

Research Article

Journal of Agriculture and Horticulture Research

An Assessment on the Contribution of Subsistence Farming to Household Food Security in Mamokgadi Village, Mopani District, South Africa

Machete, M¹ and Rasila, B. N²

¹Development Studies, University of South Africa, South Africa

***Corresponding Author**

Mohale Machete, Development Studies, University of South Africa, South Africa.

²Research Fellow: Development Studies, UNISA

Submitted: 2026, Aug 06; **Accepted:** 2026, Aug 31; **Published:** 2026, Under Process

Citation: Machete, M., Rasila, B. N. (2026). An Assessment on the Contribution of Subsistence Farming to Household Food Security in Mamokgadi Village, Mopani District, South Africa. *J Agri Horti Res*, 9(3). 01-11.

Abstract

The study assessed the contribution of subsistence farming to household food security in Mamokgadi village. The main objective of this study was to assess the contribution of subsistence farming to achieving household food security. The study employed qualitative research to assess the contribution of subsistence farming to household food security in the study area. The study further incorporated quantitative research methods to address the limitations of qualitative research, particularly in terms of reproducibility and statistical robustness. The data collection process was conducted in two phases. Phase one involved administering a survey questionnaire to collect quantitative data from the 50 selected participants. Twenty participants from the first phase were selected for phase two of data collection, which involved qualitative interviews. To fulfill the study's aim and objectives, data were entered into Microsoft Excel and transferred to Statistical Packages for the Social Sciences (SPSS). Several SPSS tools were used to interpret and make sense of the gathered data. The findings show that although subsistence farming is essential for household food security and resilience, it also has obvious drawbacks in meeting all a household's demands. The results also highlighted the main obstacles that subsistence farmers must overcome, with market accessibility ranking as the most significant one, followed by a lack of capital and subpar farming tools. Rising heat, floods, and droughts brought on by climate change also threaten productivity and worsen household food poverty. Nearly half of farmers remain constrained by outdated practices and inadequate infrastructure, resulting in inequitable access to irrigation and water. The findings underscore the importance of empowering adolescents and women, expanding access to agricultural education, and providing financial support to promote subsistence farming, thereby achieving household food security.

Keywords: Subsistence Farming, Household, Food Security, Food Insecurity, Contribution

1. Introduction

Food security in the household remains a challenge for subsistence farmers worldwide, as they face numerous challenges, including poverty, unemployment, and low productivity [1]. The global causes of household food insecurity include high unemployment, water scarcity, poverty, and climate change, which limit subsistence farmers' opportunities to produce enough food for household consumption [1]. Globally, the COVID-19 pandemic has had a major impact on global food and nutrition security [2]. According to the State of Food Security and Nutrition in the World 2021 report, between 720 and 881 million people globally went hungry in 2020, representing a 161 million increase. Similarly, more than 2.37 billion people did not have enough food in 2020, up 320 million from 2019 [3]. The FAO (2021) also estimates that around 40% of the world's population cannot afford healthy food to meet

their dietary needs. This was largely due to disruptions to the food supply chain caused by the COVID-19 pandemic. Thus, several households have been affected by severe losses of livelihoods and revenue. These worldwide health crises have led to a slowdown in the global economy [3].

Inadequate food and nutrition security pose a significant threat in developing nations, particularly in rural areas. This is because rural residents often receive less attention to improving food security than those in urban areas. As a result, the global community committed to eradicating hunger and poverty by 2030 through the Sustainable Development Goals (SDGs) [4]. Since then, the United Nations (UN) has committed to developing and implementing evidence-based, pro-poor policies, initiatives, and programs through the food and agriculture sectors that promote inclusive growth, access

to social protection, decent employment, and the empowerment of men and women in agriculture. However, developing countries, especially those in sub-Saharan Africa (SSA), are most affected, which is why greater focus is being placed on them. The primary contributor to food insecurity in developing nations is absolute poverty, which hurts households' access to a sufficient supply of nourishing food [5]. Food insecurity is generally caused by poor agricultural technology, soil degradation, significant rural unemployment, climate change, limited access to natural resources, including land and water, and widespread poverty. Political unrest restricts the government's capability to assist the populace, socioeconomic hardships lower consumer spending, and environmental variables like decreased rainfall directly impact household food production [4]. By limiting import capacity, this affects food availability and makes it harder for people to get food as domestic food costs rise. The Global Report on Food Crisis (2023) indicates that large families in countries such as Malawi, Kenya, Ethiopia, and Somalia required food assistance in 2022. The cost of food and other necessities is rising, disproportionately affecting the poorest rural households, who lack sufficient purchasing power. Rural food security systems have been significantly impacted by rural populations' overreliance on buying often-pricey food items from grocery stores [6]. Own food production is a viable solution because rural people have access to significant land and face high unemployment rates [7]. The earliest method of survival used by humans was producing food through self-sustenance.

2. Literature Review

Subsistence farming is crucial for establishing food security among rural households in developing countries. According to The Global Economy (2019), agriculture in Sub-Saharan Africa (SSA) is important for economic growth and livelihood, employing 51.6% of the workforce and accounting for 20.5% of the region's GDP in 2016. Smallholder farming systems, defined as farms occupying less than 2 hectares, constitute the foundation of most agricultural production systems in SSA [3]. Currently, self-produced food crops account for only 20% of households' food needs in SSA [1]. As a result, smallholder farmers continue to face numerous obstacles in their pursuit of food security [6]. By generating jobs, raising household incomes, and reducing poverty, subsistence farming benefits household food security. The importance of subsistence farming in agricultural growth remains strongly contested. However, subsistence farmers are often ill-suited to the supply chain and lack the necessary scale in developing countries. Hence, there is growing evidence that family farms and subsistence farming are critical to feeding the world. This could not be the case in Mamokgadi village, as few studies have been conducted, especially on the contribution of subsistence farming to household food security. Therefore, this study assessed the role of subsistence farming in household food security in Mamokgadi rural areas and explored strategies to strengthen these systems, thereby better supporting the community's food needs.

3. Employment opportunities

Subsistence farming is crucial for creating employment opportunities. Although the primary goal of subsistence farming is

to meet the basic food and survival needs of agricultural households, it also generates employment and income [8]. Christiansen (2019) further indicates that the family's livelihood is impacted by this direct involvement in farming, which offers employment prospects [9]. Frelat (2016) also indicates that subsistence farming creates opportunities for seasonal employment, as additional labor is required during peak agricultural activities, such as planting and harvesting. This provides temporary employment opportunities for individuals who may not be engaged in full-time farming or have other livelihood activities [1,10]. According to Materu (2018), employment options outside of the farm gate are also influenced by subsistence farming [11].

Therefore, people in rural communities are employed in activities connected to the processing, packaging, storage, transportation, and selling of agricultural produce. Involving dealers, processors, transporters, and market middlemen, these value chain operations offer additional options for residents to generate revenue [12]. Subsistence farming also contributes to rural entrepreneurship. FAO (2022) states that farmers may participate in value-added activities, such as transforming agricultural products into jams, sauces, or handicrafts, which can be sold to locals, tourists, or in local marketplaces. These business endeavors not only provide jobs for farmers but also for people working in the supply chain and those involved in selling these items [13]. This suggests that subsistence farming contributes to rural household food security systems by generating employment opportunities and promoting rural entrepreneurship. Therefore, subsistence farming efforts should not be underestimated in creating employment opportunities.

4. Availability of Food

Subsistence farming contributes to household food availability, particularly in regions with limited access to modern agricultural techniques, infrastructure, and markets [14]. A reduced reliance on outside food sources is a key benefit of subsistence farming in improving food security [15]. Subsistence farming gives farming households a steady supply of food, reducing their sensitivity to changes in food costs and availability in distant or economically underdeveloped locations where access to markets may be difficult or expensive [16]. For subsistence farmers to feed their families and the surrounding people, they farm crops and raise cattle to provide food for their families and communities. By cultivating a variety of crops, including staple foods, fruits, and vegetables, subsistence farmers ensure a diverse and locally available food supply.

Yusriadi (2022) observes that food security in rural areas is influenced by several key elements, including subsistence farming for high production, storage, transportation, funding, and commerce [17]. The role of subsistence agriculture in ensuring food security must be investigated globally, particularly in emerging countries. Yusriadi (2022) also observes that, for the most part, food production has increased faster than population growth during the last fifty years [17]. The majority of the rise is attributed to family farms, particularly in Asia [3]. This indicates that subsistence

farming is a significant contributor to food production in both developing and developed countries, as it provides a critical source of food. Food availability will increase household access to food. These will bridge the gap left by food insecurity in rural regions.

5. Food Security Stability

Subsistence agriculture contributes to food security by enhancing stability. This is accomplished by lowering marketplace rates and introducing other measures [18]. This is also achieved by providing sufficient food for future generations, thereby eradicating poverty and achieving zero hunger at the household level. According to the FAO (2019), subsistence farming focuses on local food production to meet the immediate needs of farming households and local communities. This localized approach reduces dependence on external food sources and minimizes the impact of global price fluctuations, transportation disruptions, or trade restrictions [4]. Consequently, subsistence farmers are better equipped to maintain a stable food supply, even during regional or global food crises. According to the High-Level Panel of Experts on Food Security and Nutrition, subsistence farmers secure and retain a portion of their production, thereby providing protection against market instability [19]. This improves both the stability of the food security system and the economy's flexibility. Therefore, this shows that people can obtain food in multiple ways, including their own production and purchasing from the market, depending on the income generated from farming.

6. Source of Food Supply

Subsistence farming supports food sovereignty by giving communities authority over their food production and supply. The FAO (2019) indicates that subsistence farmers have the liberty to produce and select the type and quantity of food they require, rather than relying on external sources or market forces. This strengthens the local food supply chain and decreases vulnerability to shocks in global food systems. The FAO (2018) notes that food insecurity persists as a challenge for most households because unemployment remains prevalent in rural regions, and subsistence farming only provides for those who undertake it; it is not a viable solution for every household [20]. These are caused by low production and subpar farming infrastructure that subsistence farmers use due to a lack of funding to boost yields [21]. According to Higgins (2018), the agriculture sector has the full potential to reduce the occurrence of food scarcity in the world by increasing global food supply. This can be accomplished by expanding economic opportunities for the impoverished and improving the nutritional diversity and quality of food produced by households. Producers increase the home food supply by growing enough food for consumption and selling it to supplement the family's income. Posel (2021) agrees that stronger and more productive subsistence farming can lead to a viable food system [22]. This suggests that subsistence agriculture in rural regions should be more robust and productive to establish a home food security network.

7. Food Access

Subsistence farming is essential for establishing food security since it ensures access to food. Food availability can be decided

in a variety of ways, such as through self-production, income, contributions, and involvement in the cash crop market. Subsistence farmers produce enough food to feed their families, whereas those who are unable or unwilling to cultivate rely on contributions. Food access is critical to satisfying food needs. The farmers' entitlements govern who benefits from food and nutrition security. According to Wenhold (2015), food access must be adequate in both quantity and quality for a smallholder farmer's household to be food secure [23]. Similarly, Weggins (2013) says that food should be provided to provide smallholder farmers with an adequate and consistent supply of energy and nutrients from low-cost and socio-culturally acceptable sources [16]. To ensure adequate food, adequate healthcare must be provided [20]. This means that smallholder subsistence farmers will continue to rely on government and other stakeholders to meet their food production needs. Subsistence farming will provide people with additional food options, resulting in a more sustainable food system. This illustrates the significance of subsistence farming and how government support can alleviate household food insecurity.

8. Influence Market Food Prices

The primary goal of subsistence farming is to provide enough food for the farmer's consumption and subsistence; hence, it typically has little direct impact on market pricing (OECD-FAO Agricultural Outlook 2016). It is important to remember that because the demand for staple foods is inelastic, any rise in demand can result in price hikes. FAO (2020) indicates that local markets are frequently impacted by the supply and demand dynamics of subsistence farmers in areas where it is common [10]. When subsistence farmers produce more food than they need, they may sell the surplus in their local markets. Assefa (2020) observes that the prices on the local market can be impacted by the quantity of items supplied by subsistence farmers, particularly for perishables or crops with high local demand [24]. Production patterns for subsistence farmers often follow a seasonal pattern, with peak harvests occurring at specific times of the year (FAO, 2019).

These seasonal variations in supply can impact market prices. This supports Singh's (2020) argument that increased supply can temporarily lower prices during harvest seasons when subsistence farmers sell their produce on the market [25]. On the other hand, during times of scarcity, when subsistence farmers have little to offer in excess, prices may rise due to higher demand and lower supply. However, Posel (2015) indicates that the contribution of subsistence farmers to the home food system has led to a decline in market food prices, as subsistence farmers are recognized as a key source of food producers. More food is produced for subsistence agriculture, resulting in lower market food costs (OECD-FAO, 2016). This, in turn, increases the amount of food available for consumption. Additionally, subsistence farming supports the food security systems in rural and urban areas where high marketing and transportation expenses can raise food prices [20]. This demonstrates how a major contributor to lowering food market prices is subsistence farming [4]. This indicates that to combat food insecurity in rural and urban regions, subsistence agriculture should be properly implemented while lowering high food prices

in the market.

9. Food Poverty Situation

Food poverty, according to Morrison (2016), is the inability to obtain affordable, wholesome food [12]. Due to these negative effects, there will be fewer selections from a smaller menu, lower access, poorer health, and a higher percentage of income spent on food. According to Assefa (2020), there is little question that subsistence farming significantly reduces poverty in both developed and developing nations [24]. Food produced by subsistence farmers often fails to meet their nutritional needs. According to Wiggins et al. (2013), subsistence farmers used to grow enough food to feed their family and save enough for later use [16]. They preserve food for later use, such as dried corn, on the customary kraal, but the meals they prepare are unhealthy and unfit for human consumption. Averbeké and Khosa (2007) claim that the majority of households still experience food and nutrition insecurity, making subsistence farming inefficient [26].

However, according to Herforth (2015), reducing poverty depends on the composition of growth, particularly in terms of the heavy use of unskilled labor, which is the kind of input that the impoverished can provide to the production process [18]. According to De Janvry and Sadoulet (2010) while self-production is more sustainable and can contribute to household food systems, agricultural expansion is approximately three times more effective in reducing poverty than manufacturing growth [27]. Nevertheless, unemployment remains a significant problem in rural regions. To develop a system of food security for rural households, subsistence agriculture must be enhanced. This aligns with the principles of the Sustainable Development Goal of zero hunger and NDP 2030.

The literature review of this article points out that food insecurity remains a global issue, affecting many countries worldwide. The contributions of subsistence to rural household food security systems are discussed in detail in this chapter, from an international perspective to the national level, and then narrowed down to the study area. This includes alleviating food poverty, improving food access, enhancing food availability, creating employment opportunities, and influencing market prices. These contributions aim to close the gap in food availability in developing countries, where unemployment and poverty are prevalent. However, the contribution of subsistence farming to rural household food security is acknowledged. The contribution helps rural households determine what goes into their food basket, as this is influenced

by the family's economic status. These options also help them make informed choices about what to consume. Nevertheless, subsistence farmers continue to face food and nutrition insecurity due to low levels of production, poverty, and unemployment in rural areas.

10. Conceptual Framework

The Theory of Change, which emphasizes increased self-production as a means to empower rural households to control the composition of their food baskets, provides the theoretical foundation for the current study. This strategy aims to empower rural households, creating a robust and sustainable system of food security that will endure for generations. The rationale behind the concept is derived from the convergence of various socioeconomic factors, including work status and household income, as well as the broader food security system, which encompasses food production, distribution, availability, accessibility, and consumption (Figure 2.1). The study's selection of the Theory of Change is justified, as it offers a comprehensive approach to addressing the complex issues of food and nutrition security in rural regions. The framework tackles the core causes of food insecurity by incorporating long-term goal planning, empowerment, economic considerations, and nutritional education. Adopting a comprehensive approach ensures that interventions are both immediate and long-lasting, thereby building a robust food security system that benefits both current and future generations.

This study focuses on empowerment and self-sufficiency by enhancing self-production, promoting sustainable agriculture, and providing necessary tools to help households control their food production and consumption. Key interventions include distributing farming materials, easing access to financial resources, and providing agricultural training to build a foundation for long-term food security. Addressing economic factors such as household income and job opportunities through microfinance and income-generating activities is crucial for facilitating better food choices and effective financial planning. The framework also encompasses essential components of the food security system, including production, availability, accessibility, distribution, and consumption, ensuring a reliable food supply and accessibility through improved market infrastructure and enhanced agricultural productivity. Furthermore, the study emphasizes the significance of nutritional practices plus education, proposing community workshops on food preparation, nutrition, and dietary diversity to enhance overall nutrition and food security.

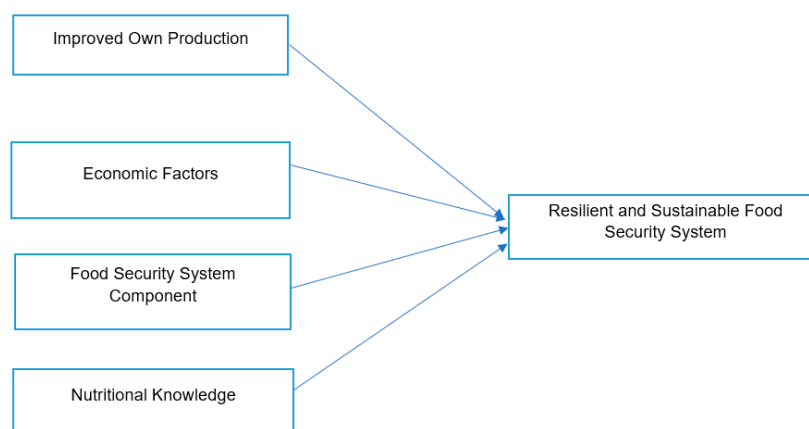


Figure 1.1: Improved Own Production for Enhanced Food Security

11. Research and Methodology

This study employed a qualitative research design guided by the principles of Participatory Rural Appraisal (PRA). Participatory rural appraisal is a research methodology that emphasizes the importance of involving local communities in data collection, analysis, and decision-making. In addition to the qualitative Participatory Rural Appraisal (PRA) approach, this study incorporated a quantitative research method to address the limitations of qualitative data, particularly regarding generalizability and statistical robustness. By adopting a mixed-methods approach, the study triangulated data, combining in-depth qualitative insights with quantitative measures to provide a more comprehensive analysis of the impact of subsistence farming on rural household food security.

This study used both quantitative and qualitative data collection methods to examine food security among subsistence farming households. Quantitative data were gathered through a pretested survey questionnaire with closed-ended questions. The survey questionnaires enabled farmers to rank and score factors influencing their food security, including funding, water access, and market availability. The questionnaires' design was based on the aims and questions of the opinion statements to better understand how participants perceive the role of subsistence farming in household food security systems. On the other hand, qualitative data were collected through semi-structured, open-ended interviews conducted with 20 household heads in their homes, which took 30 to 60 minutes each. This face-to-face approach enabled researchers to observe nonverbal cues and engage in more in-depth discussions, thereby enriching the data collected. Thematic coding analysis is used for qualitative data in the study, while descriptive and inferential statistics are used for quantitative data. To determine whether variables in the study, such as subsistence farming methods and rural household food

security levels, exhibit a significant linear relationship, the Pearson correlation test was employed. The quantitative data were captured in Microsoft Excel and then imported into the Statistical Package for the Social Sciences (SPSS).

12. Findings

These findings were collected in Mamokgadi village from household heads engaged in subsistence farming to achieve household food security for survival. These results highlight that subsistence farming contributes positively to household food security systems by creating employment opportunities, increasing household income, and alleviating poverty, among other benefits. The sections focus on variables such as the proportion of food produced, the employment of family members on the farms, the income generated from practicing subsistence farming, and the proportion of food given away.

13. Proportion of Food Produced

The amount of food produced plays a significant role in contributing to the household's food security status. Figure 1.1 presents a bar graph showing quantity levels produced or harvested from recent practices of subsistence agriculture. As shown in Figure 1.1, the results for recent production or harvest from practicing subsistence agriculture indicate that the majority of respondents (47%) reported producing "little". A smaller proportion, 34%, stated that they harvested "enough" to meet their needs, while 19% reported producing "too little". Two farmers said:

Participant 4: *"I produce enough vegetables and maize for my family. I dry the maize and take it to the milling and use it in the future".*

Participant 14: *"The quantity of food produced is not enough for the family and extended family. However, the food produced assists in the household".*

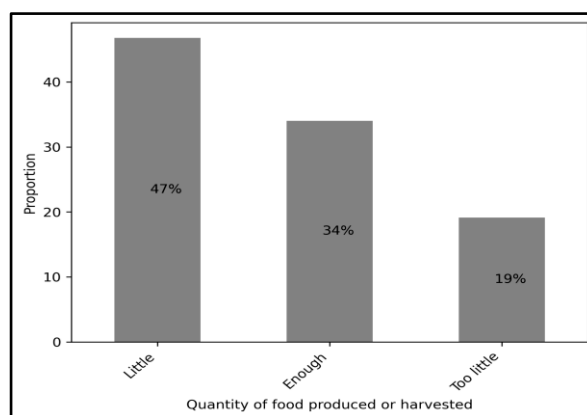


Figure 1.1: Bar graph showing the frequency distribution of recent subsistence agriculture production levels

14. Proportion of Food Given Away

Figure 1.2 presents a bar graph showing the frequencies of the proportion of produce sold or given away by households. The graph shows that the proportion of products sold or given away indicates that the majority of respondents (64%) sell or give away only a small amount (0-20%) of what they grow. About 31% reported selling or giving away some of their produce (20-40%),

while only 5% stated that they distribute half (40-60%) of their produce. Two respondents stated:

Participant 2: “I give away some vegetables to my family members who are not engaged in subsistence farming”.

Participant 6: “I give away some food to the community members to supplement their food”.

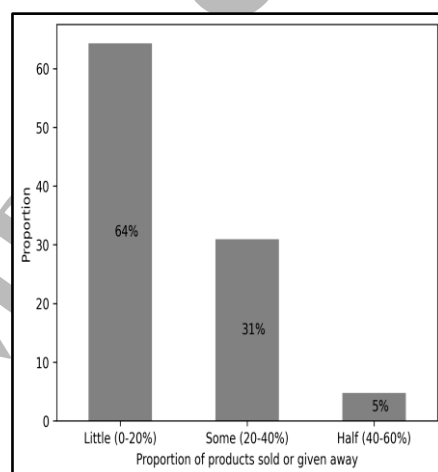


Figure 1.2: Frequency distribution of the proportion of produce sold or given away by households

15. Members of the Family Employed

Figure 1.3 presents a bar graph depicting the frequency distribution of family members employed at the farm. As shown in Figure 1.4, 51% reported employing fewer than two family members,

followed by 23% who employed three family members, 21% who employed four family members, and 4% who employed more than five family members.

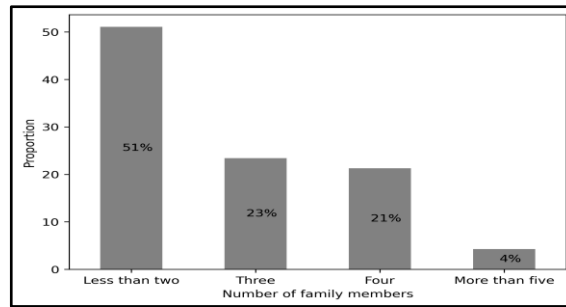


Figure 1.3: Frequency distribution of the number of family members employed at the farm

16. Income Generated from Subsistence Farming

Figure 1.4 presents a bar graph summarizing the frequencies of income generated from practicing subsistence agriculture. As shown in Figure 1.4, the results show that most respondents generate a relatively low income from practicing subsistence

agriculture. Specifically, 41% earn less than R100, while 39% earn between R101 and R400. Only 20% reported earning more than R400. This result suggests that subsistence farming among the surveyed participants is primarily aimed at achieving food security rather than generating income.

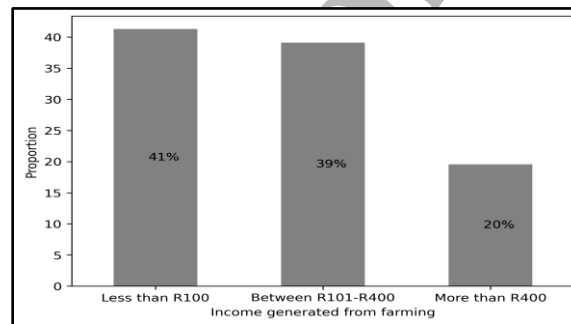


Figure 1.4: Frequency distribution of the amount of income generated from practicing subsistence agriculture variable

17. Income Generated Spent on Food

Figure 1.5 presents a bar graph summarizing the frequency distribution of the amount of income generated for household food consumption. The findings indicate that the majority of respondents (50%) spend less than R100 of their income from subsistence farming on household food consumption. About 33% allocate between R101 and R400, while only 17% spend more than R400 on food. Two respondents stated:

Participant 11: “I spent money on buying food because the money I generate from practicing subsistence farming is not sufficient. I use my money to buy milk, cheese, meat, and other household necessities”.

Participant 20: “I spent all the money generated from subsistence farming to supplement the household's food needs, and this money is not sufficient as I cannot buy all the food required by the household to meet the dietary intake”.

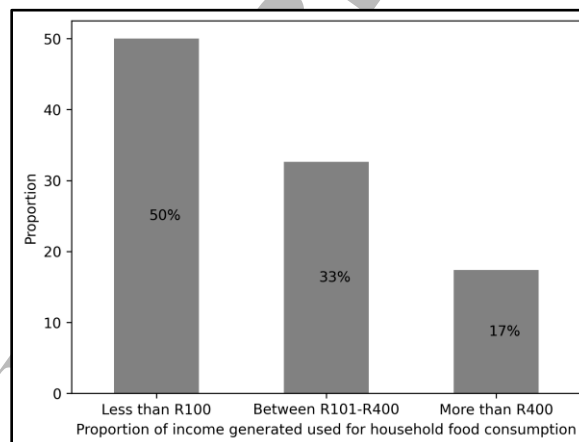


Figure 1.5: Frequency distribution of the amount of income generated from practicing subsistence agriculture variable

18. Discussion of Results

18.1. Proportion of Food Produced

The findings suggest that a significant number of households may be experiencing limited agricultural output, which could affect their overall food security. The results suggest that food production could be affected by land issues, as indicated by participants who stated that the land is not fertile enough to produce sufficient food, and they lack the funds to purchase supplements to support their farms because they are self-employed and work on the farm. These results support Frischen (2020) who posits that agricultural productivity may be negatively impacted by rising temperatures and heatwaves [28]. Those who indicated that they produced enough food also said that the food they produced did not meet their household food needs, as they only produced maize and vegetables.

These findings suggest that concerns about nutritional value persist as a problem in rural areas despite subsistence farming making a substantial contribution to household food security. Although staple crops like maize, sorghum, or cassava offer bulk calories, they may not satisfy a household's varied nutritional needs. This is the case for the majority of subsistence farmers. This indicates that although families may have enough food to satisfy hunger, they often do not consume sufficient proteins, vitamins, and minerals in their diets, which are essential for overall health and wellness. This suggests that subsistence farmers should be encouraged and supported to diversify their farming practices by incorporating nutrient-rich crops, such as fruits and legumes. Additionally, farmers could benefit from agricultural extension services and nutrition education by learning the value of growing a range of foods that contribute to both food quantity and dietary quality. Subsistence farmers may be able to complement their own production with the support of strengthened market access and connections to food value chains, which could ultimately lead to improved household nutrition outcomes and more balanced diets.

18.2. Proportion of Food Given Away

Most households retain the bulk of their agricultural output, likely for household consumption and food security. The findings show that the nature of subsistence farming in the study area is primarily focused on producing food to meet household needs rather than generating income. The small portion of produce that is sold or given away may serve as a coping mechanism to preserve social networks by sharing food with neighbors, extended family, or community members, or to meet immediate financial demands (such as paying school fees or purchasing non-food necessities). The minimal commercialization of food may also represent various problems that subsistence farmers confront, such as restricted access to local markets, insufficient infrastructure, low production volumes, and a lack of expertise about agricultural operations. The findings align with Yusriadi (2022) who notes that food security in rural areas is influenced by several factors, including subsistence farming to ensure high productivity, as well as storage, transportation, funding, and trade [17]. As a result, households choose self-sufficiency over market participation. While this strategy maintains food supply within the

household, it may limit chances for income diversification and economic empowerment, particularly for those with the potential to expand production. Furthermore, the findings suggest that while subsistence farming is crucial for household food security, it makes a minimal contribution to overall economic growth and rural development. Future interventions should therefore examine ways to improve market access, provide value-added training, and assist smallholder farmers in balancing home consumption with long-term surplus output for sale or exchange.

18.3. Members of the Family Employed

The majority of subsistence farming households rely on a very small labor force, usually consisting of one or two family members, which may reflect the limited size and scale of their farming activities. This aligns with Christiansen (2019), who suggests that family members and possibly hired labor are required for labor-intensive activities associated with subsistence farming [9]. Families participate in a variety of farming tasks, including preparing the land, planting, weeding, harvesting, and post-harvest work. The low levels of family labor involvement may also indicate that farming is frequently practiced alongside other livelihood activities, such as wage labor, small-scale enterprises, or social grants, reducing the number of household members available or willing to work in the fields. Families with larger land plots or those that produce at somewhat higher levels and require more hands to handle their agricultural responsibilities may be represented by the modest percentage of households with more than four or five employees. These are still a minority, though, indicating that subsistence farming is often low-intensity and focused on survival rather than large-scale output in the study area. These results also highlight the crucial role of family work in maintaining rural farming systems, as most households cannot afford to hire outside help. The fragility of subsistence farming is further highlighted by this dependence on household members, as family size, health, and the availability of members to assist with farming activities are all directly related to productivity.

18.4. Income Generated from Subsistence Farming

Subsistence farming among the surveyed participants is primarily aimed at achieving food security rather than generating income. The findings provide evidence that the primary goals of subsistence farming in the study area are primarily for household consumption and food security, rather than income generation. Households primarily produce for survival and sell relatively little surplus, if any, highlighting the inadequate commercialization of agricultural activities. Rather than actively participating in market sales, the majority of respondents retain most of their food for domestic consumption, a finding consistent with previous research. The low income levels also suggest that subsistence farmers in the study area face structural challenges. Such challenges include limited market access, inadequate transportation, poor infrastructure, insufficient agricultural inputs, and small landholdings, all of which hinder the profitability of farm produce. Likewise, Vitale (2019) indicates that subsistence farmers lack access to well-established market infrastructure, such as warehouses, processing plants, and transportation systems. This may affect their ability to

transport goods to distant markets, add value to their products, and maintain perishable commodities.

Similarly, Heforth (2020) argues that transporting agricultural products for subsistence farmers is often difficult, especially in remote areas with poor road systems or limited access to transportation. Reliance on conventional farming practices and unpredictable weather patterns may further limit productivity, thereby diminishing the possibilities for income generation. Furthermore, the results support the claim that, rather than being a steady source of livelihood income, subsistence farming in rural areas acts as a safety net for food supply. Then, it would be necessary to implement interventions, including improved market access, agribusiness skills training, crop diversification support, and the encouragement of cooperatives or farmer associations, to move subsistence farming toward making a significant contribution to household income.

18.5. Income Generated Spent on Food.

A significant portion of income generated from subsistence farming is either insufficient or partially directed toward household food needs. Households typically spend very little money on extra food purchases because they produce most of their staple foods themselves. However, Biyase (2023) argues that households spend more money to supplement or meet their food needs [29]. Thus, low incomes from subsistence farming also constrain household expenditures, limiting their ability to purchase nutrient-dense foods such as meat, dairy, fruits, and vegetables and thereby reducing dietary diversity [30]. This supports FAO's (2020) claim that subsistence farmers often utilize low capital-to-labor ratios, employing more labor than capital to produce food [10].

Households typically spend very little money on extra food purchases because they produce most of their own staple foods. However, low incomes from subsistence farming also constrain household expenditures, limiting their ability to purchase nutrient-dense foods like meat, dairy, fruits, and vegetables and thereby reducing dietary diversity. A socioeconomic gap is highlighted by the comparatively small percentage of respondents who spend more than R400 on food, as only a limited number of households can augment their own output with sizable market-based food expenditures. This might be related to variations in land production, household size, or the availability of other sources of income. Furthermore, these results highlight the two challenges subsistence farmers face. Although their output provides some food for the household, their low income limits their ability to purchase a variety of nutrient-dense foods from the market. Even when basic food security in terms of calories is attained, this circumstance means that dietary deficiencies and malnutrition risks persist in rural households. Therefore, they should be supported in diversifying their incomes to complement subsistence farming in rural areas.

The findings show that own production remains the primary source of food for subsistence farmers in the study area, who mainly engage in farming with a primary focus on improving their

own production and consumption. These findings reveal that, even though subsistence farming contributes to household food security in rural areas, households still face difficulties achieving it. These include lack of access to the market, financial assistance to sustain their farming, and transportation from the farm to the market.

19. Conclusion

This study assessed the contribution of subsistence farming to household food security in Mamokgadi Village, highlighting its vital importance as both a livelihood strategy and a resilience mechanism for rural households. The findings show that most households' principal source of food remains their own agricultural produce, significantly reducing reliance on the commercial food market. Subsistence farming thus remains a vital safety net, providing not only nutritious food but also social and economic stability within the community. The study reveals that subsistence farming in the study area remains a crucial part of household food security through the production of food for survival, despite the challenges subsistence farmers face in achieving it. The study results indicate that demographic variables, including age, gender, marital status, education, and socioeconomic status, significantly influence participation in subsistence farming. The sector is primarily supported by older, low-income individuals who are self-employed or unemployed and rely on agriculture for subsistence. Despite participants' relatively high levels of formal education, a lack of specialized agricultural training limits the adoption of new technologies and techniques. As a result, productivity is poor, and farmers are frequently hampered by inadequate tools, insufficient finance, and limited access to markets and irrigation infrastructure.

Due to the adaptability of local agro-ecological conditions, maize remains the most popular crop. However, farmers are exposed to climate-related hazards, including droughts, floods, and rising temperatures, since they rely on conventional practices and on rainfall. Efforts to achieve home self-sufficiency and sustainable food production are nevertheless hindered by these issues, which are exacerbated by resource constraints. This article proposes that policymakers should prioritize investments in rural agricultural infrastructure, including farming equipment, irrigation systems, and storage facilities. Government ministries at both the municipal and provincial levels should establish targeted programs to help subsistence farmers obtain access to essential equipment and inputs. Strengthening agricultural extension services is also critical to providing ongoing technical support and training in sustainable, climate-resilient farming methods. Financial institutions, in partnership with the government and development partners, should create cheap loan schemes, grants, and revolving funds for small-scale and subsistence farmers. These financial initiatives will enable farmers to purchase high-quality seeds, fertilizers, and advanced equipment, thereby enhancing their productivity. Supportive financial policies should also aim to reduce administrative barriers that frequently prevent rural farmers from accessing funding opportunities.

Ethics Approval

This study was approved by the Unisa Research Ethics Committee.

Ethics clearance reference number: (Rec-240816-052). The consent form was approved by the committee, and participants provided consent.

Ethical Accordance

The study was carried out in accordance with the guidelines of the Unisa Research Ethics Committee. Ethics clearance reference number: (Rec-240816-052)

Consent to Participate

Informed consent was given by all participants involved in this study.

Consent for Publication

Not applicable.

Competing Interests

The authors declare no competing interests

Author Contribution

Machete M, writing of the original draft of the manuscript, reviewing the literature, methodology, data collection, data capturing, and analysis. Rasila, supervision, coaching, and final editing of the manuscript.

Funding

Not Applicable

Availability of Data and Materials

The data will be made available on reasonable request.

References

1. Frelat, R., Lopez-Ridaura, S., Giller, K. E., Herrero, M., Douxchamps, S., Djurfeldt, A. A., ... & Van Wijk, M. T. (2016). Drivers of household food availability in sub-Saharan Africa based on big data from small farms. *Proceedings of the National Academy of Sciences*, 113(2), 458-463.
2. Barrett, C. B. (2020). Actions now can curb food systems fallout from COVID-19. *Nature Food*, 1(6), 319-320.
3. Canton, H. (2021). Food and agriculture organization of the United Nations—FAO. In *The Europa directory of international organizations 2021* (pp. 297-305). Routledge.
4. Canton, H. (2021). Food and agriculture organization of the United Nations—FAO. In *The Europa directory of international organizations 2021* (pp. 297-305). Routledge.
5. Onori, F., Viviani, S., & Brutti, P. (2023). Towards Global Monitoring: Equating the Food Insecurity Experience Scale. Models for Data Analysis: SIS 2018, Palermo, Italy, June 20–22, 402, 205.
6. Van Ittersum, M. K., Van Bussel, L. G., Wolf, J., Grassini, P., Van Wart, J., Guilpart, N., ... & Cassman, K. G. (2016). Can sub-Saharan Africa feed itself?. *Proceedings of the National Academy of Sciences*, 113(52), 14964-14969.
7. Woodhill, J., Kishore, A., Njuki, J., Jones, K., & Hasnain, S. (2022). Food systems and rural wellbeing: challenges and opportunities: Woodhill. *Food Security*, 14(5), 1099-1121.
8. Higgins, J. P. T. (2019). Cochrane handbook for systematic reviews of interventions (2nd ed.). John Wiley & Sons.
9. Christiaensen, L., Demery, L., & Kuhl, J. (2011). The (evolving) role of agriculture in poverty reduction—An empirical perspective. *Journal of development economics*, 96(2), 239-254.
10. Food and Agriculture Organization of the United Nations (FAO). (2020). Impacts of COVID-19 on the food systems in the Pacific Small Island Developing States (PSIDS) and a look at the PSIDS responses. Rome, Italy: FAO.
11. Materu, S. T., Shukla, S., Sishodia, R. P., Tarimo, A., & Tumbo, S. D. (2018). Water use and rice productivity for irrigation management alternatives in Tanzania. *Water*, 10(8), 1018.
12. Morrison, J., & Sarris, A. (2016). Food Staple Market Volatility and Food Security in Eastern and Southern Africa: what role for intra-regional trade and market policy?. Gutowski A, Knedlik T, Osakwe. PN (eds) Africa's progress in regional and global economic integration. *Lit, Zürich*, 159-181.
13. Fontana, E., & Pisalyaput, N. (2023). Understanding the importance of farmer–NGO collaboration for sustainability and business strategy: Evidence from the coffee supply chain. *Business Strategy and the Environment*, 32(6), 2715-2735.
14. Signe, L. (2018). Evaluating a new partnership for Africa's development (NEPAD): Resource mobilisation strategy in financing innovation and sustainable development in Africa. Newcastle: Cambridge Scholars Publishing.
15. Giller, K. E. (2020). The food security conundrum of sub-Saharan Africa. *Global Food Security*, 26, 100431.
16. Wiggins, G. (2012). Seven keys to effective feedback. *Feedback*, 70(1), 10-16.
17. Yusriadi, Y., & Cahaya, A. (2022). Food security systems in rural communities: A qualitative study. *Frontiers in Sustainable Food Systems*, 6, 987853.
18. Herforth, A., & Ahmed, S. (2015). The food environment, its effects on dietary consumption, and potential for measurement within agriculture-nutrition interventions: A. Herforth, S. Ahmed. *Food security*, 7(3), 505-520.
19. High Level Panel of Experts on Food Security and Nutrition (HLPE). (2015). Water for food security and nutrition. Rome, Italy: FAO.
20. Canton, H. (2021). Food and agriculture organization of the United Nations—FAO. In *The Europa directory of international organizations 2021* (pp. 297-305). Routledge.
21. Roobroeck, D., Palm, C. A., Nziguheba, G., Weil, R., & Vanlauwe, B. (2021). Assessing and understanding non-responsiveness of maize and soybean to fertilizer applications in African smallholder farms. *Agriculture, ecosystems & environment*, 305, 107165.
22. Posel, M., Dorrit, F., Rogan, J. F., & Michael, C. (2014). Measured as poor versus feeling poor: Comparing objective and subjective poverty rates in South Africa (UNU-WIDER Working Paper No. 2014/133). Helsinki: United Nations University World Institute for Development Economics Research.
23. Wenhold, F. A. M., Faber, M., Van Averbek, W., Oelofse, A., Van Jaarsveld, P., Van Rensburg, J. W., ... & Slabbert, R. (2007). Linking smallholder agriculture and water to

SAMPLE COPY
UNPUBLISHED PAPER

Copyright: ©2026 Mohale Machete, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.