

LOST CROPS OF AFRICA VOLUME II: VEGETABLES (2006)

Within the huge mass of land below the Sahara Desert in Africa, there exist several thousand native plant species already recognized by some to be good food sources, but not receiving adequate scientific or institutional support. Many of these crops have been feeding people since the beginning of time, thriving in the harsh conditions that Africans confront daily and considered exceptionally nutritious. Some are the source of life for thousands of communities in desperate need of help, so the lack of research attention directed at them is disappointing.

Such neglected foods are called the “lost crops of Africa”, which include hundreds of vegetables. They are well-known in some places; it is mainly to scientists, policymakers, and the world at large that they remain “lost.” Most of these important decision makers who influence African research priorities are in Europe, North America, and elsewhere. It is also important that science establishments and policymakers within African nations are aware of these crops since many sub-Saharan countries allocate their limited agricultural research funds almost exclusively to major international crops that were introduced in the past.

Lost Crops of Africa Volume II Vegetables is the second in a series of three reports evaluating underexploited African plant resources that could help broaden and secure Africa's food supply. Volume I describes African grains and Volume III (forthcoming) African fruits. The reports are based on a questionnaire that asked Africans and Africa specialists to identify indigenous food plants with unrealized potential. One thousand respondents replied, naming more than 300 key plants. Among the nominations were more than 50 vegetables (including tubers and legumes); 18 of those are highlighted here (see Table 1). The report describes the characteristics of each vegetable and assesses its potential to help overcome malnutrition, boost food security, foster rural development, and provide sustainable landcare in Africa.

It is the hope that by highlighting these vegetables, Africa-wide and perhaps worldwide actions will be taken to increase their production. Although the project's ultimate aim is to raise nutritional levels, diversify agriculture, and create economic opportunities in Africa, many of these crops may offer untold global potential as well.

Overcoming Malnutrition

By and large, vegetables supply dietary elements that are not typically provided by other foods. They are prime sources of minerals such as calcium and iron, as well as vitamin C, vitamin A, folic acid, and several B vitamins. Many vegetables also contain small but useful amounts of vitamin E, an anti-oxidant, and cellulose, important for intestinal function.

The diets of many African communities are deficient in these vitamins, minerals, and other nutrients that vegetables supply, making them more susceptible to infection and disease as well as stunted physical and mental growth. Vegetables can aid in reducing Africa's major health problems due to a lack of a balanced diet, especially crops like baobab, dika, moringa, and yambean. Baobab leaves contain very high levels of provitamin A, which means they could potentially prevent millions of children from going blind. Dika offers good possibilities for lowering levels of chronic malnutrition. The kernel meal is high in oil and protein (including six essential amino acids), and would make an exceptional nutritional tool in West and Central Africa where marasmus (the malnutrition caused by a lack of food energy) and kwashiorkor (the malnutrition caused by a lack of protein) are major baby killers. Next, moringa has high levels of iron and calcium that make it particularly valuable for women. Finally, yambean is beneficial to children. Nibbling on the tasty raw tubers provide a protein that they cannot easily get elsewhere.



Dika Fruit

Boosting Food Security

For much of Africa, the possibility of a multi-year drought is real and can often lead to famine. Those living in poverty are easily affected by crop and climate fluctuations, periodic natural disasters, or human conflicts that create catastrophic conditions. It is not realistic to expect that relief efforts will always be successful. Fortunately, there are a number of indigenous vegetables that can fill the gaps in the dietary continuum, both in normal and abnormal conditions:

- Amaranth is easy to produce and grows so quickly that the first harvest can sometimes be gathered just three weeks after planting.
- Bambara bean is dependable, resilient, and reliable. It commonly yields food from sites too hot and too dry for peanuts, maize, or sorghum.
- Baobab keeps producing throughout the rainy season—often half the year. In addition, any surplus harvest can be dried and used later.
- Eggplant (Garden Egg) is easy to grow, relatively free of disease and pests, and capable of providing a steady supply of both food and income. It is known for a capacity to furnish large amounts of food from a tiny space. Also, the fruits have a storage life up to three months.
- Lablab has a root system that penetrates into the water more than 2 meters deep, permitting growth to persist long after the rains have stopped and the surface soil has dried.
- Native potatoes can be dried and set aside for future use.
- Okra is tolerant to drought and heat.



Fostering Rural Development

Vegetables make good cash crops since they can be sold for relatively high prices and can be produced efficiently on a small scale. This makes them excellent sources for relieving rural poverty, providing farmers with an easy entry into the world of commerce. In addition, vegetables are typically produced, sold, and prepared by women; therefore, these crops offer good opportunities for women to make some money on their own and develop their entrepreneurial skills.

There are several vegetables in Africa that can help in rural development. First, amaranth is mostly grown, harvested, and marketed close to home, and it forms a crucial part of both the rural economy and female work. Eggplant (Garden Egg) has untapped commercial promise and could become the cornerstone of localized rural economic development. There is also the potential that it could be exported to Europe and North America. Egusi is in high demand in urban tropical areas, making it a valuable crop if developed appropriately. Finally, moringa seeds can help purify water and are valuable as feed for livestock.



Egusi



Eggplant

Providing Sustainable Landcare

Farming techniques are being discovered that help produce plentiful crops while leaving the land better off than before the crops were grown. Many of these sustainable technologies require little capital investment, making them ideal for the cash-poor African countryside. It seems likely that African vegetables will provide opportunities for more sustainable land use, in large part because they treat the land in a gentle manner. In addition, they provide ecosystem services such as pollen and nectar for bees. Their use acts like a conservation program that helps preserve Africa's ancient heritage of food plant genes. This is important because the diversity in these crops is diminishing and nothing is really being done to conserve them. Some of the vegetables that provide the potential for sustainable agriculture include the following:

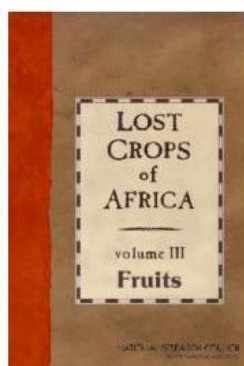
- Bambara beans are genetically diverse, and no plant is fertilized or sprayed. In addition, the species' nitrogen-fixing capacity helps boost soil fertility naturally.
- Cowpea has deep roots that help stabilize the soil as well as dense foliage that shades and covers the surface and preserves moisture. These traits are important in the dry zones where there is minimal moisture, fragile soil, and winds that move the soil around.
- Egusi blankets the soil and helps protect the surface from damaging rain and wind.
- Moringa can thrive in wastelands and provides tree cover, which makes it a good choice for reforestation projects.
- Shea, a self-reliant perennial species providing food in the dry savanna, offers the only tree cover across a vast area that is vulnerable to desertification.



TABLE 1. Potential Roles for Selected African Vegetables

	Overall	Nutrition	Food Security	Rural Development	Sustainable Landcare	PRIMARY OCCURRENCE			
						West Africa	Central Africa	East Africa	Southern Africa
Amaranth	**	***	**	***	*	√	√	√	√
Bambara Bean	***	***	***	***	**	√	√	√	√
Baobab	**	**	***	***	***	√	√	√	√
Celosia	**	*		*	*	√			
Cowpea	**	***	***	**	**	√	√	√	√
Dika	**	**	*	***	***	√	√		
Eggplant (Garden Egg)	**	*	**	**	**	√	√	√	√
Egusi	***	***	**	***	**	√	√		√
Enset	*	*	***	*	**			√	
Lablab	***	**	**	***	***	√	√	√	√
Locust Bean	**	**	***	**	***	√			
Long Bean	***	**	*	***	**	√	√	√	√
Marama	*	*	*	*	*				√
Moringa	***	***	**	***	**	√	√	√	
Native Potatoes	*	**	**	**	*	√	√	√	√
Okra	**	**	**	***	**	√	√	√	√
Shea	***	*	**	***	***	√			
Yambean	**	***	**	*	***	√	√	√	√

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Lost Crops of Africa: Volume III: Fruits (forthcoming)

This report is the third in a series evaluating underexploited African plant resources that could help broaden and secure Africa's food supply. The volume describes 24 little-known indigenous African cultivated and wild fruits that have potential as food- and cash-crops but are typically overlooked by scientists, policymakers, and the world at large. The book assesses the potential of each fruit to help overcome malnutrition, boost food security, foster rural development, and create sustainable landcare in Africa. Each fruit is also described in a separate chapter, based on information provided and assessed by experts throughout the world. Volume I describes African grains and Volume II African vegetables.

For More Information

Copies of *Lost Crops of Africa Volume II: Vegetables* and related volumes are available from the National Academy Press; (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area), or visit the NAP online at www.nap.edu. For more information on the project, contact staff at (202) 334-2593 or visit the DSC website at www.nationalacademies.org/dsc.