

Economic returns and smallholder participation in high value markets for African Indigenous Vegetables in rural Kenya

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Abstract

The existence of effective markets holds potential for maintaining a consistent supply of produce in rural areas and possibly ensuring adequate surplus for trade. This is critical in promoting the transition from subsistence production to vibrant commercial farming. In recent literature and policy debates, much focus has been on the growth of supermarkets, particularly in developing countries. However, there is limited documentation of the extent of penetration of and farmers' participation in other emerging high-value agri-food markets such as schools, hospitals and restaurants in the rural remote areas. In order to address this critical knowledge gap, this study analysed the effectiveness of such markets for African indigenous vegetables in Siaya county; a relatively remote lake-side rural area of western Kenya. The findings of the study revealed that less than one-tenth of the smallholder farmers sell their vegetables in high value markets. Surprisingly, the high-value markets have a marketing margin of over 60%, but smallholder farmers' share of this margin is less than one-third. Comparatively, traditional open-air markets have marketing margins of less than 30%; but this is fairly distributed as the farmers who supply open-air markets receive more than two-thirds of this margin. The findings from this study call for interventions that seek to improve the distribution of market margins along high-value markets so as incentivize smallholder farmers to supply their produce to these channels. Alternatively, it looks plausible to accelerate infrastructural investments in value-addition facilities in open-air markets so as to improve the commodity prices, enhance shelf-life and assure better quality to consumers. This would in turn guarantee better returns to smallholder farmers. It is envisaged that spending resources in making markets work for smallholder farmers will ultimately contribute to welfare improvement and development of the rural economic base.

Keywords: High-value markets, indigenous vegetables, Kenya, smallholder farmers

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1. Introduction

Over the past decade, in Sub-Saharan Africa, a couple of research initiatives have been on African Indigenous Vegetables (AIVs). In the context of food security, health and nutrition, poverty eradication and environmental sustainability, the initiatives are likely to continue increasing in the next decades (AVRDC, 2006). Kenya is no exception and the importance of AIVs production cannot be overlooked. About 60% of rural households depend on AIVs for food and income (Muhanji et al., 2011). Among the AIVs species produced and marketed in Kenya include; Amaranthas, Nightshade, Spider plant, Cowpea and *Crotalaria*; referred to in

the various local languages as *Terere, Managu, Sergeti, Kunde* and *Mitoo*, respectively (Irungu et al., 2007; Maundu et al., 1999).

Due to increased awareness of healthy food habits among households, demand for AIVs has considerably increased in both formal and informal markets (Ngugi et al., 2007). In addition, there has been an emergence of high value markets in rural areas offering higher prices for its suppliers, the major one being super markets. For instance, Neven and Reardon (2004), observed that supermarkets were growing at an annual rate of 18% and had gained a 20% share in the urban food market. Also, other high value markets like hotels, schools and hospitals have rapidly expanded in the rural areas creating a market for fresh produce. However, the supply of AIVs has not kept pace with the rising demand. A majority of smallholder farmers have not taken up the initiative to supply AIVs to these high value markets. Haggblade (2012) observed that in the domestic market, 55% of fresh fruits and vegetables produced by smallholder farmers' are sold to open air markets, while 33% to kiosks and groceries; only 4% find their way to supermarkets and other high value markets.

Previous studies on AIVs high value markets have tackled the revolution of supermarkets, implication on farmers' income and welfare and impact on poverty (Neven and Reardon, 2004; Rao and Qaim, 2011). Some have delved on access to high value markets for AIVs and substantial difference in profits realized (Ngugi et al., 2007). However, none of these studies has explicitly analyzed the effectiveness of such markets and smallholder farmers' participation in other high value markets besides supermarkets. This is the knowledge gap that the present study sought to address.

2. Methodology

2.1 Study Site and Sampling Method

The study was carried out in Siaya County, Western Kenya; characterized by high production of AIVs due to its proximity to Lake Victoria and River Yala. The area has a modified equatorial climate with annual rainfall of between 1170mm -1450mm and relatively high temperatures ranging from 15-30⁰C. According to FAO (2007) production of a diversity of AIVs thrive best in environments with similar temperature and rainfall ranges. A multistage sampling technique (Allen et al., 2002) was used to select a sample of 150 vegetable farmers. This sampling method has the rare advantage of considerably minimizing sampling errors. Data was collected through face-to-face interviews using semi-structured questionnaires.

2.2 Data Analysis

Economic returns were analyzed using gross margin analysis;

$$\text{GM}=\text{TR}-\text{TC} \dots\dots\dots (1)$$

$$\text{TR}=\text{Q}*\text{P} \dots\dots\dots (1.1)$$

$$\text{TC} = \text{TVC}-\text{TFC} \dots\dots\dots (1.2)$$

The effectiveness of high value markets was analyzed by computing marketing margins;

$$\text{MM} = \text{R}_p-\text{F}_p/\text{R}_p*100 \dots\dots\dots (2)$$

The farmer's share was also calculated;

$$F_P/R_P*100 \dots\dots\dots (3)$$

Where;

TR =Total revenue

TFC= Total fixed costs

TC = Total cost

TVC= Total variable costs

Q= Quantity of output in Kg

P= Price per Kg in Kenya shillings

MM = Total Gross Marketing Margin

R_P = Retail price per Kg of vegetable

F_P = Price per Kg of vegetable at farm gate

3 . Results and Discussion

The study revealed that there are various marketing outlets used by smallholder farmers of AIVs as summarized in Figure 1. The preference of the marketing outlet is primarily based on the percentage of the vegetable output sold to that specific outlet. The traditional marketing system is dominated with almost two fifths of farmers selling their AIVs to open-air markets. This is because of the timely and regular payment from the buyers. Moreover, it offers better prices for the vegetables compared with other traditional marketing outlets.

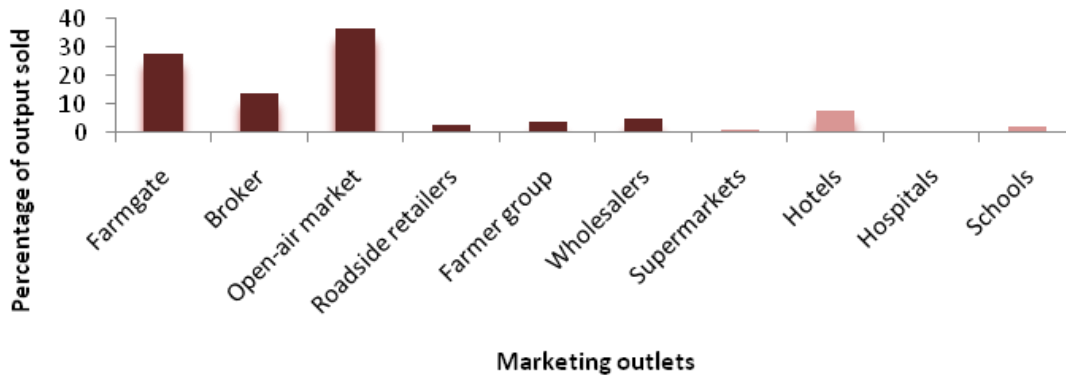


Figure 1: Market participation by smallholder farmers of AIVs

The farm-gate accounts for almost one third of the total output sold. The farmers find the farm-gate convenient as it saves them time and transaction costs; this is because the buyers mostly collect the vegetables for themselves. There is also the aspect of familiarity/trust between the buyers and farmers as the buyers frequent the farms from time to time. Participation in the emerging high value markets (schools, hospitals, hotels) is less than 13%. Most farmers attributed the poor participation to strict quality requirements, large and consistent quantities demanded from these markets.

As summarized in table 1, farmers who supply AIVs receive profits of more than ten times compared to those who don't. It is evident that high value markets have higher marketing margins of over 60%, however, farmers receive less than one third of the margin. Surprisingly traditional markets have a lower margin of slightly more than 30% but more than two thirds of it goes to the farmer.

Table 1: Comparison of marketing margins

	High value markets	Traditional markets
Total Revenue (Ksh)	72596.0	7332.0
Total Cost(Ksh)	28236.0	3909.0
Gross Margin (Ksh)	40360.0	3423.0
Marketing Margin (%)	64.3	22.3
Framer's share(%)	35.3	75.1

4 Conclusion and policy implications

Despite the existence of higher income opportunities in high value markets for AIVs farmers, participation is still poor. Low marketing margins coupled with stringent requirements could be partial contributors. The study recommends interventions that seek to distribute marketing margins along high value markets; this would be an incentive in enhancing their participation. Alternatively, accelerating infrastructural investments in value addition facilities in open air markets would be vital in increasing AIVs shelf life, quality and prices. This would guarantee better returns to smallholder farmers.

References

- (AVRDC) Asian Vegetable Resource and Development Centre. (2006). Empowering small-scale and women farmers through sustainable production, seed supply and marketing of African Indigenous Vegetables in Eastern Africa: Final report. Taiwan.
- Allen, M., Kilpatrick, D., Armstrong, M., Briggs, R. and Perez, N. (2002). Multistage cluster sampling design and optimal sample sizes for estimation of fish discards from commercial trawlers. *Fisheries Research*, 55: 11–24.
- Haggblade, S., Theriault, V., Staatz, J. and Diallo, B. (2012). A Conceptual Framework for Promoting Inclusive Agricultural Value Chains.
- Maundu, P. M. (1997). The status of traditional vegetable utilization in Kenya, in Guarino, L. (ed) *Traditional African Vegetables: Promoting the Conservation and Use of Underutilised and Neglected Crops*, Proceeding of the IPGRI International Workshop on Genetic Resources of Traditional Vegetables in Africa: Conservation and Use, 29–31 August 1995, Nairobi, Kenya, IPGRI, Rome, Italy
- Irungu, C., Mburu, J. and Maundu, P. (2007). Analysis of markets for African Leafy Vegetables within Nairobi and its Environs and Implications for On-farm Conservation of Biodiversity.
- Muhanji, G., Roothaert, R., Webo, C. and Mwangi, S. (2011). African indigenous vegetable enterprises and market access for small-scale farmers in East Africa. *International Journal of Agricultural Sustainability*, 9(1): 194-202.
- Neven, D. and Reardon, T. (2004). The rise of supermarkets and the evolution of their horticultural product procurement systems. *Development Policy Review*, 22(6): 669-699.
- Ngugi, I., Gitau, R. and Nyoro, J. (2006). Access to high value markets by smallholder farmers of African Indigenous vegetables. Tegemeo Institute of Agricultural Policy and Development, Egerton University.
- Rao, E. and Qaim, M. (2011). Supermarkets, farm household income and poverty: Insights from Kenya. *World Development*, 39(5): 784-796.