



CONSTRAINTS TO THE COMMERCIALIZATION OF INDIGENOUS VEGETABLE FARMING AMONG SMALL SCALE FARMERS IN ARUA DISTRICT, UGANDA

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ABSTRACT

Consumption of indigenous vegetables is widely recommended due to their higher nutritional value compared to exotic vegetables. Despite their potential, the commercialization of indigenous vegetable farming faces significant challenges. This study aimed to investigate these constraints in Arua District, Uganda. A survey research design was adopted, with a target population of 3,000 households. Using random sampling, 340 households were selected. Data were collected through structured questionnaires, and a pre-test was conducted with 20 households in Maracha District to assess the validity of the research instruments. The validity of the instruments was further confirmed by experts and supervisors from the Department of Agribusiness and Extension Management. The data were analyzed descriptively (frequencies and percentages) and inferentially (multiple regression) to determine the impact of various constraints on indigenous vegetable farming among small-scale farmers in Arua District. The findings revealed that constraints related to land, knowledge, seed availability, access to training, market access, and credit were significant ($P = 0.001, <0.05$) factors affecting indigenous vegetable farming in the district. Based on these findings, the study recommends that the government and key stakeholders take proactive measures to address these constraints to unlock the potential of indigenous vegetables as a solution to food insecurity in Uganda and globally.

Keywords: Constraints, Commercialization, Indigenous Vegetables, Farming

INTRODUCTION

According to the Plant Resources of Tropical Africa, approximately 6,376 useful indigenous African vegetable plant species exist (Wemali, 2014). Indigenous vegetables are valued for their fast growth, tolerance to local ecological conditions, and nutritional benefits (Wemali, 2014). They play a significant role in preventing chronic diseases such as heart disease, cancer, diabetes, and

obesity, and help alleviate micronutrient deficiencies, especially in less developed regions (Kingu, 2018). Indigenous vegetables are also easy to grow, requiring minimal expensive inputs like fertilizer or chemicals (Ochieng, J., Schreinemachers, P., Ogada, M., Dinssa, F. F., Barnos, W., & Mndiga, H. 2019). However, despite their benefits, the cultivation of these vegetables remains limited.

In Arua district, Uganda, agriculture is the primary livelihood for over 80% of households (Uganda Investment Authority, 2017). Arua has a strong base for agricultural raw material production, supporting local agro-processing industries. Major crops include cassava, beans, sesame, groundnuts, cowpeas, millet, maize, plantains, and sweet potatoes, primarily grown for household consumption with any surplus sold for income (Huib, H., Marleen, H., Henk, R., Asaah, N., Marlene, R., & Thomas, T. 2019). Yet, the cultivation of indigenous vegetables in Arua is minimal, highlighting a need to understand the constraints facing small-scale farmers in this region.

Across Africa, indigenous vegetable farming faces challenges such as insect pests, poor seed selection, inadequate seed management, and poor transport and handling infrastructure, leading to declines in production and traditional knowledge (Kizito, E. B., Masanza, M., Sseremba, G., Kabod, N. P., Kasharu, A. K., & Jaggwe, J. N. 2017). Byrnes (2018) found that in Kenya and Zambia, limited access to seeds, improved germplasm, and credit hindered farmers' ability to grow indigenous vegetables effectively. Schreinemachers, P., Simmons, E. B., & Wopereis, M. C. (2018), noted that governments must increase investments in farm productivity, postharvest management, food safety, and market access to fully realize the economic potential of these crops.

This study aims to identify and analyze the key challenges limiting indigenous vegetable production in Arua district, Uganda, with the goal of informing interventions to enhance production and support sustainable agricultural practices.

RESEARCH METHODOLOGY

This study adopted a survey research design to investigate the constraints affecting indigenous vegetable farming in Arua District, Uganda. The target population consisted of 3,000 households. A random sampling technique was employed to select a sample of 340 households.

Data were collected using structured questionnaires administered to the selected respondents. A pre-test of the instruments was conducted with 20 households in Maracha District to assess the effectiveness and identify potential weaknesses in the tools. The validity of the instruments was established through input from research experts and academic supervisors.

After data collection, the data were cleaned, coded, and analyzed using both descriptive statistics (frequencies and percentages) and multiple regression analysis to determine the overall effects of the identified constraints on indigenous vegetable farming in the study area.

RESULTS AND DISCUSSION

The study results are presented in the tables and discussed below.

Table 1: Constraints to indigenous vegetable farming in Arua District, Uganda

ASPECT	AGREE		DISAGREE	
	f	%	f	%
My piece of land is too small to grow IV	251	73.8	89	26.2
I lack knowledge on the importance of IV	43	12.7	297	87.4
Consumption of IV is less than exotic ones	245	72.1	95	27.9
Seeds of IV are not easily accessed	216	63.5	124	36.5
There is more training of exotic vegetable than IV	245	72.1	95	27.9
Infrastructure makes market accessibility hard	275	80.9	65	19.1
There is a micro finance for credit facilities to vegetables farming	115	33.8	225	66.2

Table 2. Multiple regression on overall effects of constraints on indigenous vegetables farming in Arua district, Uganda.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	236.207	1	236.207	314.942	.000**
	Residual	25.415	340	.075		
	Total	261.622	339			

The first item was intended to establish if the size of land was a hindrance to growing of IVs. Results reveal that a majority 251(73.82%) affirmed while 89(26.18%) declined. The findings show that the majority (73.8%) reported insufficient land for IV farming, indicating a significant barrier. This result aligns with Jiménez-Aguilar and Grusak (2017), who highlighted that rising populations in Sub-Saharan Africa contribute to food scarcity and malnutrition.

Secondly, there was need to find whether respondents had any knowledge on IVs. Results indicate that a majority 251 (73.82%) had this knowledge while 89 (26.18%) did not have any knowledge on IVs. This finding highlights a contradiction: while farmers understand IVs' nutritional value, they lack consistent knowledge dissemination from agricultural extension officers. This finding aligns with Kansime *et al.*, (2017), who emphasized the cultural significance of IVs in African diets.

Thirdly, respondents had to affirm whether consumption of IVs was less than that of exotic vegetables. Results show that 245(72.1%) affirmed and 95(27.94%) of them negated. A majority (72.1%) reported consuming fewer IVs compared to exotic vegetables, which supports Aleni's (2017) assertion that, despite their nutritional value, IV consumption in Uganda is declining, likely due to the introduction of exotic varieties

Fourthly, there was need to establish if their seeds are not easily accessed by farmers. Results show that 216(63.53%) who were the majority consented that those seeds were not easily available while for 124(36.47% indicated that seeds were available. From the findings, it can be noted that majority agreed that seeds of IVs are not easily accessed this concurs with the findings of Byrnes, (2018), in his study on IVs consumption in Kenya and Zambia who observed that the main challenge to production of obstacles indigenous vegetables was a lack of access to seeds this was confirmed further by, (Bua, and Onang.2017) who indicated that there is need to develop an improved system of seed production in Uganda.

The fifth item set out to establish whether there was more training on exotic vegetables than IVs. Results reveal that 245(72.06%) of respondents confirmed that this was so while 95(27.94%) of them disagreed. Seventy-two percent of respondents indicated that training sessions often favor exotic vegetables over IVs, which reflects a broader trend of prioritizing non-native crops. Mbhenyane (2017) noted similar biases in global food security policies, highlighting the overlooked potential of indigenous foods.

The sixth item sought to establish whether infrastructure made market accessibility complicated. Results reveal that 275 (80.88%) respondents confirmed that infrastructure was a challenge while a minority of them 65(19.12%) disagreed. Market access infrastructure was reported as a significant issue by 80.9% of respondents. This finding aligns with Omula (2016), who demonstrated that poor transport systems impede farmers' ability to distribute IVs, underscoring the need for improved infrastructure to support.

CONCLUSION

Based on the findings, it can be concluded that land availability, knowledge, seed access, training, market access, and credit availability are critical factors ($p < 0.05$) affecting indigenous vegetable farming among small-scale farmers in Arua District, Uganda. To unlock the potential of indigenous vegetables as a solution to food insecurity, the Ugandan government and key stakeholders should prioritize addressing these constraints through targeted interventions, such as improving seed distribution, providing farmer training, and enhancing infrastructure and financial support. Collaborative, conscious efforts at both national and global levels are essential to implement these solutions effectively.

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