

The status of sweetpotato improvement and promotion in Nigeria

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Abstract. Although sweetpotato has great potential, it has not been promoted in Nigeria. IITA and some regional research centres have carried out limited research on sweetpotato by IITA and regional research centres, although documentation of results has been poor. The potential of sweetpotato lies in its capacity to grow well in areas with less rainfall and soil fertility compared to other crops. A huge opportunity for sweetpotato promotion in Nigeria is the potential role it can play in the rural household food security given that up to 74% of Nigerians live in rural areas. In addition, the crop can be made into other products, thus diversifying its utility base and therefore assuring its market. Sweetpotato production promotion in Nigeria will have to consider introducing a wide range of varieties for adaptability and acceptability tests, while planning for a sustainable seed multiplication and distribution system.

Neglect of a good crop. Use of sweetpotato in Nigeria dates back to the period 1594-1698 when Portuguese traders introduced it. In the last 300 years, little has been done to promote the crop in areas where it has comparative advantage. This is mainly because there are other alternative food crops. Any organized promotion of the crop will yield more benefits to Nigeria. It will adequately supplement the food and cash supplies to farming households in the area. In 1999, the grain stock in reserve was 200,000 tonnes for a country of over 100 million heads (Abdullahi, 1999). Thus, at 20%

dry matter, this will be equivalent to 800,000 tonnes of sweetpotato roots that can be obtained from just 123,000 ha of land given the present yield levels of 6.5t/ha. This drive that can be achieved given some support.

The crop is well patronized as a daytime snack in schools and offices. It is consumed boiled, or sold as fried chips or crisps in polyethylene satchets.

Crop variety is the main variable in the system that farmers often manipulate to raise yields. For this reason, sweetpotato varieties that are higher yielding than the many local clones need to be identified and released after a good multiplication programme. Until some effort is put in this regard, sweetpotato will continue to be produced using low yielding varieties.

Sweetpotato research: IITA, Ibadan. Every effort must be made to document into one volume all the results of research done by IITA (during 1971-1988) for use by upcoming researchers and developers in Nigeria and the African sub-region. Such a publication will be a good promotion of the crop. Otherwise many who need local information on the performance of the crop in Nigerian environments will not have them. It will continue to be considered a small secondary despite its well-known potential.

Sweetpotato research: NRCRI, Umudike. Annual reports on research and development work on the crop from the NRCRI are scarce.

of the total cultivated area was under sweetpotato.

Nigeria-Chad-Niger Sweetpotato Trade. There is long standing trade between Nigerian farmers in the project area and the northern neighbour nations. This trade can be studied and organized to the benefit of all concerned stakeholders. Nigeria will be the producer and supplier whereas those countries will remain buyers. As this sweetpotato commodity chain has not been organized or even understood in a technical or economic way, it remains inefficient and the farmers are yet to reap the full benefits of the crop in this situation.

Benefits from sweetpotato enterprise. Nowhere can the benefit of a crop enterprise be more evident than through an examination of the crop budget. The crop can give a cash return in 3.5-4.5 months.

Use of sweetpotato in poultry and pig farming is very well established. Tewe (1998) reports attempts to pelletize sweetpotato flour along with the vines and leaves as a complete feed for rabbits and other livestock. Tewe *et al.* (2001) however suggested that the price of sweetpotato should be around N3.0/kg to be competitive with cassava that sells for around that price. In Delta state, the 2000 season net revenue of N2951.23 was realized from a net investment of N7935.5, which gave a 37.19% return to investment when sweetpotato roots sold for N25/kg (\$0.20) (Iken *et al.*, 2000).

Nigeria's industrial economy is warming up to the production of alcohol from starchy crops. Sweetpotato has a good potential for alcohol production. Ethanol yields from sweetpotato vary with variety (0.07-0.15 litre/kg fresh root); and was significantly correlated ($r=0.96^{**}$) with root dry matter percentage among the nine varieties studied (Collins, 1984).

Sweetpotato hectareage and yields. In Delta State in southern Nigeria, sweetpotato yields were 8.28-11.33 t/ha when intercropped with

If that situation continues, it will be difficult for *promoters* of the crop to justifiably have basis for recommending practices arising from NRCRI's work or even to ask would-be investors to go to NRCRI for more information. The need for research results and other information on the crop to be in the public domain is self-evident.

Weather and sweetpotato cultivation in northern Nigeria. Sweetpotato matures in 4-5 months and thrives well in areas with 750-1000 mm of annual rainfall. In those few months, it produces far more *reliable dry food* than maize, sorghum, cassava, and millet kilogram per hectare. Sweetpotato gives a good yield when harvested three months after it is planted. The yield is higher at four months after planting and even more so at full maturity at five months. The advantage is that there is always a yield or roots to harvest. There are different kinds of varieties that can assure a good yield of roots and forage to the great majority of poor farmers who cannot pay for the *higher costs of inputs* needed to grow these other crops. Thus, any intervention to help the teeming majority of Nigerians will require a *shift from the usual crops* to one that is within the capability of the farmers.

Sweetpotato in the Rural Economy. Only 36.3% of Nigerians live in urban areas (NPC, 1998). Thus, the majority of the populace is rural. The needs of these rural dwellers should form the focus in any development project. Consequently, farming should be targeted to the least cost option for the poor who have very little income or security for themselves and their families.

Bauchi State is a major food producing state in north-eastern Nigeria having borders with seven other states. Its agriculture captures the pattern in that zone of the country. Bauchi State has 3,675,000 cultivable hectares but only 975,371 ha were cultivated in 2000 (i.e. 26.5%). The sweetpotato crop is not emphasized. It is ranked 9th out of the 20 principal food crops in the state. About 4.3%

pepper (Iken *et al.*, 2000). The Agricultural Development Programmes (ADPs) of the 36 states and the Federal Capital territory conduct Crop and Yield Surveys (CAYS). There is need to collect and assemble information on the crop to allow researchers and developers to better understand the commodity chain with a view to proper planning of strategies. Sweetpotato information is tucked under the term “other crops” or “root and tubers”. In that way we do not fully grasp the role it plays.

From the available figures for the FCT, about 619 ha are cultivated in the rainfed and fadama crop of sweetpotato each year. This is significant considering that the area is mainly urban. For Kaduna State, the change in sweetpotato yields (between 1994 and 1995) suggests a change from subsistence to a commercial farming practice due to increased demand from the influx of population to the FCT. Whether these yield data pertain to sole plots as in commercial production or to sweetpotato in mixed cropping of varied stand intensity as in subsistence food production is not clear. Chinaka (1983) puts root yields as 4.0 t/ha under farmer local practices. Tewe *et al.* (2001) reported yields of 3-7 t/ha for various enclaves of sweetpotato production across Nigeria. Based on the foregoing data, one could assume 6.5 t/ha as fair average.

In Ogun State in 2001, about 4% of the farmers grew an average of 0.10ha to sweetpotato (Vaughan and Adeogun, 2002). In Ikorodu Local Government Area of Lagos State, the average non-tractorised farm holding was 0.8ha for a range of 0.2-1.0ha compared to 2.0ha with a range of 0.2-6.0ha for tractorised farms (Aromolaran *et al.*, 2002).

In Kaduna State, small farmers that predominate (70% of the farming population) cultivate 0.5-2.5 ha per farming household. 1998, their sweetpotato crop of about 280,000 ha was second only to maize in hectares cultivated. Statistics of sweetpotato production in Nigeria is not clearly known, although an estimate of 355,000 ha is reasonable. This is for 16 of the 36 states and FCT or about 43.2% of the country. Thus, if all produce sweetpotato at 3.5% of their farm

area, Nigeria's annual sweetpotato area would be around 821,000 ha.

Sweetpotato in seed programmes. No ADP undertakes any programme for multiplication and distribution of sweetpotato planting materials. This bias is not deliberate. No case of the great potentials of the crop has been demonstrated. Losses of the crop are too high and the absence of a strong postharvest component has hindered the acceptance of the crop as a *co-contender* with other root crops.

Sweetpotato and poverty alleviation campaigns. “Sweetpotato is a good alternative to yam [in parts of Delta state of Nigeria]. It is a hardy crop that thrives in soils that cannot sustain yam production. Many farmers embrace the cultivation of the crop because of the reduced tedium involved in its cultivation as compared to yam. Although the crop is cultivated sole, many farmers are looking for appropriate crops for gainful intercropping” (Iken *et al.*, 2000). Again, Ikeorgu (2000) has stated that: “As a food security crop for rural poor households, government in view of its poverty alleviation programme should encourage this crop. The future of sweetpotato appears brighter than the other root crops...” We also believe that if the food production data available were properly analyzed (Aiyedun, 1999), then the conclusion of Ikeorgu (2000) would be upheld.

Storage of sweetpotato and preservative processing. Nwana (1978) reported *Cylas* spp. leaf damage of 11-40 holes per 20 leaves and root damage of 8-13 holes per 25 m² plots for eight sweetpotato varieties. In these plots, yields reached 45-64 kg per 25 m² plots equivalent to 18-25 t/ha after 120 days of growth. To avoid the great loss of root materials, early processing into storable food is highly recommended.

The store of food available to poor farm households can be augmented without the usual losses associated with the storage of fresh roots if such roots are processed into

spari (sweetpotato granules made using the same procedure for making *gari* from cassava roots) immediately after harvested. In the form of *spari*, sweetpotato can be stored for over a year without change in its food value. Sweetpotato flour or chips are also dry products that can be easily stored compared to fresh tuberous roots. The shift from fresh items to *dry storable* items of food is a major challenge for poor households.

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