

PERFORMANCE OF THE ORANGE FLESHED SWEETPOTATO CHAIN IN MUKONO DISTRICT, UGANDA

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Introduction:

Sweetpotato (*Ipomea batatas* (L.) Lam.) is a versatile crop grown for food and income in East and Central Africa. The Orange-fleshed varieties (OFSP), which are rich in beta-carotene, is known to address Vitamin A deficiency (VAD) that affects over 20 million children in the region (Low et al., 2007). VAD is a micro-nutrient deficiency which leads to Xerophthalmia, reduced immunity and increased child mortality. Yet just 125g of OFSP is enough to supply a child aged five and below the daily recommended intake of Vitamin A (400-500 micrograms of Retinol Activity Equivalents) (Ross 2006). Various initiatives have been undertaken to popularize OFSP production, marketing and consumption in Uganda. Despite the initiatives, OFSP is still not readily available in local and urban markets. This study sought to analyze the dynamics that influence the performance of the OFSP chain in central Uganda. Specifically, it aimed to: characterize the chain, assess factors that influence farmers' decision to participate in the market and evaluate constraints faced by OFSP farmers.

Methods:

A cross-sectional study was done and data were collected from 123 farmers, 37 traders, 26 consumers, and nine key informants in central Uganda. Three focus groups were also held with 34 farmers. Data were analyzed using SPSS and Stata statistical packages. A multinomial regression model was adopted to determine factors affecting farmer participation in the market, and a Tobit regression run to estimate factors determining extent of participation.

Results:

1. Characterization of the OFSP chain

Results indicate that the OFSP chain is disorganized exhibiting distrust. Chain actors undertook dual functions in production and marketing. 48% of the farmers were commercial root producers, selling mostly to rural consumers (Fig 1). OFSP was the least traded sweetpotato variety (Fig 2). Consumers scored OFSP attributes lowest (Fig 3).

2. Factors influencing participation and extent of participation in OFSP markets

A Multinomial regression model based on three categories of participants: net buyers (n=21), autarkic (n=48) and net sellers (n=53) showed that fertilizer use, labor costs and rank of the OFSP enterprise within a farmer's portfolio were found to be significant for the autarkic category (Table 1). Similarly, experience in OFSP production and fertilizer use were significant for net buyers.

A Tobit model revealed that labor costs, fertilizer use, sex of household head, importance of OFSP in the farmers' enterprise portfolio and access to extension services and experience in growing OFSP were positively significant (Table 2).

3. Evaluation of constraints faced by OFSP commercial farmers.

The three types of constraints facing OFSP farmers evaluated, revealed that production constraints such as drought, pests and diseases (Plate 1 and 2), rotting of vines and roots and access to credit are the most important. Post-harvest related constraints included high perishability of roots and vines, drudgery of post-harvest practices and bulkiness, while market constraints included few reliable buyers, price fluctuation, limited access to market information, poor roads, and low preference of OFSP by traders and consumers.

Figure 1: OFSP root chain map

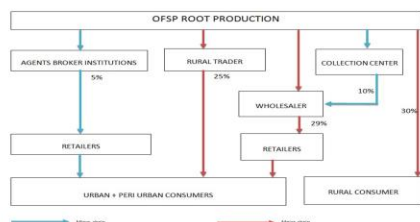


Figure 2: Traders perception for low demand of OFSP

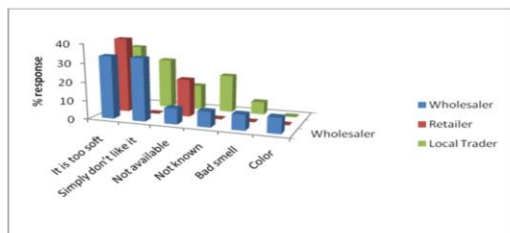


Figure 3: Consumer attribute preferences

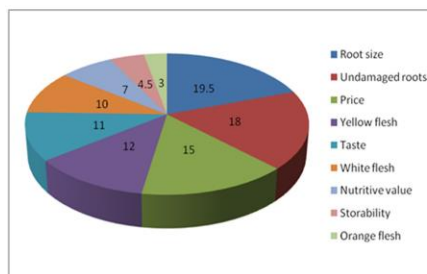


Table 1: Factors affecting the decision to participate in the OFSP roots market - Multinomial regression

Independent variables	Autarkic	Net buyers
No of year growing OFSP	0.100	0.061*
Total labor costs	0.008***	0.200
Fertilizer use	0.000***	0.093*
Ranking of OFSP in enterprise portfolio	0.019**	0.776
Constant	0.295	0.035
Number of observations=188 Prob>chi ² = 0.0138 Log likelihood = -100.406		

***Statistically significant at 0.01 ** statistically significant at 0.05 * statistically significant at 0.1

Table 2: Factors influencing extent of participation in the market - Tobit regression

Independent variables	p-value
Household head sex	0.059*
No of year growing OFSP	0.045**
log labor costs	0.000***
Fertilizer use	0.002***
Ranking of OFSP	0.067*
access to extension svc	0.035**
Constant	0
No. of observations = 188 Log likelihood = -490.54837 Chi ² = 0.000 Pseudo R ² = 0.0379	

***Statistically significant at 0.01 ** statistically significant at 0.05 * statistically significant at 0.1

Plate 1 and 2: Sweetpotato root damaged by weevil attack (right), sweetpotato plants infested with SPVD



Conclusions and recommendations:

The major dynamics affecting the performance of the OFSP chain in Mukono district were found to be uncoordinated activities and limited trust exhibited amongst the chain actors. The study recommends chain upgrading and development using the Agricultural Innovations Systems approach. Further research efforts could focus on gender transformative OFSP value chains, which seek to address challenges chain actors face throughout the chain in order to improve availability and consumption of OFSP.

References:

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 HarvestPlus (2012). Disseminating Orange-Fleshed Sweet Potato: Uganda Country Report. Washington, D.C., HarvestPlus: 12.
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