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# The Importance of Indigenous Food Plants

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An important part of ECHO's ministry is sharing information about underutilized plants. Many of the seeds in our seed bank are for crops that have not been heavily researched, but that have been found to grow well under challenging conditions and that are already important to people in some places. Introducing such crops in a new location can make a significant impact on nutrition and food security.

In any location, there will be some indigenous food plants. These are edible plants native to and characteristic of a region or country. Closely related are traditional foods, defined in an article in Ground Up magazine as "plants that formed the pre-colonial diet." In Africa, such plants include sorghum, millet and cowpea.

Indigenous food plants can be an extremely important part of the local diet, for a number of reasons:

- Indigenous food plants tend to be very nutritious, often more nutritious than some introduced (and perhaps more popular) plants.
- Indigenous crops are well-adapted to the regions where they originate. They often are free of pests and diseases, and are able to grow in extremely difficult conditions (in very dry areas or in very acidic or alkaline soil, for example). Sometimes they have even come to be considered weeds!
- The diversity provided by eating indigenous vegetables contributes to food security. Rather than relying on one food crop, a wide range of food plants are eaten and enjoyed. If one fails to grow and produce, others can be eaten instead.

People in a given area likely have some history of eating indigenous plants, though in many places such knowledge is rapidly being lost. One reason is a widespread impression, especially among younger people, that traditional varieties are 'primitive' or 'old,' and that farming is a disgraceful vocation.

The purpose of this article is not to highlight specific edible indigenous plants, but rather to encourage you to explore indigenous vegetables in your area. We hope some of the resources highlighted in this article will help you in that process.

## How to Learn About and Promote Indigenous Vegetables

**Ask around.** A good way to start is to ask local people—especially elderly people—about foods that people used to eat.

**Seed fairs** are a concrete and practical way to increase awareness of local varieties. ECHO has a Technical Note on the subject of seed fairs (<http://members.echocommunity.org/resource/collection/27A14B94-EFE8-4D8A-BB83-36A61F414E3B/SeedFairsTN80.pdf>). In addition, an upcoming issue of ECHO Asia Notes will contain an article about seed fairs (we will put a link to the article in a future EDN issue).

**Food fairs** can also be helpful. Ground Up magazine, published by the Participatory Ecological Land Use Management Association (PELUM), described a display held during an annual agriculture show in Zimbabwe. Mothers who visited the display were given recipes for traditional/indigenous foods, which were advertised as being healthy, cheap and locally available. Ground Up also shared information about an international food fair, in which participants from different countries exhibited and shared knowledge about indigenous crops and foods.

## Helpful Resources

**Crops for the Future** ([www.cropsforthefuture.org](http://www.cropsforthefuture.org)) (<http://www.cropsforthefuture.org/>) formed from the International Centre for Underutilized Crops and the Global Facilitation Unit for Underutilized Species) is an organization “dedicated to the promotion of neglected and underutilized plant species as a contribution to humanity.” Crops for the Future includes both food and non-food crops.

The **Underutilized Species Database** ([www.underutilized-species.org](http://www.underutilized-species.org)) (<http://www.underutilized-species.org/>) shares information about specific plant species, including origin, distribution and uses. Information from this site is gradually being moved to the Crops for the Future website.

**Worldwatch** ([www.worldwatch.org](http://www.worldwatch.org)) (<http://www.worldwatch.org/>) has some good resources. Here is a link to their blog: <http://blogs.worldwatch.org/nourishingtheplanet/tag/indigenous-crops/> (<http://blogs.worldwatch.org/nourishingtheplanet/tag/indigenous-crops/>) Worldwatch also has a pdf document of African Indigenous Crops, containing one-page descriptions for 20 different crops: [www.worldwatch.org/system/files/NtP-Africa's-Indig...](http://www.worldwatch.org/system/files/NtP-Africa's-Indig...) (<http://www.worldwatch.org/system/files/NtP-Africa's-Indigenous-Crops.pdf>)

The **NewCROP Database** from Purdue University ([www.hort.purdue.edu/newcrop/default.html](http://www.hort.purdue.edu/newcrop/default.html)) (<http://www.hort.purdue.edu/newcrop/default.html>) shares profiles of a great many new and specialty crops. (One link in the Table of Contents is for “Famine Foods: A list of unconventional food sources.”)

**Food Plants International.** Bruce French has compiled an online database called "Food Plants International" (FPI; [www.foodplantsinternational.com](http://www.foodplantsinternational.com) (<http://www.foodplantsinternational.com/>)). It contains information on about 18,000 edible plants. Mr. French spoke at ECHO's December 2010 Agriculture Conference in Florida. FPI information is shared with the objective of "Helping the Hungry Feed Themselves." The database can be used to identify local plants; it gives "information on scientific name, genus, common names, synonyms, plant description, production and use notes, nutritional value, pictures and references." Sometimes information is lacking in a category. If you have information to add, please contact FPI through their website.

Several documents (mainly geared to Papua New Guinea) are available from the FPI web site. These include Growing the Common Food; Food Plants Book; and Food Crops Introduction.

**AVRDC/World Vegetable Centre.** AVRDC, The World Vegetable Center ([www.avrdc.org](http://www.avrdc.org) (<http://www.avrdc.org/>)), is an organization that encourages the increased production and consumption of vegetables. The Center, located in Taiwan, was established in 1973. It now has many regional centers and offices, and even sub-regional offices.

Globally, the World Vegetable Center has four main research and development themes: collecting germplasm (i.e. seeds of many selections of the same crop, with differences in traits); breeding; production; and consumption. The organization has more than 57,000 plant accessions.

In February, I (with other ECHO staff members) visited the World Vegetable Center-Regional Center for Africa (RCA) in Tanzania. This regional center was established in 1992. Genetic resources scientist Dr. Marilyn Belarmino shared information about the Center's activities and also gave us a tour of the facilities.

AVRDC-RCA promotes traditional vegetables, including spider flower, nightshade and amaranth. The Regional Center has more than 4000 plant accessions, many of them African, and all open-pollinated (so that seed can be saved and planted). The collection includes 546 accessions of amaranth. Other collected accessions include African eggplant and Ethiopian mustard. Four tomato varieties suited for Tanzania have been developed and shared.

Varieties of indigenous vegetables that are developed by AVRDC-RCA are released through national partners. AVRDC-RCA also works with private seed companies to distribute promising varieties.

AVRDC-RCA provides training in various ways: through a three-month training program; field days; home gardens with nutrition seed kits; Healthy Diet training kits; and work with farmers' groups. The Center holds a seed fair in March and field days in November.

At the Center, seeds are kept in a seed storage room, and regularly cycled through germination trials and grow-outs. Seeds were originally collected in partnership with the German Society for International Cooperation (GIC; better known as GTZ), through an initiative called "Promotion of Indigenous Vegetables in Africa."

**Plant Resources of  
Tropical Africa  
(PROTA). PROTA  
([www.prota.org/](http://www.prota.org/))**



Figure 1: A variety of nightshade (*Solanum* sp.) being evaluated for leaf production at AVRDC-RCA. Photo by Tim Motis.

(<http://www.prota.org/>) has an online database (also available as six books with accompanying CDs) with around 1200 review articles (covering 2000 species). The goal is to categorize the useful plants of Africa. PROTABASE (the online database) can be searched by scientific name, common name, and geographical distribution. It can also be searched by “commodity group.”

So far the database commodity groups include: cereals and pulses; vegetables; dyes and tannins; timbers; medicinal plants; and vegetable oils.

“PROTABASE contains the review articles. The species treated in extended format have a botanical drawing, a distribution map and color photographs to illustrate the species and its uses. The information presented to the user is drawn from different linked databases.”

**Native Seeds/SEARCH** (NS/S) in Tucson, Arizona. According to the website ([www.nativeseeds.org](http://www.nativeseeds.org) (<http://www.nativeseeds.org/>)), “Native Seeds/SEARCH conserves, distributes and documents the adapted and diverse varieties of agricultural seeds, their wild relatives and the role these seeds play in cultures of the American Southwest and northwest Mexico. We promote the use of these ancient crops and their wild relatives by gathering, safeguarding, and distributing their seeds to farming and gardening communities. We also work to preserve knowledge about their uses.”

The NS/S seed collection includes 1800 varieties of plants adapted to arid conditions. Many of the varieties are rare or endangered. Currently 350 varieties are available for purchase; more than half are varieties of corn/maize, beans and squash (traditionally referred to by North American natives as the “three sisters”). Other offerings include chia and various species of amaranth and sunflower.

The Native Seeds/SEARCH website also includes helpful information on desert gardening and on saving seeds.

**Bioversity International.** IPGRI (the International Plant Genetic Resources Institute) and INIBAP (the International Network for the Improvement of Banana and Plantain) are now known as Bioversity International ([www.bioversityinternational.org](http://www.bioversityinternational.org) (<http://www.bioversityinternational.org/>)). The Bioversity website has helpful material with regard to indigenous and/or underutilized food plants.

The New World Fruits Database is a source for information on fruits from the New World, including scientific and common names, fruit and plant uses, distribution and origin. You can also find links to extra information. [www.bioversityinternational.org/databases/new\\_world\\_fruits\\_database/search.html](http://www.bioversityinternational.org/databases/new_world_fruits_database/search.html) ([http://www.bioversityinternational.org/databases/new\\_world\\_fruits\\_database/search.html](http://www.bioversityinternational.org/databases/new_world_fruits_database/search.html))

The Bioversity website also has information booklets (pdf format) about 11 food tree species in sub-Saharan Africa, including the bush mango, shea butter and baobab trees. Documents are available in English and French. [www.bioversityinternational.org/e-library/](http://www.bioversityinternational.org/e-library/) (<http://www.bioversityinternational.org/e-library/>)

Years ago, IPGRI published a series of 25 monographs on underutilized plants. They are available on the Bioversity website.

IPGRI has a book about Traditional African Vegetables (<http://www.bioversityinternational.org/e-library/publications/detail/traditional-african-vegetables/>) that can be accessed from the Bioversity website.

**National Academies Press.** Several helpful books are available from the National Academies Press (NAP; [www.nap.edu](http://www.nap.edu) (<http://www.nap.edu/>)), including the "Lost Crops" series. Books can be freely read online, or (if you register an e-mail address and password) downloaded as pdf files. Alternatively, hard copies of the books can be purchased from NAP.

-Lost Crops of Africa: Volume 1: Grains [www.nap.edu/catalog.php?record\\_id=2305](http://www.nap.edu/catalog.php?record_id=2305) ([http://www.nap.edu/catalog.php?record\\_id=2305](http://www.nap.edu/catalog.php?record_id=2305))

-Lost Crops of Africa: Volume II: Vegetables [www.nap.edu/catalog.php?record\\_id=11763](http://www.nap.edu/catalog.php?record_id=11763) ([http://www.nap.edu/catalog.php?record\\_id=11763](http://www.nap.edu/catalog.php?record_id=11763))

-Lost Crops of Africa: Volume III: Fruits [www.nap.edu/catalog.php?record\\_id=11879](http://www.nap.edu/catalog.php?record_id=11879) ([http://www.nap.edu/catalog.php?record\\_id=11879](http://www.nap.edu/catalog.php?record_id=11879))

-Lost Crops of the Incas is also available from NAP: [www.nap.edu/catalog.php?record\\_id=1398](http://www.nap.edu/catalog.php?record_id=1398) ([http://www.nap.edu/catalog.php?record\\_id=1398](http://www.nap.edu/catalog.php?record_id=1398))

**Asian Plant Name Databases.** *ECHO Asia Notes (EAN; Issue 5, April 2010)* highlighted a few helpful websites. Especially when working among different language groups, these databases are helpful for figuring out the scientific name if you know a common name, and vice versa. The information from EAN is reprinted here:

1. "The Multilingual Multiscript Plant Name Database (MMPND; [www.plantnames.unimelb.edu.au/Sorting/List\\_bot.htm](http://www.plantnames.unimelb.edu.au/Sorting/List_bot.htm)) ([http://www.plantnames.unimelb.edu.au/Sorting/List\\_bot.html](http://www.plantnames.unimelb.edu.au/Sorting/List_bot.html)) hosts more than one search engine related to international botanical taxonomy and plant references. It also offers access to a massive collection of indexes, lists

and references for a wide range of plant groups including bamboos, vegetables, conifers, palms, fungi and medicinal plants. Associated with the University of Melbourne, MMPND is a one-stop resource for development workers, educators, students, researchers, translators and others whose work might lead them into the often confusing world of international and regional plant names.

“One key component of the MMPND is the “On-line Bibliographical Resources” section, which lists links to dozens of sites suited to either professionals or plant enthusiasts. These resources provide indexes, photo galleries, search engines and information sources for dozens of botanical categories including aquatic plants, forage crops, spices and weeds.

“For those in need of international and regional plant names, MMPND offers extensive lists in 70 languages, including those in authentic, non-Romanized Asian scripts (e.g., Chinese, Thai, Burmese). From *Abelmoschus* to *Zoysia*, international names for roughly 500 genera of plants are offered. Additionally, separate indexes of plant names for several Asian languages include Bengali, Burmese, Chinese, Hindi, Japanese, Korean, Malay, Nepali, Tamil, Thai, Urdu and Vietnamese.

“Michel Porcher, who began developing this valuable on-line resource in 1995, reports that MMPND receives over one million hits per week. With such a vast array of botanical information, that should come as no surprise.”

**2. Glossary of Asian Vegetables.** “Mike Fennema, who works with CRWRC in Laos, recommended another useful website called the Glossary of Asian Vegetables (<http://www.depi.vic.gov.au/agriculture-and-food/horticulture/vegetables/vegetables-a-z/asian-vegetables/asian-vegetables-glossary>) (previously titled Thesaurus of Key Asian Vegetables;).

“Hosted by the Department of Primary Industries for the state of Victoria, Australia, the web-based glossary provides different regional names (in the Latin alphabet) and photos of 74 key Asian vegetables.

“Providing multiple Romanized Asian names for 74 species of vegetables is a major undertaking. Since such phonetic spellings are unable to communicate tones and various linguistic nuances, persons familiar with these regional names may find a few limitations. But shortcomings aside, this glossary offers a valuable and concise tool for anyone looking for names and photos for Asian vegetables.”



The list of resources shared here is certainly not exhaustive. If you know of a similar helpful resource for learning about and promoting indigenous food plants, please let us know.

## **Conclusion**

Indigenous food plants have traditionally been very important in communities, but many are becoming rare or endangered. Their advantages make them well worth investigating. We hope the ideas and resources in this article help you to learn about and promote indigenous food plants, resulting in better nutrition and food security for small-scale farmers and their communities.

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<http://edn.link/wq4cjf>