

PolicyPennings by Daryll E. Ray & Harwood D. Schaffer

Local food staples in developing countries not always wheat, rice, or corn

Harwood's major professor for his PhD program in sociology was Asafa Jalata, an Oromo. The Oromo are the largest ethnonational group in Ethiopia. For New Years' Eve one year, Harwood and his wife were invited to Asafa's home. Part of the festivities was a meal, which included a bread that they had never seen before.

The bread looked like a large pancake that was cooked sunny-side up. The Oromo name of the bread is bidena and it is made from flour made from a grain they call tafi—*Eragrostis tef* (Zucc.) Trotter. It turns out that Ethiopia is the only country in the world where tafi—in English it is called teff—is a significant staple crop, and a nutritious one at that.

Teff is the subject of a 1997 research monograph, <http://www.underutilized-species.org/documents/PUBLICATIONS/tef.pdf>, by the International Plant Genetic Resources Institute (IPGRI) in their series: Promoting the conservation and use of underutilized and neglected crops. Seyfu Ketema is the author of that volume. It is also included in the *Lost Crops of Africa: Volume I Grains*, published by the National Research Council of the National Academy of Sciences, US.

The genus *Eragrostis* is familiar to US gardeners as lovegrass (*Eragrostis curvula*) or bunch grass with the seed produced in a panicle. It is the feathery panicle rising above the grassy leaves that makes lovegrass and annual bunch grass attractive to gardeners.

Qualities like nutrition, storability, the palatability of the straw for cattle, and its use as a rescue crop when the monsoonal rains come too late for other crops make teff attractive to farmers in the central highlands of Ethiopia where many Oromo live.

Seyfu writes, "the composition of teff is similar to that of millet, although it contains generally higher amounts of the essential amino acids, ¹ the most limiting amino acid.... The amino acid composition of teff is excellent, its lysine content is higher than that of all cereals except rice and oats, it has good mineral content and its straw is nutritious." When bidena is eaten with "pulses like lentils, fava bean, field pea, broad bean, and chickpea" a good balance of essential amino acids is achieved.

"Teff straw...is...used to reinforce mud and plaster walls of tukuls and local grain storage facilities called gotera." The "straw is a valuable feed during the dry season" and "is highly preferred by cattle over the straw of other cereals."

In addition, because of its small seed size "[teff]

is not attacked by weevils and other storage pests and therefore is easily and safely stored under local storage conditions. This results in reduced post-harvest management costs.

Seyfu notes that teff can be grown under low moisture conditions and when the soil is waterlogged, "withstanding anaerobic conditions better than many other cereals including maize, wheat, and sorghum." He also says that "compared to any other cereals growing in Ethiopia it has fewer disease and pest problems."

"The small size of tef seed poses problems during sowing, and indirectly during weeding and threshing." At present, teff yields just over 1 tonne/hectare compared to 2 tonnes/hectare for maize. Seyfu writes that while present yields are low, no comprehensive study has been conducted to assess the yield potential of the crop." He also argues that a study of he conducted of a sample of teff varieties indicates its high yield potential and he is convinced that it could yield 6 tonnes/hectare "if it receives adequate research potential."

In the Foreword, the IPGRI series editors write "Humanity relies on a diverse range of cultivated species; at least 6000 such species are used for a variety of purposes. It is often stated that only a few staple crops produce the majority of the food supply. This might be correct but the important contribution of many minor species should not be underestimated.

"Agricultural research has traditionally focused on these staples, while relatively little attention has been given to minor (or underutilized or neglected) crops, particularly by scientists in developed countries. Such crops have, therefore, generally failed to attract significant research funding. Unlike most staples, many of these neglected species are adapted to various marginal growing conditions."

As we talk about the need to double food production by 2050 and the importance of agricultural investment, the IPRGI editors make a good case for including teff and other minor crops as the object of some of that investment.

Daryll E. Ray holds the Blasingame Chair of Excellence in Agricultural Policy, Institute of Agriculture, University of Tennessee, and is the Director of UT's Agricultural Policy Analysis Center (APAC). Harwood D. Schaffer is a Research Assistant Professor at APAC. (865) 974-7407; Fax: (865) 974-7298; dray@utk.edu; <http://www.agpolicy.org>.

¹ Amino acids are the building blocks of protein and essential amino acids are those that cannot be produced in the human body but must be obtained from the diet. Without the proper amounts of essential amino acids or meat in their diet, humans cannot produce the proteins necessary for full human health. The essential amino acid content and balance in grains and seeds is important for people whose diet includes minimal levels of animal protein.