

Nutritious underutilized species



Bambara groundnut
(*Vigna subterranea*)

Botanical framework

Family: Fabaceae

Genus: *Vigna*

Scientific name: *Vigna subterranea*

Common names

Bambara groundnut, bambarra groundnut, cokon, jugo bean, njugumawe, ntoyo, katoyo, mbwiila, tindluwa, voanjobory, gurjiya, kwaruru, kwam, ngamgala, kacang bogor, bogor peanut, nyimo, indlubu, nyimo bean.

Brief introduction to the species

The Bambara groundnut is grown in Asia, parts of Northern Australia, and South and Central America and is widely distributed across the world. It is very similar to the peanut. It is a prostrate annual with compound leaves consisting of three leaflets. Its seeds are buried in the ground in roundish pods 1.5 cm or more long for protection from pests and herbivores.

It has a compact well-developed taproot system with short lateral stems which bears its leaves. Its plants may either bunch or spread out. It is a very important crop, but it is not regarded as having high status because it is seen as a snack or food supplement and not a very lucrative cash crop. It is traditionally grown by women, giving it less value and less priority in land allocation, despite being regarded as the third most important legume in much of Africa after peanuts and cowpeas.

It is difficult to harvest mechanically, so it discourages large-scale commercial farmers from growing them, making it ideal for small-scale, rural farmers to grow.

Main use and benefits

How is it generally consumed?

The bambara groundnut can be used as an ingredient in cooking, making flour, or eaten as a snack. It is very easy to grow because it grows in areas of low rainfall, in poor soils, and without fertilizers or chemicals.

They improve soil fertility by fixing nitrogen, making them useful in intercropping and soil rotation, especially because they do not take up much land space to grow.

Bambara groundnut beans are either eaten fresh after harvesting, or dried and stored in their shells for later consumption. To prepare them for eating, the beans can be extracted from their pods with a mortar and pestle and boiled. They take much longer to boil dried than fresh. They can also be pounded into a flour and used to make a stiff porridge. The seeds can also be made into a milk, like that of cowpea, pigeon pea, or soybean.

Nutritional value

What is its nutritional value?

Ripe or immature, raw or roasted, the seeds are nutrient rich. They contain 60% carbohydrate, 20% protein, 6% oil and rich in micronutrients. It is a true quality protein food which provides more methionine than other grain legumes.

What are neglected and underutilized species?

The term 'NUS' – standing for neglected and underutilized species – refers to a category of non-commodity cultivated and wild species, which are part of a large agrobiodiversity portfolio today falling into disuse for a variety of agronomic, genetic, economic, social and cultural factors. NUS are traditionally grown by farmers in their centres of diversity, where they support nutrition security and other livelihood goals of local communities while contributing to meet their socio-cultural needs and traditional uses. Until recently these species have been largely ignored by research and development, becoming less competitive than well established major crops and losing gradually their diversity and associated traditional knowledge.

Pods are often boiled and the seeds are consumed roasted or used in soups. The beans are highly nutritious and unusually high in an essential amino acid, methionine.

Good source of fibre, calcium, iron and potassium, the beans have the potential for providing a balanced diet in areas where animal protein is expensive and the cultivation of other legumes is risky because moisture levels are unfavourable.

The red seeds could be useful in areas where iron deficiency is a problem as they contain almost twice as much iron as the cream seeds.

Growing and harvesting

How easy is it to grow? How is it harvested?

The bambara groundnut's resistance to harsh conditions makes it one of the most adaptable of all plants. Its ideal environment is hot, dry regions; it yields better in areas with low rainfall than it does in areas of heavy rainfall. In Zimbabwe, it is normally intercropped with maize in November/December and harvested 5-6 months later.

It is fairly easy to grow because of the lack of need for pesticides, fertilizers, and chemicals and it goes fairly unaffected by disease. It is harvested by hand, and not easily harvested mechanically.

Productivity

How much will it produce?

World production of bambara groundnut in 2008 was 79,160 tonnes. This is an increase from 29,600 tonnes in 1961. While world production has increased in recent years, the yield has not. This reflects a lack of sustained research on the crop and its productivity.

Although bambara groundnut is typically an intercrop, its plant density is between 6 and 29 plants per square meter.



Preserving and processing

Can it be preserved, keeping its value?

The nuts can be dried and preserved if they are kept in their pods. But there are no companies or individuals able to provide a reliable supply of dried beans year round, so small companies that want to process the beans have to buy a year's supply at harvesting time and store them themselves. This is why it is difficult to establish a market for them, because they are typically not available year-round.

Other uses

What else can be done with it?

The crop can also be used as animal feed because the stalk is tasty and the leaves are rich in nitrogen and phosphorus. It has been used for medicinal purposes as well.

It has been used to cure diarrhea by boiling a mixture of maize and bambara groundnut, and then drinking the water. The leaves can be mixed with those of *Lantana trifolia* L., and pounded and added to water to wash livestock and serve as an insecticide as well.

When dry, the leaves are pounded with traditional salt, and fed to cattle infected with 'tuoolao' (a type of mouth disease). The leaves cauterize and heal the animals' wounds.

Culture

Are there any specific taboos, specific cultural adaptations, historical perspective?

There are some negative perceptions about the bean in Zimbabwe. It is seen as an indigenous crop that only the poor eat. This negatively impacts sales as there is a stigma, narrowing the market. In some areas, it is seen as a women's crop, so it is of less value. It is seen as a minor crop by those, like the government and traders, who have the ability to increase awareness of it.

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