

# African Orphan Crops Consortium

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## Taro

### *Colocasia esculenta*



Taro has a long, erect stem and large, arrow-shaped leaves. Below ground, taro produces a starchy, underground corm or tuber, which can grow to over 40 cm long.

The tuber is eaten as a carbohydrate and sometimes the leaves are eaten as a vegetable. About 10% of the world's population uses taro or taro-like plants as a staple in their diet, and for 100 million people this is an important daily food. It is a very common crop for wet soils in the humid tropics, especially in Southeast Asia, the Pacific Basin, wet tropical Africa and Egypt, the West Indies, and certain areas of South America.

Sometimes called the 'potato' of the humid tropics, the taro corm has a higher proportion of protein (1.5-3.0%), calcium, and phosphorus; it has a trace of fat, and is rich in vitamins A and C. Moreover, taro is 98.8% digestible, because it has very small starch grains fairly rich in amylose (20-25%), which breaks down to sugar with human saliva.

Taro is traditionally prepared by removing the corm skin and then pounding the white flesh to make a thick paste, which is dried, diluted with water, kneaded, and then aged, and may be fermented. Taro corms are roasted, boiled, or baked, and may be made into cakes. The corms and the leaves must be boiled for at least an hour to remove toxins and calcium oxalate crystals.

Taro carbohydrate is excellent for people with digestive problems. Taro flour is used in infant formulae and canned baby foods, and is good for people with allergies, such as lactose intolerance.

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## Baobab

### *Adansonia digitata*



The African baobab has a very large, comparatively short trunk, which can reach 28 m in circumference, and a light, rounded canopy, giving it a distinctive shape. The trees usually grow as solitary individuals, with some known to live for well over a thousand years. Steeped in mystique, it is a tree that can provide, food, water, shelter and relief from sickness.

The baobab tree grows best in hot, dry woodland. It is found in areas of South Africa, Botswana, Namibia, Mozambique and other tropical African countries. It is rare in Central Africa, and is found only in the very north of southern Africa. In eastern Africa, the trees grow also in shrub lands and on the coast. In Angola and Namibia, the baobabs grow in woodlands and in coastal regions, in addition to savannahs.

Large baobab trees with hollow stems have been used for centuries for various purposes including houses, prisons, storage barns, and even bus stops. A tree near Leydsdorp in South Africa was used as a bar for prospectors and miners during the gold rush of the late 19th century.

The fruit is up to 25 cm long and filled with a rich pulp that dries to look like powdery bread. This dried fruit contains twice as much calcium as spinach, three times the vitamin C of oranges and four times more potassium than a banana. Both the European Union and the United States Food and Drug Administration have approved dried baobab fruit pulp as a food ingredient

The leaves are also rich in vitamin C, sugar, potassium tartrate and calcium. They are cooked fresh as a vegetable or dried and crushed for later use. Baobab leaves are sometimes used as forage for ruminants in the dry season. The sprout of a young tree can be eaten like asparagus. The root of very young trees is also edible. The seeds can also be roasted for use as a coffee substitute. Oil extracted by pounding the seeds can be used for cooking. The byproduct of oil extraction can also be used as animal feed.

The bark on the lower part of the trunk produces a strong fibre that can be used to make mats and ropes, fishing nets, fishing lines, sacks as well as clothing.

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## Finger millet

### *Eleusine coracana*



African finger millet is a small cereal grain between 40 and 100 cm high, grown in drier regions. The plants produce clusters of 4 to 6 ears, which are 5 to 15 cm long. An annual of the grass family, it tolerates many different conditions, from cultivation under irrigation to growing in dry areas. In Africa, it is found from Nigeria to Eritrea, South Africa and Namibia. Africa produces around 2 million tonnes of the grain. Though it was a predominant crop in Africa until recent decades, production has since declined significantly. It is best suited for dry farming, generally grown in rain-fed conditions on upland soils that do not get waterlogged.

It is one of the most nutritious of all the world's major cereal crops. Finger millet is high in protein and starch and is considered superior to wheat in that its proteins are more easily digested. It has the third highest iron content of any grain, after amaranth and quinoa. Some varieties, such as those in Uganda and southern Sudan, have high levels of methionine, an amino acid lacking in the diets of hundreds of millions of poor people who depend on starchy foods, such as cassava. It can be used to make nutritious porridge, bread, malt, animal feed, popped like popcorn, liquor and even beer.

The grain is normally made into flour used for the preparation of *uji* and *ugali*. It is often mixed with sorghum or maize in these preparations. Sour milk and melted butter are added to *ugali* made from millet and wrapped in a new banana leaf and eaten by warriors among the Luo. Flour and grain are also used in local brewing, especially among the Luo, Luhya and Kuria. Its use as food is closely integrated in the traditional customs of many communities in East Africa.

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## Pigeonpea *Cajanus cajan*



Pigeonpea is a tropical shrub of the pea family, which has 3-leaflet leaves, yellow or orange flowers, large hairy pods and small edible seeds.

It grows in many different soil types, with a root system that can grow down to 2m. Pigeonpea does well in low-fertility soils because it fixes soil nitrogen. It tolerates heat but not flooded conditions.

Pigeonpea tolerates drought, improves soil structure and fertility and aids water penetration. Farmers have evolved elaborate intercropping systems allowing them to plant pigeonpeas with maize, sorghum and other cereals, making it highly suited to semi-arid, low soil-fertility areas.

Known as the 'poor man's meat', pigeonpea is one of the most important food crops grown in Eastern and Southern Africa. It is an important source of protein for the family, a vital source of scarce cash, and provides fodder for livestock. The pods are also useful as household firewood.

In Eastern and Southern Africa, pigeonpea is grown on 0.53 million hectares, principally in Mozambique, Malawi, Tanzania, Kenya and Uganda. One of the reasons African farmers have not been able to fully exploit the potential of pigeonpea is that local varieties are low yielding and susceptible to pests and disease. Once considered of little significance, pigeonpea is rapidly gaining a reputation as a food security crop, protein source, income generator and commercial export commodity.

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## Spider plant

*Cleome gynandra* L.



Spider plant is commonly found throughout East and Southern Africa during the rainy season. In Kenya, it grows from sea level to 2400 meters. It is native to Africa but has become widespread in many tropical and subtropical parts of the world.

The leaves and young shoots, which are rich in calcium, are used as vegetables, which can be served with any starch staple including rice, Irish potatoes, *chapatis* and *ugali*. It is commonest and most widely used in the wetter regions. Much of it is picked from the wild or when found growing as a weed. In some parts of Kenya especially in the west, the species is cultivated in small home gardens.