

Research Application Summary

Characterizing smallholder onion farming in Sironko district: Implications for practice and policy in Uganda

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Abstract

The present study was conducted in four major onion growing sub-counties of Sironko district in eastern Uganda to investigate the socio-economics characteristics of red onion farmers. Primary cross-sectional data used for this study were collected using a structured questionnaire administered to 216 red onion farmers. Data were analyzed using descriptive statistics. Findings revealed that the average age of onion farmers was 39 years, with each farmer having about seven years of formal education and 15 years of onion growing experience. The onion farming households had on average seven members. Male farmers dominated onion production. Access to credit, agricultural extension and group membership were generally low. Most of the onion farmers had diversified into other agricultural enterprises and non-farm income generating activities. These findings suggest that given the importance of access to credit and agricultural extension, increasing onion farmers access to credit and extension would increase onion production and productivity. Given the income potential of onion production, there is need to empower women through self-help groups so as to increase their participation in onion production.

Keywords: Descriptive analysis, onion production, smallholders, Sironko district, Uganda

Résumé

La présente étude a été menée dans quatre sous-comtés majeurs de culture d'oignons dans le district de Sironko, dans l'est de l'Ouganda, afin d'étudier les caractéristiques socio-économiques des agriculteurs d'oignons rouges. Les données primaires transversales utilisées pour cette étude ont été collectées à l'aide d'un questionnaire structuré administré à 216 agriculteurs d'oignons rouges. Les données ont été analysées à l'aide de statistiques descriptives. Les résultats ont révélé que l'âge moyen des agriculteurs d'oignons était de 39 ans, chaque agriculteur ayant environ sept années d'éducation formelle et 15 années d'expérience dans la culture de l'oignon. Les ménages d'agriculteurs d'oignons comptaient en moyenne sept membres. Les agriculteurs masculins dominaient la production d'oignons. L'accès au crédit, à l'extension agricole et à l'adhésion à des groupes était généralement faible. La plupart des agriculteurs d'oignons s'étaient diversifiés dans d'autres activités agricoles et de génération de revenus non agricoles. Ces résultats suggèrent que compte tenu de l'importance de l'accès au crédit et à l'extension agricole, l'augmentation de l'accès des agriculteurs d'oignons au crédit et à l'extension permettrait d'accroître la production et la productivité de l'oignon. Étant donné le potentiel de revenus de la production d'oignons, il est nécessaire de donner aux femmes plus de pouvoir grâce à des groupes d'entraide afin d'accroître leur participation dans la production d'oignons.

Mots-clés: Analyse descriptive, production d'oignons, petits exploitants, district de Sironko, Ouganda

Introduction

Onion (*Allium cepa* L.) is an important vegetable that is most consumed globally due to its nutritional and economic values as well as its medicinal properties (Salih and Kka, 2022). The crop is ranked second among all vegetables for its economic importance after tomato (Tekeste, 2013). In comparison to other countries globally, Uganda ranks 30th in terms of productivity (yield per unit), 27th in terms of total volume produced and 15th in terms of total area under onion production (Bua *et al.*, 2017; Hanci, 2018). Uganda is the largest producer of onions in East Africa (Bua *et al.*, 2017). Although onions can be cultivated in any part of the country, it is majorly grown in the eastern Ugandan districts of Kapchorwa, Kween, Bukwo, Bududa, Naminsidwa, Bulambuli, Sironko, Manafwa, Tororo, and in western Ugandan districts of Rukiga, Kabale, Kisoro, Ntungamo, Kasese, Kabarole (Dijkxhoorn *et al.*, 2019).

Despite its economic and nutritional importance, onion production in Uganda is predominantly done in smallholder production systems. Productivity levels in such smallholder systems are relatively low with yields just below 5,000 kg/ha (Hanci, 2018). This is less than a quota of the world average of about 20,000 kg/ha (Ddamulira *et al.*, 2019). In order to understand the factors responsible for this low productivity of onions in Uganda, a descriptive study was undertaken as a starting point for possible future interventions. This study analyzed key socio-economic characteristics of onions farmers in Sironko district of Eastern Uganda.

Material and Methods

This study was conducted in Sironko district of eastern Uganda due to its predominance in red onions farming. This study adopted a cross-sectional design to collect data from four sub-counties in Sironko district. The sub-counties were selected purposively due to the high concentration of onion farmers. Primary data were collected from a sample of 216 onion farmers, using a pre-tested researcher administered questionnaires designed to contain questions on the socio-economic factors of interest. Informed consent was obtained from all participating farmers prior to data collection. Data were analyzed in SPSS version 25 using descriptive statistics. Analyzed data was presented in appropriate tables.

Results and Discussion

Table 1 presents the summary statistics of farmer age, farming experience, household size and land holding. It shows that the mean age of onion farmers in Sironko district was 39.4 years old. This mean is typical of mean age of onion farmer reported in previous studies (Grema and Gashua, 2014). It indicates that most onion farmers were at boundary between youthhood and adulthood, are could still be considered energetic. Onion production is intensive and tends to favor those who are energetic. On average, each onion farmer had 15 years of onion production experience. Each onion farming household had about seven members. The house sizes reported in this study depicts the household sizes of rural households in the Ugandan context (UBOS, 2016). Most of the onion farmers had seven years of formal education. This implies that they were mostly primary school leavers, who, have some basic literacy and numeracy skills. Basic literacy and numeracy skills play vital roles in technology adoption among smallholder farmers (Adnan *et al.*, 2019; Feyisa 2020; Takahashi *et al.*, 2020). Each onion farming household owned about 2.08

acres of land (approximately 0.9 ha) and rented about 0.12 acres of land. The total land under crop production at the time of study was 1.62 acres, with 90% being owned land. Each onion farmer allocated slightly less than an acre to onion production. The acreage allocated to onion production was about 41% of the total accessible land, and 44% of the total owned land. The proportion of land allocated to onion production implies that the farmers allocated a relatively large proportion of their land to onion production. With land being a limiting factor, farmers who allocated more of their land to cash generation are usually considered more empowered.

Table 1. Socio-economics characteristics of red onions farmers

Variables	Measurement	Mean	SD
Age of farmer	Years	39.36	12.73
Farming experience	Years	15.14	11.19
Household size	Number	6.59	3.62
Education level	Years of formal education	7.00	3.23
Owned size of landholding	Acres	2.08	1.84
Rented size of landholding	Acres	0.12	0.30
Owned land under agricultural production	Acres	1.48	1.50
Rented land under agricultural production	Acres	0.14	0.33
Land area under onion production	Acres	0.91	0.65

Source: Field survey (2022)

Table 2 presents results of the farmers categorical socio-economic characteristics. It shows that 73.1% of red onions farmers were male, and majority (91%) of whom were married. This finding implies that males dominated onion production. This is typically the case of most cash crops (Quisumbing, 2014; Kilic *et al.*, 2015). Only about 32% had access to credit. This implies that majority of the onion farmers had poor access to agricultural credit. Where farmers do not have adequate capital, access to credit plays a vital role in helping farmers acquire inputs including seeds, tools, fertilizers, pesticides in addition to expanding their farm business. Access to extension was also low for the onion farmers. Only 12.5% of the farmers had access to agricultural extension. This low level of access to agricultural extension among onion farmers could be the reason for the persistently low productivity of onion farmers. The low access to agricultural extension is further exacerbated by the low membership to associations. In this study, only 20% of the onion farmers were members of an association. Group membership is important for peer learning in addition to helping address several other farming related challenges including access to credit (Okello *et al.*, 2022). Results from this study also show that majority of the onion farmers were using either family land (47%) or personal land (24%) in their onion production. Only about 30% relied on hired land. Land tenure security play an important role in enhancing technology adoption and investments in farming (Paltasingh, 2018; Zahonogo and Séogo, 2019). Only two varieties were identified with majority (82%) of the farmers planting the red creole variety. The seeds were obtained mainly from the input's dealers. Planting was mainly through transplanting. Up to 16% of the onion farmers relied solely on onions as a source of livelihood, meaning that these farmers might be vulnerable to risks of crop failure or price fluctuation. That aside, over 55% of the onion farmers were also involved in other non-farm income generating activities. This non-farm

income generating activities cushions farmers against risk and uncertainties. In the face of risk and uncertainty, and increasing threats of climate change, both farm and non-farm livelihood diversification becomes critical in ensuring that farmers spread the risk. This might be the reason why only about 84% of the onion farmers also had other crop enterprises, while, more have also diversified into non-farm enterprises.

Table 2. Other characteristics of red onions farmers

Variables	Category	Frequency	Percentage (n=216)
Gender	Male	158	73.1
	Female	58	26.9
Marital status	Married	197	91.2
	Otherwise	19	8.8
Access to credit	Yes	47	21.8
	No	169	78.2
Access to extension service	Yes	27	12.5
	No	189	87.5
Member of an association	Yes	44	20.4
	No	172	79.6
Land ownership	Family land	101	46.8
	Hired land	64	29.6
	Personal land	51	23.6
Varieties grown	Afri seed	39	18.1
	Red creole	177	81.9
Method used in onion farming	By direct sowing	5	2.3
	By transplanting	170	78.7
	Both	41	19
Specialized only in onions	Yes	35	16.2
	No	181	83.8
Involved in non-farm activities	Yes	119	55.1
	No	97	44.9

Source: Field survey (2022)

Research Application

The findings of this study show that majority of the onion farmers had diversified into non-farm income generating activities. Such diversification plays a vital role in reducing and/or spreading the risk associated with primary production of agricultural crops including onions. This finding suggests that development intervention targeting vegetable production cannot ignore the roles of non-farm economic activities in cushioning the rural farmers against the risk associated with primary agricultural production.

Conclusion and recommendations

Onions have both economic and health benefits. For smallholder farming household, onion production can lead to significant increase in incomes. However, its productivity remains low.

This study assessed the descriptive features of onion farmers in Sironko district with the view of describing their socio-economic characteristics. Findings show that onion production was dominated by men, and was characterized by low access to credit and agricultural extension, in addition to low membership to associations. The low access to credit and extension services could lead to poor adoption of productivity enhancing technologies. Based on these findings, the study recommends enhancing women engagement in onion production, the provision of credit through locally sustainable approaches such as the villages savings and loan association (VSLA). In addition, policy prioritization should focus more attention incentivizing credit institutions to avail credit products suitable for onion farming along with educational programs that do not only focus on production techniques alone but also responsive to gender disparities among onion growing households.

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