvested at plantations and in the wild. Plantations are being developed in various parts of the Amazon. Fazenda Aruana is the owner of a 12,000 hectare former cattle ranch, partially converted to a Brazil Nut plantation in 1980. By January of 1990, 318,660 Brazil nut trees were planted on 3341 hectares of land. Fazenda's original intent was to plant Brazil Nut trees in a 20 by 20 meter grids and allow cattle grazing between the trees. The trees in the Aruana plantation are the result of grafting high yield clones from the region of Abufari Amazonas were Brazil nuts are know for their large fruits and seeds. As a result of fertilization from the same clones, the fruit production among clones has been low (2). Another danger in using so few clones is the ability to resist attack of disease and insects.

The bulk of the Brazil nuts that are harvested are done so in the wild. They are harvested during a five to six month period in the rainy season. The fruits, witch weigh from .5 to 2.5 kilograms and contain ten to twenty five seeds, are gathered immediately after they fall. This minimizes the chance of insect or fungal attack on seeds. Brazil nuts are also carried away by animals. The number of pods can range form 63 to 216 per tree(). Most of the pods gathered in the wild are sent down river to processing plants were they are opened out of the pod and packaged.

The brazil nut has a major impact on local Amazonian economies. The numbers on total production are estimates due to the fact figures are hard to get from the Amazon. Brazilian production has ranged from 3557 tons in 1944 to 104,487 tons in 1980 and still rising.

The nut is also a source of food for the indigenous people of the Amazon. The nut and parts of the tree are prepared in a variety of ways. The three sided brazil nut with meat of flesh that consists of 70 percent fat or oil and 17 percent protein. In the Brazilian Amazon the tree bark is brewed into a tea to treat liver ailments and diseases. For centuries the indigenous tribes of the rainforest have relied on Brazil nuts as an important and significant staple of their diet. So important, that is has even been used as a trade commodity, much like money. Indigenous tribes eat the nuts raw, or they are grated and mixed into gruels. In the Brazilian Amazon, the nuts are grated with the thorny stilt roots of Socratea palms into a white mush know as *leite de catanha*, and then stirred into manioc flour. it is a valuable source of calories, fat and protein for much of the Amazons rural and urban peoples (1).

The Brazil nut does have other economic values other than human consumption, Brazil nuts have a valuable oil as well. The oil is a clear yellowish in color which has a pleasant and sweet smell and taste. Brazil nut oil contains mainly palmitic, oleic and linoleic and alpha linolenic acids and small amounts of myristic and stearic acids and phytosterols. Today, brazil nut oil is often used in soaps shampoos and hair conditioning/repair products. It is a wonderful hair conditioner; bringing shine, silkiness, malleability and softness to hair. It provides stabilizing detergent properties and helps keep hair clean. It can also be found in skin care products as it acts as a wonderful skin moisturerizer. The oil in skin creams helps lubricate the skin, provides antioxidant benefits, helps prevents dryness and leaves skin soft (1).

Brazil Nuts contain a substantial amount of selenium. This is an important antioxident, the amount in the Brazil nut exceeds the US Recommended Daily Allowance of selenium. Selenium has shown to be effective against cancer. Selenium is present in a variety of foods but only in very small amounts. One food has a much higher content than all others and that is the brazil nut. These nuts contain between 16 to 30 mcg/g a nut. The average in take of selenium is probably around 80 mcg per day (3).

The nut is more than just a nut, its a home too. When and empty fruit is left on the ground by a worker, it rains, which is almost every day, and fills with water. The nut shell acts as a container for a number of obligate interactions between specialized invertebrates. Mosquitoes, damselflies, a poison dart frog and a toad have been recently described andd found to he using only Brazil nuts as breeding grounds (2).

Brazil nut trees are angiosperms. Which means they have flowers, this also means they need to be pollinated. The animal that has taken on this role is the Euglossine bees or orchid bees. It is not clear which species are involved in a natural environment, and to what degree the trees are dependent on just a few species. Although, it is known that very few kinds are involved and mainly the females. These bees have also been described as negatively sensitive to disturbed forest, an increasingly common characteristic of the Amazon. Once the flower has been pollinated, it may develop into a full fruit, or it may be aborted by the tree if an insufficient number of pollen ovules have been fertilized. The true level of dependency of the tree on the bee is unknown. The consequences of the forest disturbance on the bee, could destroy the tree that so many people depend on.

Another animal that puts the brazil nut to use is a small mammal called the Agouti. The agouti is a 3 kilo

rodent that feeds on nuts. The rodent plays a very important role in the dispersal of seeds. The sometimes will carry a seed over 400 m from the parent tree. The agouti much like the squirrels of North America will eat some of the seeds upon finding them while others are buried for later consumption. This is also done to hide the nuts from other agouti. This, as mentioned earlier, is the best chance a seed has of being germinating and growing. The agouti like the Euglossine bees, are in somewhat of a symbiotic cycle with the brazil nut tree (2).

In conclusion, the brazil nut tree has proven its self as a valuable plant. Its worth as a food plant to the people of the Amazon is immeasurable. The rest of the world may one day find the nut as more of a staple. We are only now seeing some of the potential that the plant may posses as to health. The squandering of such a tree, in the destruction of the rain forest is a crime that goes unpunished. We must take a stand as a human rac to decide when we will stand together to protect the brazil nut tree and the countless others whose potential hve not been fully exploited.

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