

CIP Sweetpotato Facts

[Sweetpotato Facts](#)

[Sweetpotato Utilization: Food, Cash, Feed, and Processed Products](#)

[Sweetpotato Production](#)

[A Word of Caution](#)

[The Role of CIP](#)

[CIP Online](#)

Sweetpotato Facts

Sweetpotato (*Ipomoea batatas* LAM.) is among the world's most important, versatile, and underexploited food crops. With more than 133 million tons in annual production, sweetpotato currently ranks as the fifth most important food crop on a fresh-weight basis in developing countries after rice, wheat, maize, and cassava. Sweetpotato is cultivated in over 100 developing countries and ranks among the five most important food crops in over 50. Only in the last decade has the crop been the focus of an intense, coordinated, global effort to realize its full potential as a source of food, feed, processed products, and income for millions of small farmers and low-income consumers in Africa, Asia, and Latin America.

Three facts have generated growing interest in sweetpotato. First, sweetpotato is typically a small farmer crop and often grown on marginal soils with limited outputs. Furthermore, although the crop is grown widely in Asia (n=31), Africa (n=39), and Latin America (n=31), production tends to be concentrated in those countries with lower per capita incomes and within those countries in regions such as Sichuan province in China or western Kenya where income levels are relatively low. Hence, increasing sweetpotato production and utilization is often considered as a means to improve incomes and food security among the poorer segments of the rural population.

Second, average yields in several countries are well below the average (15 t/ha) for developing countries as a whole, and these in turn are well below the current yield potential. Hence, rapid improvements in productivity are considered readily feasible with relatively less investment in research and extension than other crops, such as rice, where this is not the case.

Third, the last decade has witnessed a return to a positive growth rate for sweetpotato production in China—a remarkable reversal of previous trends in a country where some 85% of the world's output is harvested. Similar upward trends have emerged in a number of other developing countries. Some of these trends are evident from FAO statistics; others are not.

Sweetpotato Utilization: Food, Cash, Feed, and Processed Products

Though commonly categorized as strictly a "subsistence", "food security" or "famine relief" crop, sweetpotato's uses have diversified considerably in developing countries

over the last four decades. Hence, while these longstanding uses are still important in many countries, other uses have emerged, particularly in China and parts of Sub-Saharan Africa. Furthermore, some traditional uses have begun to attract the attention of crop and postharvest improvement specialists in recent years.

Average annual per capita consumption of fresh roots for 1994-96 is estimated (FAO) at: Africa, 9kg; Asia, 18kg; Oceania, 73kg; Latin America, 5kg; Japan, 7kg; and USA, 2kg. In contrast to potato, per capita sweetpotato consumption in Canada, Europe, and Australia is extremely limited and often confined to an immigrant population.

Within developing country regions, the quantities of sweetpotato consumed can vary tremendously. In Africa, for example, per capita sweetpotato consumption in Rwanda is estimated at 160kg/yr; Burundi, 102 kg/yr; and Uganda 85kg/yr. Sweetpotato consumption also varies *within* countries: by regions, by time of year and by income group. In northeast Uganda—one of the poorest parts of that country—sweetpotato becomes a seasonal staple during the dry season when supplies of most other foodstuffs are exhausted. Even under such circumstances the importance of the crop may be underestimated, given the increasingly apparent flaws in the calculation of such estimates.

Recent research has documented the widespread use of sweetpotato by small farmers in their efforts to sustain local livestock production systems. In fact, virtually wherever sweetpotato is cultivated, some part of the plant, in some form, is used in some type of animal production, from Brazil to Madagascar to China. The steady increase in the use of sweetpotato roots *and* vines in pig and other livestock systems in China over the last 30 years now means that from 30 to 50 million tons or more are used annually as feed.

Processed products made from sweetpotato including starch, noodles, candy, desserts, and flour have long been made by farm households to extend the availability, diversify the use, and increase the value-added for the crop. In China, in particular, production of sweetpotato starch in recent years has evolved into a cottage industry that utilizes millions of tons of roots per year as raw material inputs. The magnitude of these new uses are not easy to quantify in a systematic way; partly for that reason, the available statistics on processing do not always reflect their true level of importance.

Sweetpotato Production

Growth rates for sweetpotato output and area planted have turned upward in China after years of decline. Trends for other countries and regions have been more mixed.

Asia. Sweetpotato production in Asia has been characterized by four trends: 1) the continued overwhelming dominance of China with positive growth rates recently reversing the earlier decline; 2) shrinking area planted in sweetpotatoes—a trend that accelerated in much of the region during the last ten years; 3) leveling off of yields as the rate of growth has slowed in many countries, including China—as sweetpotato cultivation has been pushed onto more marginal land and average yields have improved to 17 t/ha, it has become more difficult to maintain the rate of growth of improvement in yields; and 4) the possible shift in future prospects for regional

sweetpotato production due to recent changes in relative prices for sweetpotato versus traditional substitutes such as imported wheat flour, as a consequence of the economic crises in Southeast Asia.

Latin America and the Caribbean. For much of this region, production and area planted of sweetpotato is most important in smaller, poorer countries such as Cuba, Haiti, and Paraguay. In Cuba, a recent sharp decline reflects the pressure on sweetpotato yields resulting from a shortage of chemical pesticides in the current transition to biological control of important pests. In Peru, production and yields rose spectacularly over the last decade as agro-climatic conditions improved, the general economy went through structural adjustment, and many small growers turned to sweetpotato because of the shortage of farm credit and the low costs of production per hectare.

Africa. Growth rates in sweetpotato production and, in particular, area planted are the highest of any region. Most of the major producers saw growth rates decline over the last decade. As area planted continued to expand, the annual average rate of improvement in yields turned negative in some cases (e.g., Uganda: -1.9%), and offset what would have otherwise been faster rates of growth in production. In other words, as planting took place under more marginal conditions, and perhaps by farmers less acquainted with the most appropriate cultural practices, yields suffered in the process.

Average yields of 5t/ha for sweetpotato in Africa (FAO) are the lowest of any developing country region—and less than a third of yields in Asia—suggesting ample room for improvement in the years ahead.

A Word of Caution

Any review of the available facts on sweetpotato production, consumption, and use in developing countries would be incomplete were it not to draw the interested observer's attention to discrepancies in data for this commodity. Given the obvious difficulties in estimating production for a crop produced by small farmers on non-contiguous plots, harvested several times a year, and not sold through regulated domestic marketing channels or traded abroad in appreciable quantities, FAO statisticians frequently resort to using the available national statistics to estimate production, area, and yield. Unfortunately, there are often discrepancies between FAO figures and national data. For example, FAO reports Malawi produces no sweetpotato, while Ministry of Agriculture figures show the country harvested over 800,000t during 1995-97. Similar problems apply in the case of utilization figures. Therefore, readers are advised to use these "facts" with caution.

The Role of CIP

CIP's strategy begins by identifying, in close association with its clients, needs for research and technology. If these are addressed elsewhere, the Center makes the appropriate information available through its cooperative linkages. If not, comparative advantage and priority of needs are analyzed to determine CIP's approach, involving one or more of the following operational models: encouraging the pursuit of the necessary research collaboration among countries; conducting appropriate research

in cooperation with national agricultural research systems (NARS) colleagues; and initiating specialized research in the Center's areas of comparative advantage.

The effective transfer of research results, technology, and capabilities to partner countries is accomplished through training, information dissemination, and collaborative research designed to assist NARS in reaching and maintaining their fullest potential.

The International Potato Center (CIP) is a not-for-profit, autonomous scientific institution established in 1971 by agreement with the Government of Peru. CIP is one of 16 international research and training centers supported by the [Consultative Group on International Agricultural Research \(CGIAR\)](#). The CGIAR is sponsored by the Food and Agriculture Organization (FAO) of the United Nations, the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), and the World Bank, and comprises more than 57 countries, international organizations, and private foundations.

CIP Online

For more information about sweetpotatoes, please consult the CIP Web site on the Internet at www.cipotato.org. There you will find complete copies of CIP's most recent Corporate and Project Reports, information regarding ongoing research projects in a variety of disciplines and locations around the world, and lists of publications recently authored by CIP staff on topics related to sweetpotato production, marketing, utilization, and trade.

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