

GLOBAL FOOD, LOCAL FOOD

Guide to Growing, Harvesting & Preserving
African & Asian Crops in the Northeast



CENTER FOR SUSTAINABLE AGRICULTURE

UNIVERSITY OF
VERMONT

EXTENSION

CULTIVATING HEALTHY COMMUNITIES



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ADDITIONAL THANKS

Many thanks to Cheryl Herrick and Jennifer Brown for editing recipes and contributing their accompanying photographs, respectively.

Thank you to Association of Africans Living in Vermont's (AALV) case managers, staff and interpreters for their patience and willingness to translate words and interpret knowledge. A special thank you to Yacouba Jacob Bogre for his unending support of the NFNA program.

We would also like to acknowledge farmers who were interviewed over the last year: Indra Khadka, Indra Adhikari, Janine Ndagijimana, Madelina Ndayragje, Abdi Abdi, Rukiya Barrekh, Lang Lai, La Trinh and Naw Wah Ku Doh, as well as the New Farms for New Americans participants over the past seven years who have been willing to have their photos taken, shared stories, tradition and knowledge, and taught NFNA staff and the community about

farming from around the world.

We are grateful to former Program Specialist, Josie Weldon, for laying the groundwork for this project and sharing her photographs.

Thanks very much to Navah Stein for transcribing farmer interviews.

THIS PROJECT WAS MADE POSSIBLE WITH FINANCIAL SUPPORT FROM:

Beginning Farmer and Rancher Development Program (BFRDP) of the National Institute of Food and Agriculture, USDA, Grant # 2011-49400-30500. Powell Family Foundation and the Growald Family Fund, as well as friends and supporters of NFNA.

UVM Extension helps individuals and communities put research-based knowledge to work.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. University of Vermont Extension, Burlington, Vermont

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Front Cover: Madelina Ndayragje growing African corn at the Intervale, Burlington, Vermont. (New Farms for New Americans)

Back cover: Amer Bhattarai prepares his field at Ethan Allen Homestead, Burlington, Vermont. (New Farms for New Americans)



Dil Gurung harvests watermelon, eggplant and snake gourd from the New Farms for New Americans fields at Ethan Allen Homestead. (Jean Luc Dushime)

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Fraçois Gasaba and Madelina Ndayragje of the Burundian Farmers Group prepare shallot seedlings for planting.
(New Farms for New Americans)

Laxman Adhikari displays a harvest of Asian eggplants grown for the CSA.
(Jean Luc Dushime)



Introduction

The purpose of this guide is to help Northeast farmers and gardeners adapt important crops of world cultures into the local food system to be grown successfully for market, food and/or medicine.

In the following pages we document eight important African and Asian crops with significant potential for adapting to the food system of the Northeast U.S. The city of Burlington, Vermont became our testing grounds and case study. For the past seven years the Association of Africans Living in Vermont's New Farms for New Americans Program conducted research and worked directly with hundreds of Somali Bantu, Bhutanese, Burundian, Burmese and Vietnamese farmers and gardeners. More recently the University of Vermont Extension New American Farmer and Gardener Program joined their team. While our work has centered in Vermont and specific to the populations that have been resettled in Vermont, this guide's content is relevant to most areas of the Northeastern U.S. experiencing an influx of immigrants bringing richness and diversity into the food system.

We have only scratched the surface of integrating global into local. We hope this guide inspires you to join us in working with farmers and gardeners, both new and established Americans. Together we can refine best cultivation and processing practices. Consider this booklet a starting point. We encourage you to explore. Try sourcing seeds, try planting, try cultivating, try harvesting and try eating. Share with us and your networks what you learn.

We visited the kitchens of families and documented cooking recipes passed down through cultures over generations. Many new American farmers are proud to continue their culinary traditions. We highlight dishes that can be, at least partially, "grown" in the Northeast. You too can "grow" these meals. They are packed with nutritional, cultural and historical value.

We pay tribute to the new American farmers and gardeners from whom these African and Asian crops originate. The following pages are intended as a bridge across cultures. The Northeast U.S. is now host to a tremendous diversity of planting, cultivating, harvesting, processing and cooking knowledge from all over the world. Yet language barriers prevent the natural flow and exchange of this agrarian and culinary wisdom. We venture to break down those barriers, and encourage you as reader, planter, chef and anthropologist to join us.

History is full of examples of how locals add value to their food system by introducing international crops and farming practices. Now is an exciting time for all farmers, gardeners, food processors and chefs across the Northeast who see opportunity in diversifying the landscape. We hope you find the following information useful and enjoyable.

A farmer transplants rice seedlings in a flooded paddy
(New Farms for New Americans)



“We use rice from birth to death. We celebrate everything with rice. We use rice for everything. We use rice in daily life and for the big festivals that are only once a year. We eat rice at least twice a day. We make a lot of things with rice: breakfast, snacks, food for sick people, dinner.”

- Rita Neopaney, former Bhutanese refugee
and now US Citizen

Rice

THE MOST WIDELY CONSUMED CROP IN THE WORLD

LATIN NAME: *Oryza sativa*

BURMESE: *sabar* (un-
hulled), *saan* (hulled),
tamin (cooked)

FRENCH: *riz*

KAREN: *bū* (unhulled),
hū thā (hulled), *māy*
(cooked)

KIRUNDI: *Umuceri*

KISWAHILI¹: *mpunga*
(unhulled), *mcele* (after
hulled), *wali* (cooked)

MAI MAI: *bariis*

NEPALI: *Dhaan* (grow
ing in the field);
Chamul (white rice
ready to eat)

VIETNAMESE: *cơm*

Rice is the most widely consumed food in the world. More than 40,000 seed varieties have been developed. A very select few of these varieties, typically the short grain varieties, will grow in the Northeast. Further research is needed to breed more cold-hardy rice varieties that have other properties; Cornell University has initiated research to breed an aromatic purple, cold hardy rice.

¹ Kiswahili is not the same in all the places it is spoken, however, someone who speaks Kiswahili may recognize the word even if in their country or region of origin it is different.

NUTRITIONAL OR MEDICINAL BENEFITS

Several studies have found that eating rice is linked with the reduction of chronic diseases, such as cardiovascular disease and diabetes, because rice eaters are more likely to eat vegetables or beans than people who don't eat rice¹.

Whole grain rice or "brown" rice itself is a treasure trove of health promoting vitamins, minerals, and fiber. Brown rice contains anthocyanins, the same type of cancer preventing plant-based antioxidants found in grapes and blueberries². Black-colored rice contains the highest levels of these compounds. Rice is widely known as a gluten-free grain.

SOURCES OF SEED

Locally from other growers who multiply their own seed. Bhutanese rice farmers in Burlington Vermont started with a small handful one year, harvested enough seed from that crop to plant ¼ acre the next year, and harvested enough seed from that to plant roughly three acres the next year. Many growers start with a small amount of seed and multiply it in this way.

Rice seeds bought from the store are unlikely to grow in the Northeast unless they have been grown locally.

FEDCO SEEDS: <http://www.fedcoseeds.com> (207) 426-9900. For catalog requests: (207) 426-0090. Supplies a variety called Duborskian, a short-grain cold hardy variety developed in Russia.

KITAZAWA SEED COMPANY: <http://kitazawaseed.com> (510) 595-1188. Kitazawa sells the short-grain, Japanese Koshihikari variety.

USDA-AGRICULTURAL RESEARCH SERVICE NATIONAL SMALL GRAINS COLLECTION. This repository distributes small amount of seed for trials. Visit www.ars.usda.gov/ and search for "National Small Grains Collection"

1. Once on the NSGC webpage, click on "Current NSGC Holdings"
2. Find *Oryza sativa* and click on the link to available accessions. This will open to a list of thousands of accessions.
3. Search for the variety you are looking for and when you click on the variety name you can click on the "request this germplasm" button. Some available varieties that might work for the Northeast are:
 - #16411. PI 584616 Chokkaido
 - #14884. PI 505818 M-102
 - #15986. PI 558511 Akitakomachi
 - #17903. PI 637527 Matsumae
 - #13678. PI 439644 Aomori Mochi
4. Once you have chosen all the varieties you would like, click on the "complete the germplasm request and order the material" link.

1 Fulgoni, Victor L., Fulgoni, Sally A., Upton, Julie L., & Moon, Maggie (2010). Diet Quality and Markers for Human Health in Rice Eaters Versus Non-Rice Eaters. An Analysis of the US National Health and Nutrition Examination Survey, 1999-2004. *Nutrition Today*; 45 (6): 262-272

2 Hudson EA, Dinh PA, Kokubun T, Simmonds MS, Gescher A. Characterization of potentially chemopreventive phenols in extracts of brown rice that inhibit the growth of human breast and colon cancer cells. *Cancer Epidemiol Biomarkers Prev*. 2000 Nov;9(11):1163-70.

PLANTING & CULTIVATION TIPS

For a comprehensive overview of rice planting techniques for the Northeast, read the Rice Growing Manual for the Northeast USA, by Takeshi and Linda Akaogi, 2009. The manual is available for free download on various websites, including 'the USDA Sustainable Agriculture Research and Education "Learning Center" at www.sare.org. Another spectacular resource is the Ecological Rice Farming in the Northeast USA website, which contains proceedings from annual conferences, photos, grower's information and more.

Visit <http://www.ricenortheasternus.org/>.

The Bhutanese rice growers emphasize that the key to a successful Northeast rice crop is a healthy early start for seedlings in the greenhouse and continuously flooded paddies during the first month after transplanting. Flooding is critical for weed suppression and preventing wide fluctuations in soil temperature. Flooding can be reduced to twice a week once rice is well established or in tillering (seeding) stage. See pages 10 through 11 for a photo how-to on growing rice in the Northeast.



Transplanting rice seedlings.
(New Farms for New Americans)

The Bhutanese rice growers emphasize that the key to a successful Northeast rice crop ... continuously flooded paddies during the first month after transplanting. Flooding is critical for weed suppression and preventing wide fluctuations in soil temperature.

HARVEST & POST-HARVEST

Rice should be harvested once grains are fully developed and most (over 85%) have turned from green to a brown or yellowish color upon maturing. Rice needs to be dried to below 14% moisture content for long term storage, otherwise it will discolor or mold. Low-cost moisture meters can be sourced from hardware stores. If you can't get a moisture meter, dry the grains as much as possible. They should not feel even the slightest bit damp when running your fingers through them in a sack. Store in permeable sacks in a cool, dry place for long term storage.

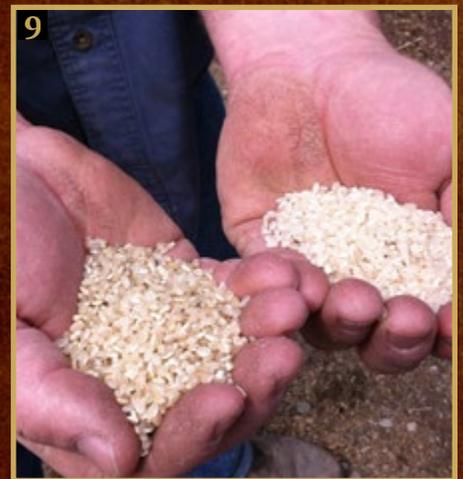
Processing rice involves removing the grain from the chaff or winnowing, and

then de-hulling. Traditionally this is done by thrashing stalks against the ground on tarps or other hard surface to remove the grain. Fans (or tossing the grain in a basket on a windy day) can be used to winnow the grain further by separating loose straw from the grains. Then the grain must be de-hulled with a mill or de-hulling machine. Some Northeast growers are willing to rent their de-hulling equipment, otherwise the grain can be pounded in a large mortar and pestle or similar hammer tool to remove the hulls. While this method is adequate, it will crack many grains, making them unsuitable for sale in most cases.



“In Burma, the most important food is rice and only important food we eat. We believe that rice will stay in our bodies for seven days when we eat it. It is sacred. You cannot throw out one grain of rice it is so important. Never step on a grain of rice either.”

- Saw Thoo Doe, a refugee from Burma



Step-by-Step rice production with the New Farms for New Americans' rice project
(New Farms for New Americans)

STEP BY STEP RICE PRODUCTION DEMONSTRATED BY BHUTANESE FARMERS

- 1 Using grub hoes, men dig and flood the paddy (In Bhutan, this would have been done with oxen pulling a plow. Unlike a garden, after a paddy is made, the earth is never turned over again, since the soil becomes like clay and helps hold the water for subsequent years.)
- 2 A farmer takes rice seedlings, which are initially planted similar to shallots in clumps, then separates them into individual plants and places the roots into the muddy soil beneath.
- 3 After the planting, the paddy must be kept wet (flooded) for at least two months. The depth of flooding should be consistent with the size of the plants, keeping the water level above stems but just below photosynthesizing leaf blades. Farmers do not ever totally submerge the plants. They keep as much water in the paddies as possible to cover soil and suppress weeds.
- 4 Farmers keep paddies weeded especially during initial growth stages.
- 5 After two months, farmers leave paddies without water as the plants go to seed.
- 6 Farmers harvest rice with hand sickles.
- 7 Rice is tied into bundles to prepare for threshing.
- 8 Communities of farmers work together to thresh the rice. This is done by thrashing stalks against the ground on tarps or other hard surface to remove the grain. After threshing, grains are typically laid out in the sun to dry and then winnowed by tossing the grain into the air from shallow baskets on a windy day to separate the grain from loose chaff.
- 9 Rice grains are de-hulled by using a mill or by pounding grains with stones. Pictured is rice at various stages of de-hulling

Indra Khadka shows off a daikon, mustard greens and tomatoes. (New Farms for New Americans)



Daikon Radish

IMPROVES SOIL HEALTH AND IS GREAT IN CURRIES

LATIN NAME: *Raphanus sativus*

OTHER COMMON NAMES¹: *white radish*,
Oriental white radish

BURMESE: *monla ut*

NEPALI: *seto mula*
(Literally means

FRENCH: *radis*

"white carrot")

KAREN: *tha bà wah tee*

VIETNAMESE: *củ cải*

KISWAHILI: *figali*

trang

MAI MAI: *dabucaseye*

For the past fifteen years, agronomists in Brazil and the U.S. have been researching daikon radish as a cover crop for its ability to "biodrill" or penetrate through compacted soil to aerate it and improve soil health for the following season's crop. It is usually not harvested for food when grown in this manner. However, it is an extremely popular vegetable across Asia, with both the root and the leaves consumed raw, cooked, dried, fermented or pickled.

"Daikon, seto mula, is used in the national curry of Bhutan. We cook the seto mula with chili and paneer."

- Rita Neopaney, former refugee from Bhutan

¹ A note about daikon: In several languages, there is no direct translation for the word daikon; it is called instead white carrot or simply radish.)



(Edwin Remsburg)

University of Maryland soil scientist Ray Weil harvesting daikon from a cover cropped field. Weil's team has been instrumental in researching the soil health benefits of daikon, also known by many farmers as "tillage radish."

NUTRITIONAL OR MEDICINAL BENEFITS

Daikon is very low in calories, but very high in Vitamin C. It is in the Brassica family and provides similar cancer preventative benefits as its close cousins broccoli and kale. It has been used traditionally to aid in the digestion of fats, and is often served in Asia to accompany fried foods.

SOURCES OF SEED

Seed is widely available. Farmers in Burlington have not had as much luck with "tillage radish" varieties. If your primary purpose is harvesting daikon for food, try varieties sourced from vegetable seed companies. Minowase is one variety growers have had luck with. Some seed companies that supply Daikon:

- Evergreen Seeds.
<http://evergreenseeds.stores.yahoo.net/>
- Baker Creek Heirloom Seeds.
www.rareseeds.com/ (417) 924-8917
- Urban Farmer Seeds.
www.ufseeds.com/ (317) 600-2807
- Johnny's Seeds.
www.johnnyseeds.com/ (877) 564-6697

PLANTING & CULTIVATION TIPS

Daikon are quick to emerge and mature. Soil can be prepared just as it would be for carrots; Daikon grows best in deep, loamy, well-drained soil. Flea beetles can be a major pest, especially during cool wet springs or early summers. To prevent flea beetle damage, cover daikon beds with permeable white agricultural cloth (Remay). Remay is typically used for frost protection and is sold in different weights. Lighter weights let in more light but offer less frost protection, and heavier weights let in less light but offer more frost protection. Either weight is good for protection against pests. Be sure to install the cloth over the bed at the time of planting (draped over metal wires or hoops of any sort), and bury the edges of the cloth well to prevent insects from entering.

HARVEST & POST-HARVEST

Small daikon roots can be eaten fresh, but larger more mature roots are typically cooked. Many cultures process Daikon immediately after harvest (See sidebar)



COOKING WITH Daikon Radish

Mula Tarkari (Daikon Radish Curry)
See recipe on page 33

HOW TO PROCESS DAIKON THE BHUTANESE WAY

How do you know it's harvest time down by the fields of Bhutanese farmers and gardeners? On sunny days you'll see bustling activity of people spreading out tarps, laying out leaves and white root pieces, and bringing them in before sun down. Many cultures throughout the world dry and ferment daikon and mustard greens in order to preserve them for healthy eating throughout the winter. Here is the Bhutanese way:



Step 2: Bhutanese farmers lay a sheet on the ground for drying daikon
(New Farms for New Americans)



Step 5: Slicing the white roots into one inch cubes
(New Farms for New Americans)



Step 6: White roots and leaves combined into one container
(New Farms for New Americans)

- 1 After harvest wash thoroughly then separate green leaves from white roots. Lay some kind of sheet on the ground.
- 2 The sheet can be a plastic bag or a woven rug. Make sure this is very clean and the weather will deliver at least two full days of sun.
- 3 Place both the white roots and green leaves in the sun for one to two days, making sure to cover or keep protected at night.
- 4 After two days, leaves should be yellowish and wilted. White roots should be shriveled and wrinkled.
- 5 Using a knife, slice the white roots in long, slender pieces. Leaves can be left whole.
- 6 Next, either combine leaves and roots into same container or separate them depending on your preference. Either method is fine. Press leaves and roots firmly into a container. Make sure your hand can fit through the container opening, as the contents need to be compressed firmly. Important: Do not leave any empty spaces or air pockets. The container must have a lid.
- 7 Leave the contents in the container to ferment

HOW TO PROCESS DAIKON THE BHUTANESE WAY

(CONTINUED)

in the shade for 10-15 days; this will depend on the amount. A one gallon container takes about 10 days and a five gallon jug about 15 days.

- 8 After the initial fermentation period, it's time to further dry the contents. The fermentation should have already begun and there will be a strong, pungent sour smell. Lay a clean sheet on the ground and make sure that the weather will be hot and sunny for at least two full days.
- 9 Dump the white roots and greens onto the sheet, then using a pair of scissors, cut the white roots and greens into small, one inch cubes or lengths respectively. Separate the white roots from the leaves and spread both thinly over the sheet. Do not leave out overnight, but cover and protect from dew or the elements. Put the contents into two separate bags, then repeat the process on day two.
- 10 After two days, place the dry white roots in a plastic or glass jar and the greens in a different jar. Compress the contents so that there are no empty pockets. Close the lids tightly.
- 11 Store in a dry, cool place for up to one year.
- 12 To eat, rehydrate the white roots and leaves for 10 minutes. Then sauté with tomatoes, onions, garlic, ginger and place in a soups or curries.



Step 9: Spread leaves thinly over sheet
(New Farms for New Americans)



“When I think of this eggplant I think of a beautiful, yummy sauce. I have lived in many parts of Africa and everywhere I lived, I ate this. On every corner of the African continent I ate it: north to east to south.”

- Sebastian Hakizimana, U.S. Citizen originally from Africa

A harvest of African eggplant from the field of Janine Ndagijimana, owner/operator of the Vermont African Eggplant Company (New Farms for New Americans)

African Eggplant

A LESSER KNOWN FALL ORNAMENTAL HAPPENS TO BE ONE OF THE WORLD'S MOST POPULAR EGGPLANT VARIETIES

LATIN NAME: *Solanum aethiopicum*

OTHER COMMON NAMES: *garden egg, bitter tomato, bitter ball, aubergine*

BURMESE: *kayan thee*

FRENCH: *aubergine africaine*

KAREN: *ta gāw gwēh thà*
or *ta gāw thà*

KIRUNDI: *intore*

KISWAHILI: *nyan-yamshuma*

MAI MAI: *okun abuur*

NEPALI: *baigune*

VIETNAMESE: *cà pháo, côm*

Can you imagine an eggplant tree? This plant is a perennial in sub-tropical climates, growing as a large bush or even a small tree seven feet high, and even grows vigorously in the Northeast. It is well known throughout Africa as well as Asia, with hundreds of domesticated and wild varieties. One variety, with its mature fruit looking like miniature pumpkins, is grown in the Western hemisphere as an ornamental and known as “pumpkin-on-a-stick.” African and Asian farmers harvest this as an edible crop, picking it while still green. Fruit would be left on the bush to redden to harvest for seed.

NUTRITIONAL OR MEDICINAL BENEFITS

The African farmers who grow “intore” (pronounced “een-ori” with a silent “t”) in Vermont claim it aids in digestion. This tends to be true for all bitter vegetables like African eggplant. Researchers have found African eggplant extracts to possess significant anti-inflammatory activity due to its high levels of antioxidants¹

In Africa it's eaten raw for high blood pressure, or cooked in stews.

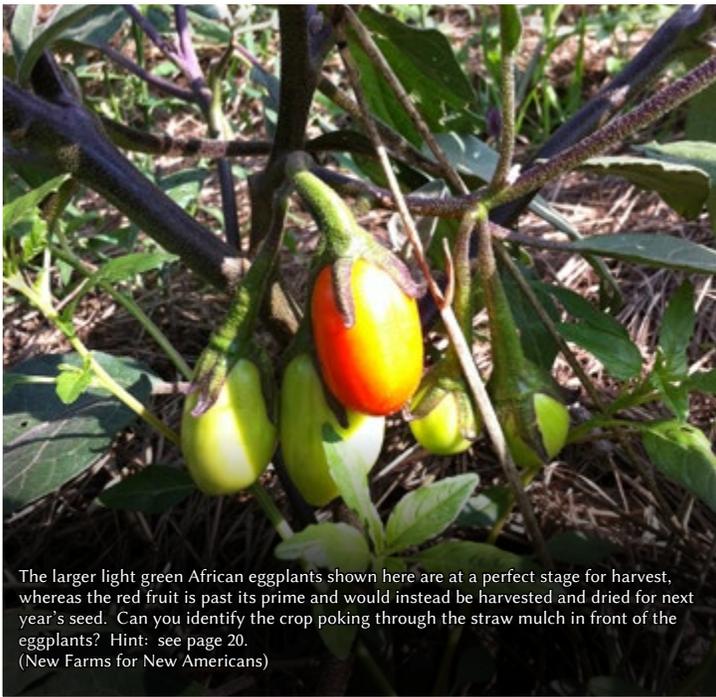
SOURCES OF SEED

- Many seed companies sell ornamental varieties that can also be planted as a vegetable:
- Park Seed company. www.park-seed.com . (800) 845-3369
- Kitazawa Seed Company. <http://www.kitazawaseed.com> (510) 595-1188. Try varieties of the green or “Thai eggplant.”

¹ Lisu Wang, Shu-Yuan Chiou, Yi-Ting Shen, Fu-Tsun Yen, Hsiou-Yu Ding, and Ming-Jiuan Wu. 2014. Anti-Inflammatory Effect and Mechanism of the Green Fruit Extract of *Solanum integrifolium* Poir. *BioMed Research International*. Volume 2014. Accessed online 11/26/2014 at <http://www.hindawi.com/journals/bmri/2014/953873/>

PLANTING & CULTIVATION TIPS

Cultivation technique is similar to purple eggplants. Plants benefit from being started about 8 weeks before outplanting in the field. Like most solanaceous plants, African eggplant likes a warm soil and is a heavy nitrogen feeder. Black plastic or road fabric used as mulch was found to boost yield in preliminary University of Vermont Extension trials done in Burlington, Vermont, likely due to reduced weed pressure and warmer soil temps. The key difference between cultivating African eggplant and its smaller cousins is the plant spacing. African eggplant needs at least three feet between plants to reach its full potential.



The larger light green African eggplants shown here are at a perfect stage for harvest, whereas the red fruit is past its prime and would instead be harvested and dried for next year's seed. Can you identify the crop poking through the straw mulch in front of the eggplants? Hint: see page 20.
(New Farms for New Americans)



Janine Ndagjimana is one of the area's leading African eggplant producers. Buyers across cultures seek her eggplants at retail outlets in Burlington, Vermont, while other wholesale buyers come as far away as Texas to stock truckloads of her product.
(Abdi Dayo)



SAVING AFRICAN EGGPLANT SEEDS

The red fruits (actually berries) are not for eating, but for saving the seeds. Save the seeds by putting the ripe fruit anywhere warm and dry and then leaving there for a month. Cut into pieces when it's fresh, then soak in water for 2 days, then take it out to dry.

An African eggplant saved for its seeds (Jennifer Brown)

HARVEST & POST-HARVEST

Harvest when still white or green for eating. The longer the fruit stays on the bush, the more bitter it becomes. Let the fruits turn red for ornamental value or to harvest for seed.

Save the seeds by putting the ripe fruit anywhere warm and dry and then leaving there for a month. Cut into pieces when it's fresh, then soak in water for 2 days, then take it out to dry.

African eggplants, like all other eggplants, are susceptible to chilling injury. Fruits should be chilled to as close as 50 degrees F as soon as possible after harvest, but storage temperatures should not be taken below 50 degrees F. Desiccation and rot can result

from chilling injury. Storage should have high relative humidity (90-95%). If you are not able to regulate humidity, fruits can be stored in perforated plastic wrap, plastic bags or waxed cartons to maintain high humidity. To extend the storage season, fruits can be sliced and blanched for 3 minutes in boiling water, cooled rapidly in ice water, patted dry and frozen in air tight freezer bags.



A bucket of African eggplants ready for sale at the market (New Farms for New Americans)



COOKING WITH African Eggplant

African Eggplant with Mackerel

See recipe on page 35

African Eggplant with Goat

See recipe on page 34

A woman wearing a yellow headscarf with a red band and a floral patterned shirt is using a wooden isuka hoe in a field. The hoe has a long wooden handle and a curved, pointed blade. She is looking down at the ground, which is covered with green plants. The background shows a hazy landscape with trees and hills.

THE ISUKA

This is perhaps the most widely used farming hand tool worldwide. “Isuka” is Kirundi for gardening hoe. Yet it is much more. Its blade is bigger, heavier, sharper and slightly curved. Picture a heavy round shovel or spade blade fitted at an angle at the end of a hoe handle. It not only slices through weeds, but it makes a powerful digging tool as well. Subsistence farming cultures worldwide rely on this tool for turning under fresh sod, clearing fields, shaping seed-beds or ridges, controlling irrigation trenches, weeding, incorporating manures, all-purpose digging and the list goes on. A farmer’s or gardener’s tool shed is not complete without one. In English, the Isuka is known as “grub hoe”.

In Africa, farmers take great pride in crafting their isuka handles and fitting them to the blade. First, they choose specific hardwood branches. A good branch has subtle curvatures, a knot at the end to receive the hoe blade and the ability to be hand carved. The farmers then whittle down the branch with an adze, all the way to the heartwood, so it can be gripped comfortably in the hand. An ambitious farmer might leave more weight in the handle, or if the isuka is to be used for more delicate tasks, the handle is carved thin. Finally, they prepare a super hot fire to heat the wedged end of the blade. Through a series of efforts, the farmer gradually “burns” the blade end into the handle at the proper angle, puncturing the handle end progressively deeper until the blade becomes tight and fixed.

In Bhutan we call this kodalo. You can buy kodalos here. The handles come in two sizes. For the Bhutanese, many of us need the short handled kodalo.”

- Rita Neopaney

A farmer at work
in Kenya’s Mount
Kenya region
(Neil Palmer)



Amaranth Greens

VARIETIES GROW WILD EVERYWHERE IN THE NORTHEAST. THEY ARE WORTHY OF BEING CULTIVATED TOO

LATIN NAME: *Amaranthus spp.*

OTHER COMMON NAMES: *African Spinach, Calaloo, Pig Weed, Chinese Spinach*

BURMESE: *kyat hin ka thi*

FRENCH: *amarante*

KAREN: *kawka ta*

KIRUNDI: *irengarenga or inyani*

KISWAHILI: *lenga lenga*

or *mchicha*

MAI MAI: *anboogo*

NEPALI: *palungi*

VIETNAMESE: *đen*

Amaranth tends to be more widely known as a grain, grown across the world and renowned for its gluten-free, high-lysine and high protein properties. Yet the greens are also nutritional powerhouses, and can be grown just about anywhere under any conditions. Amaranth has what is known to plant biologists as C4 metabolism. This means it can efficiently grow even under stressful conditions, such as heat and drought. Amaranth is one of the only plants that has C4 metabolism and is not a grass.

Varieties of Amaranth are also well-known (and notorious) as “pigweed,” a weed that quickly establishes in disturbed soils.

“In refugee camps we were like prisoners. In places where people are hungry, like refugee camps, irengarenga was a great vegetable because it comes up quickly and grows almost everywhere.”

- François Gasaba

However, it is important to distinguish between native weed species and other cultivated varieties. There are over 60 different species in the amaranth genus, all varying in terms of taproot depth and vigor, plant height, grain formation habit and hardiness. Stay away from weedy varieties such as *A. viridis*, *A. spinosis*, *A. retroflexus*, and *A. hybridus*. Or simply plant them and manage them as crops, being careful not to let them spread seed or take over where you don't want them.

NUTRITIONAL OR MEDICINAL BENEFITS

Compared to kale, the well-known super green, cooked amaranth greens have been found to contain moderately higher levels of vitamins C, riboflavin, niacin, B6 and folate, and significantly higher levels of minerals calcium, iron, magnesium, phosphorus and potassium¹. Millions of people throughout the world cultivate, cook and eat amaranth greens for their nutritious benefit and rich flavor.

SOURCES OF SEED

While colorful varieties are edible, try to source green varieties or varieties that are grown specifically as a vegetable.

- Johnny's Seeds. www.johnny-seeds.com/ (877) 564-6697 (stocks the "Red Leaf Vegetable" or "Caribbean Calilou" *Amaranthus tricolor*)
- Baker Creek Heirloom Seeds. www.rare-seeds.com/ (417) 924-8917. Supplies over a dozen varieties to choose from including spectacular amaranth ornamentals)
- Peaceful Valley Farm and Garden Supply. www.groworganic.com (888) 784-1722 Stocks the red amaranth, *Amaranthus viridis*, popular colorful leaf in Asian cuisine)
- Kitazawa Seed Company. <http://www.kitazawaseed.com> (510) 595-1188. Supplies several red leaf varieties, *Amaranthus tricolor*, as well as "White Leaf," which is actually a greener variety, *Amaranthus mangostanus*

PLANTING & CULTIVATION TIPS

Amaranth is a sun worshipper. It will grow just about anywhere, but thrives in full sun, in the hottest places of your field, home or garden and during the hottest times of the growing season. Given the fact that most common greens of Western culture thrive in cooler weather, Amaranth can be the perfect addition to a year-round greens rotation, providing a green bounty in mid-summer when most other greens are lacking.

HARVEST & POST-HARVEST

Can be harvested, stored and cooked like any other green. Young shoots are most tender, while older leaves are relatively bitter and might require a bit more cooking time to soften.

Lenga lenga (amaranth), cooked like spinach, is a staple green of the Bhutanese, Burundian and Somali Bantu summer harvest. Amaranth is eaten fresh and is easy to grow. Several refugee farmers say that because it is so easy to grow, if there was room in the refugee camp, they planted amaranth, which is also known to help with digestion.

¹ USDA Agricultural Research Service National Nutrient Database for Standard Reference Release 27. Accessed online 1/5/2015 at <http://ndb.nal.usda.gov/ndb/>

Bitter Melon
(Tenbon)



Bitter Melon

ADDS A HEALTHY TWIST TO STIR-FRIES.
THE NEXT HOPS FOR BITTERING BEER?

LATIN NAME: *Momordica charantia*
OTHER COMMON NAMES : *Alligator Pear, Bitter
gourd, Balsam Pear*

BURMESE: <i>kyet hin kar thee</i>	MAI MAI: <i>qaraha khadaadh</i>
FRENCH: <i>melon amer</i>	NEPALI: <i>tite karela</i>
KAREN: <i>kawkar thà</i>	VIETNAMESE: <i>muôp đấng</i>
KISWAHILI: <i>uchungu</i>	

It's no secret that this is a bitter vegetable! This is a good thing according to millions in the Eastern hemisphere where bitter melon is coveted. When added to other flavors and textures, bitter tastes are transformed, imparting richness, diversity and character to cuisine. Bitter melon is appreciated for its nutritiousness, used in many cultures to aid in diabetes prevention and treatment. This fast-growing, climbing vine is a member of the cucurbit family, along with cucumbers, squash, and many other melons. Beer brewers have experimented with bitter melon as a bittering agent similar to hops, for brewing beer.

"In Bhutan, people believe that if you eat bitter melon it will help you get rid of diabetes and high blood pressure."

- Rita Neopaney, former Bhutanese refugee



NUTRITIONAL OR MEDICINAL BENEFITS

Bitter melon has been used traditionally and clinically to prevent and treat numerous ailments, most commonly diabetes and associated complications. It has also been found to have antiviral and anticancer properties¹. Like most bitter foods, it tends to aid in digestion through stimulating the secretion of digestive enzymes.

SOURCES OF SEED

There are two general varieties, the Indian with sharp spines and the Chinese with rounded bumps. Both white and green varieties exist.

- Kitazawa Seed Company. <http://www.kitazawaseed.com> (510) 595-1188. Supplies about nine varieties of bitter melon.
- Evergreen Seeds. <http://evergreenseeds.stores.yahoo.net/>

1 J K Grover and S P Yadav. 2004. Pharmacological actions and potential uses of *Momordica charantia*: a review. *Journal of Ethnopharmacology*. Volume 93, Issue 1, Pages 123–132.

PLANTING & CULTIVATION TIPS

Can be planted successfully in the Northeast like any other cucurbit. Give it an early start in the greenhouse, and plant into warm soils in late spring or early summer. Black plastic or fabric mulch can aid in warming soils which, in turn, aids in nutrient release. Give Bitter Melon a strong trellis system with ample room to climb.

HARVEST & POST-HARVEST CONSIDERATIONS

As with cucumbers (a close cousin to bitter melon) be careful of chilling injury, where fruits begin to desiccate and show signs of pitting and rot when stored below temperatures of 50 degrees F. Store separately or far away from apples and bananas or other produce that emits ethylene².

2 Agricultural Handbook # 66: The Commercial Storage of Fruits, Vegetables, and Florist and Nursery Stocks. USDA-ARS 2014. Accessed online 12/2/2014 at <http://www.ba.ars.usda.gov/hb66/contents.html>



Diggers' Mirth displays bitter melon at a farmers' market in Burlington, Vermont. (Hayden Boska)

BRINGING GLOBAL CROPS TO LOCAL MARKET: *A Conversation with Diggers' Mirth Collective Farm's Hayden Boska*

WHEN DID YOU FIRST HEAR OF AN INTEREST IN BITTER MELON?

In the early years of the farm (the early 90s) the Diggers' heard of Bitter melon from a friend who was working in the produce department at the local co-op. From their suggestion the farm decided to try growing it!

WHY DO YOU GROW IT?

We grow Bitter melon partially for fun (they are beautiful plants and such unique vegetables) but mainly to supply it to the Vietnamese, Nepalese and Indian populations that visit the Old North End Farmers' Market. We actually grow two different varieties to better reflect the different kinds you can find in different regions of Asia.

DO YOU INTEND TO EXPLORE OTHER CROPS OF CULTURAL IMPORTANCE?

In the past we have experimented with crops that are important to different cultural groups in Burlington, and we will definitely continue to do so as people suggest varieties to us or give us seed to grow out.



Thai Red Roselle
(Zack Dowell)



“Roselle grows everywhere and anyone can grow it, it’s as easy as cutting a stem and putting it in the ground. We eat it year round and believe that it cleanses our body. Eating it is like an overhaul of our body’s system.”

- Saw Thoo Doe, a refugee from Burma



Roselle

GROW FLOWERS FOR A REFRESHING TEA AND THE LEAVES FOR A SPICY GREEN

LATIN NAME: *Hibiscus sabdariffa*

OTHER COMMON NAMES: *Hibiscus, Sorel*

BURMESE: *chin boung*

FRENCH: *oseille*

KAREN: *beh hsèe dōh*

KIRUNDI: *No word in*

Kirundi.

(This crop was rarely grown for Burundians, but instead was grown for Belgians who bought both the leaves and the calyxes)

KISWAHILI: *ufuta*

MAI MAI: *conbiyan*

danaan

NEPALI: *Belchand*

VIETNAMESE: *cây dâm*

bụt

Roselle greens are the base for the most popular curry in Myanmar (formerly known as Burma). Its dried flowers, used for refreshing teas, can be found in markets across Asia, West Africa and Central America. Taller varieties of the roselle plant (heights of up to 14 feet) are grown commercially for fiber. Shorter, more bushy varieties are grown for food and drink.

COOKING WITH Roselle

Roselle can be used in many ways. *Burmese and Karenni people will either dry the leaves or cook them and store in the freezer or refrigerator. Central Africans make sauces and stews from the leaves and North and West Africans use the red calyxes or flowers to make syrups and tea.*

To ensure a continuous supply of leaves throughout the summer, gardeners will cut them back four to five times in a Northeastern climate. At the end of the season, the plants are left to go to flower, which becomes the following season's seed supply.

NUTRITIONAL OR MEDICINAL BENEFITS

In Africa, all of the above ground parts of roselle are harvested for medicinal use, especially for its hypotensive or blood pressure-lowering properties¹. Researchers have reported high levels of phenolic compounds in roselle flowers, strong antioxidants found to have potential for numerous health benefits such as cancer prevention, liver protection and cardiovascular function².

SOURCES OF SEED

- Southern Exposure Seed Exchange. <http://www.southernexposure.com/> (540) 894-9480
- Baker Creek Heirloom Seeds. www.rareseeds.com/ (417) 924-8917.
- Burpee Seeds. www.burpee.com/ (800) 888-1447. Sells ornamental varieties typically planted for their flowers.
- Horizon Herbs. <https://www.horizonherbs.com/> (541) 846-6704

1 Morton, J. 1987. Roselle. p. 281–286. In: Fruits of warm climates. Julia F. Morton, Miami, FL.

2 Inês Da-Costa-Rochaa, Bernd Bonnlaenderb, Hartwig Sieversc, Ivo Pischela, Michael Heinricha. 2014. Hibiscus sabdariffa L. – A phytochemical and pharmacological review. Food Chemistry, Volume 165, Pages 424–443.

PLANTING & CULTIVATION TIPS

Hibiscus is a “short-day” plant, meaning it will start flowering when days become shorter than 12 hours, usually in mid summer. In cold climates it can be a challenge to grow roselle to a point at which it is developed enough to flower at this time. Give plants a head start in the greenhouse well before transplanting into the field in May or June.

HARVEST & POST-HARVEST

The calyxes or fruits of the roselle can be plucked by hand at the end of the growing season. Fruits will ripen first at the bottom of the plant. Use a small pipe to remove the seed from the calyx or peel back the petals by hand. Calyxes should be dried thoroughly before storing as a tea, jam or other processed food ingredient.

Leaves can be harvested all throughout the growing season for cooking.



COOKING WITH Roselle

Chin baung kyaw (Hot and sour fried roselle)
See recipe on page 36



Indra Khadka shares her stories about growing food in Bhutan and Vermont (New Farms for New Americans)

WORDS FROM INDRA KHADKA, A BHUTAN-BORN FARMER

I've been doing this my entire life, I know how to do farming and I cannot stay without doing anything. So for my health too, I do farming. After we left Bhutan and went to Nepal, even though there was not enough land I tried to stay with/continue farming. I started farming in the same year I landed in the U.S and have been doing it since. This is the seventh year that I have been farming in the U.S.

It took a very long time for me to learn [how to adapt my growing techniques for Vermont's climate] because it is totally a different temperature. We used to plant anything at any time in Bhutan because the temperature was not as cold. Here, we have to know what temperature, how hot or how cold the seeds can tolerate.

I feed everyone within my family; I feed 22 people. I feel very happy if I get the chance to feed all of my family and all of my relatives. I teach my whole family how to farm. I save a lot of seeds and give them to my family.

Also, I explain how and when to plant and how to prepare the soil. I teach my whole family how to grow the vegetables and I explain to them which are good in traditional ways and which are good for health. I really do enjoy working in the field. I love my field. I will keep farming.

- Indra Khadka

Abdi Abdi, a Somali farmer discusses farming in the US (New Farms for New Americans)

WORDS FROM
ABDI ABDI
A SOMALI-BORN
FARMER

I am a refugee. The reason I farm is because everything that people eat comes from the ground. If I can, I want to save some (vegetables) and also give some away to the community for free. I will give corn to my family, my neighbors, even you, if you need it. I am willing to help people out with my farm and I am willing to convince them to farm if they want it. I came here as a refugee and I have many opportunities. One of those opportunities is to farm. To have our own products, to eat our own food without having to wait for the government; it is better to have fresh vegetables and corn to eat. I have figured out that I can help people if I grow my corn. I can help others by giving them what I grow. I feel great giving back to the community by sharing what I have planted on my farm.

- Abdi Abdi





Rukiya Barrekh stands in front of her African Corn (New Farms for New Americans)

African Corn

GROWS MORE VIGOROUSLY THAN SWEET CORN BUT REQUIRES LITTLE FERTILIZER ROAST IT AND TOAST IT TO GET THE MOST OF IT.

LATIN NAME: *Zea Mays var indentata*
OTHER COMMON NAMES: *Dent Corn*

BURMESE: *pyaung puu*

FRENCH: *ble*

KAREN: *bu kay thà*

KIRUNDI: *ikigori*

(In Kirundi there are several translations for corn, (cob, early kind, kind with big kernels, ground, tender, yellow and shelled)

KISWAHILI: *nafaka*

MAI MAI: *galey*

NEPALI: *Makai*

VIETNAMESE: *bắp*

“When I was a child, the first harvest of corn was at Christmas. We would roast the corn over a fire and eat nothing but corn the whole day because we had not eaten it in so long. Kids like the corn when it is new, but the older people like to eat the corn when it has ripened for a long time and is tough.”

- Sebastian Hakizimana,
U.S. Citizen, formerly from Africa

According to the International Institute of Tropical Agriculture (IITA), maize is the most important cereal crop of Sub-Saharan Africa. While in America most corn is grown for export or for animal feed, 95% of corn grown in Africa is used for direct human consumption¹. The majority of this maize is the white variety, higher in starch content and lower in sugar content than American sweet corn varieties of *Zea mays* varieties of *saccharata* and *rugosa*.

Many people are surprised when they first see African corn in community garden plots or on farms. It grows much more vigorously and taller than the sweet corn many Americans are accustomed to.

¹ Maize. International Institute of Tropical Agriculture website. Accessed online 12/2/14 at <http://www.iita.org/maize>

NUTRITIONAL OR MEDICINAL BENEFITS

Like all grains and cereals, African corn is much higher in fiber, vitamins and minerals when consumed as a whole grain. African corn provides a relatively higher caloric boost than the sweet corn most Americans are familiar with. In fact, it has a higher caloric content, pound for pound, than most if not all of the world's major grains or staples, such as rice, potatoes, wheat or soybeans. Toasted or boiled on the cob it is consumed as an appetizer. Millions of people across Africa and Latin America process it into flour to make a variety of foods.

SOURCES OF SEED

White dent corn is the American equivalent of African corn, and seed can be sourced commercially. However, it is very difficult to find seed that is horticultural grade rather than animal feed grade. The best way to source seed is to get to know someone from Africa in your area. Chances are they have a farm or garden plot where they have been growing African corn or know someone who does. Usually people are more than happy to share or trade seed. Most of the varieties that people have grown over the years tend to be open pollinated varieties, and all you need is a few seeds to get you started, the crop from which can be saved for multiplying seed for future years.

Farmers sometimes make modified greenhouse spaces to start their corn. After several weeks the seedlings are dug up and transplanted into the field.



Modified greenhouse for corn
(New Farms for New Americans)

PLANTING & CULTIVATION TIPS

The “sasakawa” method recommended by some crop advisors across Africa and Asia involves planting one or two seeds about ¾” deep and 12” apart in rows. The traditional African method involves planting 3-5 seeds in planting stations about a yard apart, either in rows or in a grid pattern throughout the field. Beans or squash plants are then planted between the corn stations, leading to a dense canopy once everything gets going. African corn is typically fertilized when about knee high and mounded to suppress weeds, give the fast growing stalks a strong base and encourage auxiliary root growth in the mounded area.

HARVEST & POST-HARVEST

You can harvest ears of African corn when ears are firm to the touch but still green. While not nearly as sweet as sweet corn, African corn harvested at this stage will still contain simple sugars. Shuck the ears and roast the cobs until grains are golden over a grill or directly within coals to enjoy a real treat. You’ll give your jaws a workout, and the corn might seem abnormally hard and chewy. This is how it’s done traditionally. You’ll be rewarded by the toasted corn’s singularly caramel-like, smoky sweetness.

Alternatively, leave ears on the stalk well into autumn to mature, yellow and dry out before harvesting. Then harvest and store in sacks in a cool, dry place. For longer term storage, cobs can be fully shucked and individual grains filled into sacs. Grains can be milled into flour, though at the moment, the type of infrastructure needed for this is lacking in many locales. If Africans continue to immigrate to the Northeastern U.S. and African corn gains importance, we might see more small scale milling operations initiate.



Mustard Greens

MANY COOK THIS AFTER BEING PICKED FRESH,
BUT IT CAN ALSO BE DRIED.

LATIN NAME: *Brassica juncea*

Taxonomic varieties grown as leafy greens are *crispifolia*,
foliosa, *longidens*, and *multisecta*

BURMESE: *Monnyin*

MAI MAI: *Cagaarka*

FRENCH: *Feuilles de
moutarde or pointe
noire*

khardal

NEPALI: *Rai Saag*

KISWAHILI: *Haradali
wiki*

VIETNAMESE: *mù tạt
xanh*

Researchers have found mustard greens to be among the most powerful cancer preventatives of all of the Brassicas. Some varieties of mustard are grown specifically for oilseeds, and others as cover crops. It tends to be one of the most pungent and flavorful of the brassicas. Young mustard greens can be eaten raw. Older leaves are typically cooked, in many cultures throughout the world in stir fries with meats, especially pork. The Bhutanese commonly ferment and dry mustard greens to keep them through the winter (see p.14). Why don't you try that?

Mustard greens originated in the Himalayan region of India and have been grown and consumed for more than 5,000 years.

NUTRITIONAL OR MEDICINAL BENEFITS

Mustard greens contain high levels of aliphatic glucosinolates, a class of compounds known to provide cancer preventative properties¹. These compounds are what give mustard greens their pungent odor and flavor. Mustard greens also are packed with vitamins A, C, E, K and other phytonutrients that act as antioxidants and provide benefits to the cardiovascular system.

SOURCES OF SEED

Out of all of the crops covered in this guide, mustard greens are the most widely available. Most seed companies and gardening depots carry mustard green seed.

PLANTING & CULTIVATION TIPS

Mustard greens are generally cool season crops, though some varieties will do better during hot times than others. Varieties also differ as to their rate of growth and their tendency to bolt to seed.

HARVEST & POST-HARVEST CONSIDERATIONS

Mustard greens can be harvested and stored like most other leafy greens, at temperatures close to freezing and at high relative humidity. Keep enclosed in perforated bags or boxes to maintain high relative humidity. Mustard greens are a great crop to use for making “gundruk,” the fermented, dried greens that is one of the most popular dishes of Nepal and other countries of Asia. It is prepared in the same manner as the Daikon leaf; see “How to Process Daikon the Bhutanese Way” on page 20.”

¹ Ruud Verkerk, Monika Schreiner, Angelika Krumbein, Ewa Ciska, Birgit Holst, Ian Rowland, Remi De Schrijver, Magnor Hansen, Clarissa Gerhauser, Richard Mithen and Matthijs Dekke. Review: Glucosinolates in Brassica vegetables: The influence of the food supply chain on intake bioavailability and human health. *Mol. Nutr. Food Res.* 2009,53, S219–S265



Bhuma Adhikai sells produce at a farmers' market.
(New Farms for New Americans)

Rukiya Barrekh carries eggplant and lettuce starts to the field.
(New Farms for New Americans)



WHAT QUALIFIES SOMEONE AS A REFUGEE?

According to U.S. Citizen and Immigration Service, refugee or asylum status may be granted to foreign nationals who have been persecuted or fear they will be persecuted on account of race, religion, nationality, and/or membership in a particular social group or political opinion in their country of origin. Once granted protection by the US, refugees enter as legal immigrants, receive work permits immediately, and can apply for citizenship five years after arriving.

WHY GARDENING AND FARMING FOR REFUGEES?

Many resettled refugees in Vermont were subsistence farmers in their native lands, practicing vegetable production, bee farming and animal husbandry. Farmers primarily grew crops for their families, and if there was extra after that, it would be brought to market and sold. For refugees with agrarian backgrounds, their lifetime of knowledge and experience offers a path towards food security and sometimes financial independence.



All photos by Jenny Brown

Mula Tarkari

(DAIKON RADISH CURRY)

INGREDIENTS

2 Tbs. corn oil
(some people like a little more)

1 tsp. bara masala with the seeds whole
(you can buy this as a mix or else search for the recipe online to make your own)

¼ cup red onion, sliced thin

1 medium jalapeno pepper, sliced lengthwise
(seeds removed for less heat or left in for more)

1 ½ cups daikon radish
washed, peel left on, and sliced crosswise into thin (1/3") wedges or rounds

2 medium red-skinned potatoes
skin left on, sliced thin (about 1/3")

1 red pepper, sliced
(with seeds left in for a little extra spice)

¼ t. turmeric
("just enough for color")

1 T. salt
(or less, to taste)

½ cup grape tomatoes, sliced lengthwise

4-5 leaves of mustard greens
torn into thin 2" pieces (both stalk and the leafy part)

2 cups plain whole milk yogurt

1 teaspoon sabji masala
(you can buy this as a mix or else search for the recipe online to make your own)

PREPARATION

- 1 Heat oil in a pot until shimmering. Over high heat, add bara masala and let simmer to flavor the oil for about one minute, then add onion and jalapeno.
- 2 Cook for about 3 minutes, until onion starts to soften. Add daikon, potatoes, and pepper slices. Stir. Sprinkle on turmeric and combine well.
- 3 Add one cup of water, bring to a simmer.
- 4 Add grape tomatoes, stir, and cover.
- 5 Cook about 10-15 minutes, until the daikon has softened. Stir in mustard greens.
- 6 Cook about 10 minutes more, then stir in 1 ½ cups water (this will make it thin like a soup, or you could add less if you'd like it thicker) and all the yogurt. Let simmer uncovered for 5 or 10 minutes, then stir in the sabji masala, taste for seasoning, and then serve.



All photos by Jenny Brown

African Eggplant

WITH GOAT

INGREDIENTS

- 2 lbs. goat
cut into 2" cubes
- 1 tsp. salt
- $\frac{1}{2}$ onion
cut into thin 1" slices
- 2 Tbs. canola
or other mild flavored oil
- 3 cups small African eggplant
fresh or frozen (If using frozen, do not thaw as this will discolor it.)
- 1 garlic clove, sliced
- $\frac{1}{2}$ onion
cut into thin 1" slices
- 3 green bananas
peeled with a sharp knife, being careful to remove all of the white pith under the outer skin, and then cut into 2" slices
- 3 Tbs. tomato paste
- 1 packet Goya Sazon seasoning mix
- Salt to taste

PREPARATION

- 1 Put cubed goat into a fairly large cooking pot with high sides. Cover with about two inches of water, and about one tablespoon of the chopped onion. Bring to a boil then simmer for about 30 minutes, or until the meat is tender.
- 2 Heat oil in a medium cooking pot. Remove goat from cooking water with a slotted spoon, and fry in the oil over medium heat until browned, stirring frequently.
- 3 Keeping cooking water at a simmer, add banana slices, then stir in the eggplant.
- 4 Remove meat from pan to a plate, and cook onion and garlic for about one minute over medium heat in the same pan.
- 5 Stir the meat, onion and garlic together, then stir in the tomato paste, and Sazon seasoning packet.
- 6 Once banana and eggplant are soft, stir in meat and onion mix. Stir frequently over medium-high heat, breaking up some of the banana pieces, which will then thicken the stew.
- 7 Taste for seasoning, adjust, and then serve.



All photos by Jenny Brown

African Eggplant

WITH MACKEREL

INGREDIENTS

- 1 T. canola
or other mild-flavored oil
- $\frac{1}{2}$ onion
cut into 1" slices
- 1 garlic clove, coarsely chopped
- 1 8 oz. can tomato sauce
*(in summer, can use 4 chopped fresh tomatoes plus
2 T. tomato paste)*
- 2 cups fresh African eggplant,
*sliced into 2" pieces, or 1 15-oz can African
eggplant: 15 oz.**
- $\frac{1}{2}$ t. salt
- $\frac{1}{4}$ t. Lawry's seasoned salt
- 1 teaspoon Maggi
(or substitute soy sauce)
- 1 15 oz. canned mackerel
*(Janine says that in Africa, the markets tend to
offer dried fish, which could also be used.)*

PREPARATION

- 1 Heat oil in pan over medium heat until rippling.
- 2 Add onion and garlic clove. Cook and stir for one minute, then stir in the tomato sauce, and the eggplant.
- 3 (If using fresh eggplant, fry in a little oil until soft before adding to the pan with the onion)
- 4 Add salt and seasoning, then stir in the canned mackerel, leaving the fish in fairly big pieces, with its liquid.
- 5 Stir, then simmer for about 10 minutes. Taste for seasoning, and serve with rice, maize porridge, with bread, or plain.



All photos by New Farms for New Americans

This is a traditional dish from Burma. This is not eaten every day, but is a favorite dish of many families. The fried roselle can be made with or without bamboo shoots. This recipe includes directions for both.

Chin baung kyaw

HOT AND SOUR FRIED ROSELLE

RECIPE PROVIDED BY WAH KU, AS INTERPRETED BY SAW THOO DOE

INGREDIENTS

- 6 cups roselle leaves
- 1/3 cup vegetable oil
(in Burma, this is usually peanut oil or soybean oil)
- ¼ teaspoon turmeric
- 1 ½ tablespoons¹ chili pepper powder
- 1 large white onion, cut into thin slices
- 3 tablespoons fish sauce
- 1 cup² dried prawns
soaked in warm water for 15 minutes until softened, then pounded to a rough paste in a food processor or mortar and pestle, or 1 ½ cups fresh shrimp if you prefer.
- 1 chicken bouillon cube

OPTIONAL

- 1 package vacuum-packed bamboo shoots,
chopped into 1" sections
- 5 whole Thai green chiles
- Six cloves garlic, chopped

PREPARATION

- 1 Remove roselle leaves from stems and wash thoroughly. Place in large bowl.
- 2 Pour oil in large frying pan until the oil begins to sizzle. The oil should be very hot.
- 3 When the oil is sizzling, add the turmeric, chili pepper powder and onions for about two minutes.
- 4 Add dried prawns (or fresh shrimp) and cook for 30 seconds.
- 5 Add roselle leaves, fish sauce and bouillon cube and cook for three minutes.
- 6 If using bamboo shoots, add now and cook for an additional two minutes.
- 7 Turn off stove, add garlic and whole green chiles and let sit in still hot pan. It's ready to eat.

¹ In Burmese, a TBSP is measured as an "eating rice spoon" size. A TSP is measured as one spoon.

² The original recipe calls for "20 ticals of dried prawns without heads." One tical in English, is a measurement in Burma equal to .576 ounces. 100 tical is equal to 1 viss in English. Liquid and powders are measured in tical and in viss.



All photos by Jenny Brown

Spring Rolls

MAKES ABOUT 30

INGREDIENTS

1 lb. pork from country-style ribs

1 1" piece fresh ginger root, peeled

2 tablespoons green parts from fresh scallion

1 lb. shrimp
deveined, shells left on

1 / 2 lb. rice vermicelli
boiled in water that cooked the pork and the shrimp for about 5 minutes, then rinsed with cold water, drained, and put aside

15 leaves green leaf lettuce
washed and cut in half lengthwise

2 cups leaves from a small bunch of Thai basil¹

2 cups leaves from fresh mint
(try to find a variety with crinkled leaves)

1 cup cilantro
rough chopped stems and leaves

3 miniature cucumbers
cleaned and sliced into pieces 2" long by about 1/2 inch.

1 package square-style rice paper spring roll wrapper (about 30)

PREPARATION

1 Place pork in a medium pot with two inches of water to cover, ginger root, and greens from scallions. Bring to a boil and cook for about 20 minutes.

2 Remove meat to plate to let cool.

3 While the pork is cooling, return water to a boil and add shrimps with shells on ("The shells are very important for the flavor and to keep the shrimp in a nice shape," said our host chefs.). Boil for five minutes, then remove shrimp to a bowl until cool enough to handle.

4 While the shrimp are cooking, cut the pork into thin pieces about 2" long by 1 / 2" wide. Set aside on a plate.

5 When shrimp have cooled, peel, and then slice each in half lengthwise. Discard the peels.

6 Using the water that cooked the pork and the shrimp, cook rice vermicelli for five minutes. (Technically, these thin noodles will soften enough just by soaking in very hot water, but this way of cooking them also lends the flavor of what has become a broth.) When done, they'll be clear. Use a large spoon or basket strainer to place noodles in a colander to drain, and then rinse well with cold water to stop them from getting mushy. Put aside (*Leave water on the stove in the pot to use for Vietnamese Loufa soup below.*)

7 Get a baking dish or pie plate that's larger than the wrappers and fill it with cold water. Place a cutting board or dinner plate beside the dish with water in front of you on the calendar.

8 Line a rimmed cookie sheet or large baking dish with parchment paper. Dampen a tea towel and spread it out over the sheet or dish.

¹ This is a different variety than European sweet basil. According to its Wikipedia, description, "Thai basil is sturdy and compact... with shiny green, slightly serrated, narrow leaves with a sweet, anise-like scent and hints of licorice, along with a slight spiciness lacking in sweet basil. Thai basil has a purple stem, and like other plants in the mint family, the stem is square. Its leaves are opposite and decussate."



All photos by Jenny Brown

It's important to note that the following three recipes were cooked at the same time, and their preparation was entwined. The water that was used to boil the pork and shrimp with ginger and scallions and then cook noodles for the spring rolls became the broth for the soup. The scallions whose green parts went into the broth contributed their white and light green parts for the soup. It's a great way to think about cooking: using every opportunity to build flavor for the finished dish, while maximizing use of each ingredient.

PREPARATION (CONTINUED)

- 9 To construct spring rolls: arrange wrappers, sliced pork, shrimp, drained noodles, sliced lettuce, cucumber slices, basil leaves, chopped cilantro, and mint within easy reach. Take one wrapper and place in the water for up to one minute and then put on the cutting board or plate in front of you, with one corner of the square pointing directly towards you.
- 10 Place two shrimp halves, two pieces of pork and a small bit of noodles about 1 and 1 / 2 inches above the corner of the wrapper that's closest to you. (Placing the shrimp as either the first or the last ingredient in your roll will ensure it can be seen from the outside once it's all wrapped up.) Take one leaf of lettuce, two slices of cucumber, a small bunch of cilantro, two mint leaves and two basil leaves, and fold together into a narrow bundle and place right above the shrimp, pork, and noodles on the wrapper.
- 11 Fold up the corner closest to you, then gently but firmly fold in the right and then the left sides, covering as much of the filling as you can. Use your thumbs to start rolling the wrapper up from the bottom while using the other fingers of both hands to keep the sides tucking in and the filling tucking into a cylindrical shape. Once you've completed the first complete turn, roll the whole thing until the remaining corner has adhered to the rest of the roll. (This is a little complicated to explain but you'll get the hang of it!)
- 12 Place the completed roll under the tea-towel, and make up the rest of them.
- 13 Serve immediately with dipping sauce (recipe at right), or else wrap very carefully and serve within a day.

Peanut Dipping Sauce

INGREDIENTS

- 1 tablespoon olive oil
(or other mild-flavored oil)
- 3 cloves garlic, chopped
- ½ cup hoi sin sauce
- 1 tablespoon peanut butter
- 2 tablespoons water or coconut soda
- 1-2 teaspoons Sriracha
Or other hot sauce (optional)
- 2 tablespoons toasted, chopped peanuts

PREPARATION

Heat oil in a small pan over medium heat until rippling. Add garlic and stir until just turning a little bit brown.

Add hoisin sauce, peanut butter, water or soda, and hot sauce (if using). Stir with chopsticks or small whisk until very smooth.

Turn off heat, stir in peanuts, and allow to cool to desired temperature before serving with spring rolls.



All photos by Jenny Brown

Vietnamese Spinach, Sweet Loofa & Shrimp Soup

YIELD: ABOUT 4 CUPS

INGREDIENTS

½ (about 2 cups) sweet loofa
Peeled, cut lengthwise into quarters, then into 1/4 slices

1 lb. Vietnamese spinach
Washed, and roughly chopped

2 scallions
White and light green parts

3 shrimp
Deveined, with shell left on

1 ½ fish sauce, divided

1/4 tsp. ground black pepper

2 sprigs of cilantro

PREPARATION

1 In broth retained from cooking pork, shrimp and noodles above, simmer sliced loofa for about five minutes.

2 Add chopped spinach to broth and stir.

3 Pound three shrimp with flat side of cleaver or with small kitchen mallet, and then vigorously stir with 1 / 2 teaspoon fish sauce and black pepper. Stir shrimp mixture into pot.

4 Add remaining 1 teaspoon fish sauce to soup and cook until shrimp is cooked through.

5 Arrange in bowls so that shrimp pieces are as prominent as possible, and then garnish with cilantro sprigs and serve.

“Harvesting wild edible plants is a common practice for refugees and immigrants. In their seasons, plants like fiddleheads and lambs quarters are sources of high quality nutrition when money to buy food is scarce. Many wild foods are there before and after garden produce can be harvested. Picking, preparing, and eating wild foods creates tangible links to Nature and places of origin that reduce stress and its consequences.”

- Dr. Marla Emery, Research Geographer, Northeastern Research Station, USDA and Adjunct Associate Professor, University of Vermont

IN ADDITION TO LOOFA, THERE ARE SEVERAL OTHER SPECIALTY CROPS THAT ARE COMMONLY GROWN IN VERMONT, BUT ARE NOT FEATURED IN THIS BOOK. THEY ARE:

- | | | |
|-------------------------------|----------------------------------------------------|-----------------------|
| • Yard Long Beans | • Asian Squash and melons (many varieties) (Moqua) | WILD EDIBLES INCLUDE: |
| • Snake Gourd | • Thai Hot Pepper | • Burdock Roots |
| • Taro | | • Fiddleheads |
| • Lemongrass | | • Lambs Quarter |
| • Okra | | |
| • Pumpkin Leaves and Tendrils | | |

Special note: buckwheat, often used as a cover crop for weed suppression, is widely eaten like a cooked green in Bhutan and Nepal.



UVM EXTENSION CENTER FOR SUSTAINABLE AGRICULTURE

New American Farmer & Gardener Program

The program works to realize the following vision: Vermont's resettled refugee and immigrant farmers will have access to the resources they need to pursue their goals with skill and confidence. As integral members of the Vermont food system, they will be able to continue rich farming legacies, common threads between their new home in America and honored culture of their homelands. Educational and technical support from the program is geared towards helping farmers and gardeners boost household food security and develop farming and food-based businesses while raising cultural awareness among food system service providers.

For more information, visit <http://www.uvm.edu/sustainableagriculture>



(Jean Luc Dushime)



(Jean Luc Dushime)



(New Farms for New Americans)



ASSOCIATION OF AFRICANS LIVING IN VERMONT
New Farms for New Americans

New Farms for New American's (NFNA) mission is to help refugees and immigrants continue to practice their agrarian traditions through the production of culturally significant crops. NFNA provides subsistence-size plots of land to all participants, which in turn gives the farmers the opportunity to feed their families and live a more food secure life. NFNA fulfills its mission by overseeing six acres of farmland, providing workshops on the specifics of farming in Vermont, and helping farmers to overcome the barriers that may prevent them from receiving farming and gardening technical skills.

For more information, visit www.aalv-vt.org



(New Farms for New Americans)



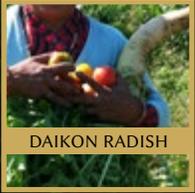
(New Farms for New Americans)



(Jean Luc Dushime)



RICE



DAIKON RADISH



AFRICAN EGGPLANT



AMARANATH GREENS



BITTER MELON



ROSELLE



AFRICAN CORN



MUSTARD GREENS



INTERESTING FACTS • SOURCES OF SEEDS
 NUTRITIONAL & MEDICAL BENEFITS
 PLANTING & CULTIVATION TIPS
 HARVEST & POST HARVEST ADVICE
 RECIPES • PERSONAL ANECDOTES

