

Socio-economic Characteristics Influencing Small-scale Farming in a Rural Community in Limpopo Province, South Africa



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ABSTRACT

The purpose of this research was to describe the socio-economic elements that influence small-scale farming in South Africa's Limpopo Province. The research used a qualitative method and randomly chose 100 farmers in the Sekhukhune District Municipality of Limpopo Province. A structured questionnaire was used to conduct the interviews. The generated data were analyzed using descriptive statistics. The research found that indigenous crop production was largely determined by six socio-economic variables: age, gender, marital status, educational attainment, income, and employment. Crops were grown to provide grains, vegetables, and fruits for household consumption. Indigenous crop farming can provide all community members with food security. The research concluded that adverse climate change has effects on food security, and socio-economic aspects might be taken into account in the creation of food security adaptation techniques.

Keywords: *Small-scale farming; crop production; socio-economic factors; food security; cultural heritage*

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INTRODUCTION

The production of subsistence crops through small-scale farming is prominent in rural areas where the majority of people still rely on natural resources for their living. Subsistence crops provide cereals, vegetables, and fruits that are consumed to fulfill daily nutritional requirements. Small-scale farming contributes significantly to household food security. In developing countries, the production of indigenous crops is intended to alleviate poverty and malnutrition among impoverished rural communities suffering from the negative impacts of climate change.¹ Using indigenous food crops as a substitute for sustainable agriculture and food security is a realistic option.² The association between socio-demographic characteristics and people's perceived priority for environmental and social issues revealed that level of education, type of occupation, socio-economic position, and urbanization all had a significant impact on reliance on indigenous crops for livelihood.³ These

- ¹ Fanti S. Pitso & Mmola R. Lebeso, "Traditional use of wild edible plants in arid areas of South Africa." *Journal of Human Ecology* 48 (2014): 29.
- ² N.R. Dlamini, T. Moroka, L. Mlotshwa, J. Reddy, & G. Botha, "Indigenous edible plants as sources of nutrients and health benefiting components (nutraceuticals)." Science Real and Relevance Conference. (Pretoria, Centre for Scientific and Industrial Research (CSIR), 2010): 1.
- ³ N.R. Murovhi, S.A. Materechera, & T.S. Mkhabela, "Socio-economic determinants of small-scale farmers' fruit trees leaf litter utilization for soil fertility management in a sub-tropical environment: The case of Mpumalanga, South Africa." *African Journal of Agricultural Research* 6 no. 32 (2011): 6674-6683.

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variables could be important in influencing food security through the use of available indigenous resources.⁴

When evaluating persistent patterns of subsistence farming, age and gender are crucial aspects to consider in food acquisition. Since the 1960s, South African research and extension have labeled subsistence crops as weeds, and this regrettable term has stigmatized these crops, particularly among young people, resulting in a decrease in their use.⁵

Coupled with this observation is the negative impact of less precipitation and increased temperatures, which hamper the production of subsistence crops for household consumption. Despite these findings, rural residents continue to grow indigenous crops in fields and home gardens as part of their cultural heritage, ensuring food security and reducing poverty and hunger.⁶ As a result, the emphasis of this article is on subsistence farmers' socio-economic characteristics and how they affect the long-term production of crops for home use. This study is significant because it indicates that these socio-economic characteristics must be addressed when developing food security adaptation techniques in the face of climate change consequences. Additionally, the increased number of women cultivating food crops in their backyard gardens might be exploited as a developmental tool by involving them in the decision-making team to guarantee their involvement in climate change adaptation efforts to assure household food security.

METHODS

A qualitative study was conducted in the Sekhukhune District Municipality of Limpopo Province, South Africa. The municipality is rural and covers an area of 13,528 km² with a population of about 116,976. The average household size is 4.7, with 51.2% of female-headed households. The unemployment rate is at 50.9%, while youth joblessness is at 60.6%. The people still produce indigenous food crops in their home gardens. Cultural heritage and indigenous knowledge systems are sustained by values such as rites of passage and the production of indigenous food crops.⁷ Random sampling was used to make up the study sample. Since the study is interested in subsistence farmers only, 50 farmers were randomly selected from two communities (Mohlaletsi and Masemola) in Sekhukhune District to have a sample size of 100 farmers. Semi-structured interviews were conducted to collect primary data about the socio-economic characteristics of the farmers, such as gender, age, marital status, household income, occupation, educational achievement, household size, and home-garden size, and how these variables influence the production of indigenous food crops. Data about the socio-economic characteristics of the farmers were analysed by means of descriptive statistics such as percentages, means, and frequencies. The results reveal three categories of indigenous food crops, namely grain, vegetables, and fruits.

⁴ J. Van Rooyen & S. Nene, "Small-farmer Development." *Farmer's weekly* November 8 (1996): 20.

⁵ Rachael Akinola, Laura Maureen Pereira, Tafazdwanashe Mabhaudhi, Trancia-Maree de Bruin, & Loubie Rusch. "A Review of Indigenous Food Crops in Africa and the Implications for more Sustainable and Healthy Food Systems". *Sustainability* 12, 3493 (2020): 30. doi:10.3390/su12083493.

⁶ S. Brooks & M. Loevinsohn, "*Shaping agricultural innovation systems responsive to food insecurity and climate change.*" Background Paper for the World Economic Social Survey. 2011.

⁷ Sekhukhune District Municipality Integrated Development Plan (IDP 2015/2016). Available at: <http://www.sekhukhunedistrict.gov.za/sdm-admin/doc>. Accessed 12 March 2021; Statistics South Africa (Stassa) Census, (2014). Pretoria: Statistics South Africa. Available at: www.statssa.gov.za. Accessed 18 December 2021.

RESULTS AND DISCUSSION**Respondents' socio-economic characteristics****Table 1. Socio-economic characteristics of respondents**

Socio-economic characteristics		Number of farmers	Percentage	
			Male	Female
Age	25-30 years	15	3	8
	31-40	20	9	11
	41-49	53	26	27
	50 -63	12	5	7
Gender	Man	35	-	-
	Woman	65	-	-
Marital status	Single	20	4	16
	Married	64	23	41
	Widow	8	-	8
	Divorced	3	-	3
Educational achievement	No formal education	8	1	7
	Primary education	39	11	29
	Secondary education	53	18	35
	Tertiary education	8	6	2
Household income	Less than R1000.	17	10	7
	R1500	4	2	2
	R2000	6	4	2
	R3000	5	4	1
	R4000	10	7	3
	<R5000	15	8	3
	>R5000	43	21	22
Occupation	Subsistence farming	16	7	9
	Government employee	49	10	39
	Self-employed	14	5	9
	Jobless	21	3	18
Household size	Less than 5	28	-	-
	Less than 10	57	-	-
	Above 10	15	-	-
Home-garden size	1 Hector	All households	100	-

The findings of the socio-economic variables affecting small-scale agricultural production are shown in Table 1. The findings indicated that respondents engaged in small-scale farming in their backyard gardens. The majority of responses (65%) were from women. The findings indicated that respondents engaged in small-scale farming in their backyard gardens. The majority of respondents (65%) were women. Despite their educational and job positions, 64% of these women were married and engaged in subsistence farming in their backyard gardens. This is corroborated by the majority of the women who obtained primary and secondary education qualifications, most of whom were employed in several government departments. The unmarried, single, widowed, and divorced women also grew subsistence crops to augment their homes' food needs.⁸

⁸ Samuel Ojelel, & E.K. Kakudidi, "Wild edible plant species utilized by a subsistence farming community in Obalanga sub-county, Amuria District, Uganda." *Journal of Ethnobiology and Ethnomedicine* 11 (2015): 7. DOI: 10.1186/1746-4269-11-7.

Subsistence farming in the study was characterized by women's active participation in crop production. Many respondents were aged over 40 years, indicating that subsistence food production is the responsibility of adult members of households as they fulfill their cultural obligation to procure food for their households. The respondents' educational attainment indicated that the majority of women were employed full-time in the cleaning and security divisions of government departments with a monthly income of about R5000, but still grew subsistence crops in their home gardens. Analysis for other occupations indicated that 37% of respondents relied on subsistence crop production for household consumption because they were full-time farmers, while the remainder were unemployed. According to the household size data shown above, 57% of respondents had fewer than ten people living with them. Around 28% of respondents lived alone or with fewer than five individuals. The biggest household had more than ten members, accounting for 15% of all households.

Subsistence crops produced by the respondents

Crops were cultivated in around 1 hectare-sized residential gardens. Planting begun after the first rains, often in October or January of the following year. Manuring the soil is not a popular technique, however, it is sometimes performed using cow or poultry dung. The crops were all cultivated on the same field. Simultaneously, the seeds were blended and sowed. *Leotja* (*Pennisetum picatum*) and *lebelethoro* (*Andropogon sorghum*) were the most often cultivated crops. Due to their sensitivity to granivorous birds, fewer respondents (26%) produced these crops. These crops have been phased out in favor of *lefela* (*Zea mays*).

Additionally, *lerotse* (fruit of *Citrullus vulgaris*) and *lefodi* (fruit of *Cucurbita pepo*) are produced, as well as *leraka* (fruit of *Lagenaria vulgaris*) and *ntsho* (fruit of *Sorghum vulgare*). *Legapu* (*Citrullus vulgaris*) of an indigenous origin is cultivated, as are legumes and, most notably, the fruits of *Vigna sinensis* and *Vosndzeia subterranea*. As the young crops sprout, the women eradicate the weeds using a hand hoe. *Lefodi*, *legapu*, *ntsho*, *lefela*, and *leraka* are gathered and eaten first. The agricultural season concludes around May to mid-June with the final harvest of the crops.

Grain derived from mature *Pennisetum* and *Zea mays* is used to make a firm porridge, which is the study area's primary diet. The grain is milled using a mortar and pestle or grinding stones. *Vigna sinensis* and *Voandzeia* were recognised as valuable crops with a variety of applications as relish and snack ingredients. Without any type of exchange, the crops are collected and utilized directly. Consumption of the crops ensures family food supply, and this is the reason why a majority of African rural populations practice subsistence agriculture in order to supplement their food supply.⁹

Socio-economic variables influence on subsistence crop production

Among respondents, subsistence crop growing was a widespread household activity. However, the analyses in this study showed that the respondents' socio-economic variables are significant determinants of the production of crops for household food security.

The data analysis revealed relationships between age, gender, marital status, educational attainment, income, and profession and indigenous crop production for household food security. These socio-economic characteristics are assumed to have an effect on the continuance of small-scale farming for the purpose of ensuring family food availability and accessibility. These factors were selected because previous research indicates that they may be significant in impacting food security through the use of available indigenous resources.¹⁰

⁹ L. Zemedu & W. Mesfin, "Smallholders' vulnerability to food insecurity and coping strategies: In the face of climate change, East Harargehe, Ethiopia." *Journal of Economics and Sustainable Development* 5 (2014): 89.

¹⁰ M.N. Baiphethi & P.T. Jacobs, "The contribution of subsistence farming to food security in South Africa". *Agrekon* 48 (2009): 465.

Age

Age is a significant socio-economic element impacting small-scale farming. According to the age distribution of answers, respondents aged 31 to 63 years (85%) were responsible for agricultural production. This means that community members in this age group, are responsible for providing food for their households, and are capable of locating alternate food sources. Age has a significant role in determining human thinking and responsibility.¹¹

Gender

The percentage of the respondents according to gender revealed that 65% of the total sample were women. This result showed that subsistence farming was the women's cultural obligation, in which they are the main food providers for their households. The high proportion of women farmers associated with marital status, income and age suggests the importance of these variables in influencing dependency on the production of subsistence crops for household consumption.¹² Additionally, the research area's high number of women respondents emphasizes the relevance of gender in climate change adaptation policies.

Marital Status

Of the respondents, 43% were not married, 20% were single, and 11% were widows. In single-parent households, the parents were responsible for the provision of food and had resorted to indigenous crop production as a supplemental source of food. Married women produced the crops in the home gardens to augment the household food resources while their spouses sought better opportunities in cities.

Education Achievement

The research found that a majority (53%) of respondents had completed secondary school, while just 8% had completed post-secondary education. Despite having completed secondary school, respondents cultivated subsistence crops in their backyard gardens to augment family food supplies. The findings indicated that education had a significant impact in addressing the demand for food security by using indigenous food resources. This practice represents a cultural heritage that is sustained as a means of ensuring household food availability and accessibility.¹³ On the contrary, the likelihood of producing the crops may decrease as people obtain higher education qualifications, implying that they would be able to afford the household food requirements.

Household Income

The study's most significant finding is that seven respondents earned less than R1000 per month, with the rest (93) earning between R1500 and R5000 per month. These respondents' ongoing dependence on small-scale farming, even when they can afford to feed their families, is reinforced by the fact that small-scale farming contributes significantly to household food security.

Respondents' Occupation

There was no association between respondents' employment and subsistence crop production that was statistically significant. This indicates that regardless of their work, all respondents grew subsistence foods in their backyard gardens. Self-employed farmers depended largely on this practice to meet their household food requirements. The results imply that subsistence crop cultivation is a cultural practice and that individuals

¹¹ A. Tafesse, G. Ayele, M. Ketema & E. Geta, "Food security and adaptation strategies to climate change in Eastern Ethiopia." *Business, Management and Economics Research* 1, (2015):39.

¹² Sejabaledi A Rankoana. "Rainfall scarcity and its impacts on subsistence farming: the role of gender and religious rituals in adaptation to change." *Agenda* (2016): 5.

¹³ J.D. Bayei & A.I. Nache, "The Effect of socio-economic characteristics of cattle farmers on the adoption of artificial insemination technology in Kaduna State of Nigeria." *Journal of Agriculture and Veterinary Science* 7 (2014): 15.

value and prefer home-produced food as a stable source of food security.¹⁴

Household Size

Of the respondents, 57% live in households with between six and ten individuals. Twenty-eight percent of families have less than five individuals, while fifteen percent have more than ten. According to the study's findings, regardless of family size or wealth, respondents planted indigenous food crops to augment nutritional needs. Food provision in bigger families is a significant concern as a consequence of South Africa's greater unemployment rate.¹⁵ In comparison to small-holder farmers with fewer members in their families, larger households are more likely to process or send more goods for agro-processing.¹⁵

Summary

The World Bank report reaffirms the importance of subsistence farming in ensuring food security for the rural poor,¹⁶ that the bulk of subsistence crops are used to close the relish gap in the fight against food insecurity.¹⁷ Poverty and food insecurity are intrinsically related to poor agricultural production, which is exacerbated by climatic unpredictability.¹⁸ This research has proven that subsistence crop production still provides the availability and accessibility of grains, vegetables, and fruits, which comprise basic foods. In addition age, gender, marital status, educational attainment, income, and employment determine the farmers' reliance on subsistence crop production for household food security.

CONCLUSION

The goal of this study was to examine subsistence farmers' socio-economic characteristics in Limpopo Province, South Africa and how they affect the long-term production of crops for home use. The research revealed the adverse effect of climate change on food security. Hence the identified socio-economic aspects must be taken into account in the creation of food security adaptation techniques by the various stakeholders.

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CONTRIBUTIONS OF THE AUTHOR

The manuscript is all mine. I was in charge of the design and manufacturing.

POTENTIAL CONFLICTS OF INTEREST

I thus declare that I have no conflicting interests.

¹⁴ T.M. Khoza, G.M. Senyolo, V.M. Mmbengwa, & P. Soundy, "Socio-economic factors influencing smallholder farmers' decision to participate in agro-processing industry in Gauteng province, South Africa." *Cogent Social Sciences* 5 (2019): 1664193.

¹⁵ F. O. Osundare, & A. O. Adekunmi, "Socio-Economic Characteristics of Food Crop Farmers and their Perception of Environmental Problems in Ekiti State, Nigeria." *Journal of Environmental Issues and Agriculture in Developing Countries* 6 no. 1 (2014): 10.

¹⁶ World Bank. World Development Report 2008 Overview: Agriculture for development. International Bank for Reconstruction and Development. (Washington DC, World Bank, 2007).

¹⁷ E. Musinguzi, J.K.. Kikafunda, & B. Kiremire, "Utilization of indigenous food plants in Uganda: A Case study of South Western Uganda." *AJFAND* 6 (2003): 26.

¹⁸ Rockefeller Foundation. *Africa's Turn: A New Green Revolution for the 21st Century*. (New York, Rockefeller Foundation, 2006: 11).

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