

Maize as you like it— Sweet, green, or as baby corn

The growth in high-value agriculture world-wide is driven partly by rising incomes, urbanization, and perhaps changing preferences. As income rises, the share of the food budget allocated to starchy staples declines relative to more expensive food. High value agricultural products, with a high price per kilogram, per hectare, or per calorie, include fruits, vegetables, meat, eggs, milk, fish and non-timber forest products.

Can commodities, such as maize, be considered high value agricultural products? Maize is truly a crop for all seasons, producing multiple products. Most people value maize for its dry grain, which figures in the staple foods of millions of the poor. However, a wide range of vegetable maize products are harvested before the crop reaches maturity, the most important being baby corn, sweet corn, and green ears. These products are sometimes traded internationally.

Initial estimates of the global value of sweet corn, baby corn and green maize suggest that maize is one of the five most profitable vegetables in the world (Table 1). The “big five” producers of vegetable maize are China, the USA, Mexico, Peru, and Thailand. The global retail value of vegetable maize is estimated to be in the range US\$ 13-32 billion. For comparison, the commercial value of tomatoes is US\$ 56 billion and around 18 billion worth of watermelon, onions and brassicas.

Vegetable maize is grown on all continents except the Antarctic.



Green maize—ears that are harvested early—is often sold on the street in Africa and Latin America.

Resource-poor farmers in marginal zones of the Andean highlands sell green ears in markets of nearby towns for extra income.



Table 1. Values (million US\$) of vegetable maize¹ compared with other vegetables.²

	Global value	USA (total value)	Mexico	Peru	Kenya	Thailand	China
Vegetable maize	13,300-32,500	approx. 3,101	904-1,594	298	157-277	276-315	4,278-9,872
Tomato	56,700	1,662	564	26	69	71	2,100
Watermelon	19,520	343	143	4	n.a.	60	5,800
Onions (dry)	18,082	1,101	n.a.	51	18	7	2,900
Cabbage and brassicas	18,900	554	20	2	n.a.	39	1,400

¹ Vegetable maize refers to maize that is harvested fresh or unripe. This includes green maize (chodos, sweet corn, elotes, green maize in Africa) and baby corn.

² All values calculated from FAOSTAT 2003 except vegetable maize where references are noted in comments.

According to FAOSTAT, vegetable maize is grown on around 1.6 million hectares worldwide in the largest producers (see Table 2). The areas and production depends on the season – in Africa farmers might choose to harvest green corn at the end of the dry season when food is really scarce, or sell it, or leave it to mature as white maize. Nevertheless, across these 11 countries the area of vegetable maize is comparable with the areas of tomato, onion, water melon and the brassicas.

Githeri, a mix of maize and beans, is a dietary staple in Kenya. Quality protein maize (QPM) and maize with enhanced levels of vitamin A-, iron, or zinc can improve nutrition in areas where maize is a major staple and farmers cannot afford balanced diets or purchase supplements.



These large, purple maize grains are used to make a popular drink in Peru.



Green maize

Green maize is eaten in more than half the world's maize-producing countries. As a source of food, it provides relief during the "hungry season" for millions of farm households in sub-Saharan Africa and other resource-poor areas where maize is the main food source and farmers often fail to produce

enough grain for an entire year. "Elote" and "choclo" are the green maize types of Mesoamerica and the Andes. Immature ears are harvested and the soft, naturally humid grain eaten directly on the cob after boiling, steaming, or roasting. Green maize ears may also be shelled and used in soups or to accompany main dishes. Specialty types used this way

include "Blanco Urubamba," which is exported by Peru at US\$ 700 per ton, or "Cacahuacintle" from Mexico, which has large, white, floury kernels favored for a dish known as "pozole." Those maize races are among the few horticultural genotypes included in the "multilateral system" of the 2004 International Treaty for Plant Genetic Resources for Food and Agriculture, which facilitates access to crop genetic resources and provides a benefit-sharing mechanism intended to help farmers.

Table 2. Area (hectares) under vegetable maize production compared to top vegetables.¹

Region/ Country	Vegetable maize	Tomato	Watermelon	Onion (dry)	Cabbage and brassicas
East and Southeast Asia					
China	466,666	1,305,053	2,014,500	900,830	1,719,450
Thailand	86,500	11,500	30,000	19,200	24,000
Indonesia	85,500	50,020	n.a.	85,534	64,261
South Asia					
India	210,411	540,000	20,000	530,000	280,000
Africa					
Kenya	75,790	16,000	650	5,500	35,000
Tanzania	7,000	19,000	n.a.	19,000	n.a.
Nigeria	161,000	127,000	n.a.	41,000	n.a.
Latin America					
Peru	41,758	4,895	2,159	15,968	2,142
Brazil	137,035	59,286	82,000	56,891	n.a.
North America					
Mexico	70,114	118,681	41,966	39,737	6,260
United States	260,140	166,670	55,200	65,370	29,830
Total	1,601,914	2,418,105	2,246,475	1,779,030	2,160,943

¹ all data sourced from FAOSTAT 2005 except where comments are made.

Socioeconomic studies needed

Further assessment is needed to understand better the value of maize as a vegetable for the livelihoods of the very poor. In addition to providing food calories, vegetable maize provides protein and minerals.

For maize and other high-value crops to contribute to poverty reduction, the performance of value chains needs to be improved. An organizational and institutional analysis of the governance and coordination these chains could provide policy and other solutions to improve benefits to farmers, without penalizing other actors. These chains could also be made to work more effectively and efficiently through participatory approaches, such as learning alliances.

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