

Exploring the Role of Indigenous Vegetables in Rural Livelihoods: Perceptions from the Ntuze Community

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ABSTRACT

An increasing number of countries face growing food insecurity levels, severely impacting rural livelihoods. South Africa is no exception, mainly because it meets the worst forms of socio-economic issues: the triple challenge of poverty, the inequality gap, and non-inclusive economic growth. Influenced by a growing number of people in underprivileged communities who face food poverty, the researchers bring to the fore the value of wild indigenous vegetation, which is often neglected and perceived as food for the poor. To articulate this, data was collected from participants who utilise indigenous vegetables. Among the themes that were inductively identified were (i) household food security, (ii) the perceived medicinal benefits to improve their health conditions, and (iii) the source of income. The study proposes that promoting the production and utilisation of indigenous vegetables be considered an approach to raising awareness to dismantle the stigma around these foods and to further respond to the food insecurity crisis in underprivileged communities. There is an underappreciation of local varieties such as imifino yasendle (wild leafy vegetables) and stigmatisation of utilisation of these foods. This study re-imagines a renewed perception of indigenous vegetation in the quest to contribute to livelihood development and improve food security in underprivileged communities.

Keywords: Agricultural extension; Sustainable livelihoods, Indigenous vegetation, Climate variation

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1. INTRODUCTION

Household food security, as defined by the Food and Agricultural Organization (FAO), exists when all people constantly have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for a healthy lifestyle (FAO, 1996). This definition identifies the four pillars of food security: availability, accessibility, utilisation, and stability. While food availability is not a significant concern within the South African context, it differs across all nine provinces of South Africa. Labadarios *et al.* (2011) indicate that food variety was low in all South African provinces except for the Western Cape. This is especially true in predominantly rural provinces compared to their high-income and urban household counterparts. This imbalance in food availability challenges the United Nations' assertion that the availability of food only proves true when there is an adequate supply of basic food that can sustain people in terms of consumption and counterbalance variations in production and prices (United Nations, 1975). However, the greatest challenge in the South African food discourse is the lack of access due to prevailing socio-economic challenges, such as high unemployment, which makes it difficult for vulnerable groups to acquire some of the foods necessary for a healthy lifestyle. The groups most affected are usually the previously disadvantaged and the rural poor, often left in isolation since low-income households are primarily concentrated in poor communities (Altman *et al.*, 2009). Based on this premise, there is a disconnected rural economy with the rural poor relying on a vulnerable food source. This disconnect raises the question of producing and utilising indigenous vegetables as a solution to a sustained livelihood and a step towards attaining food security.

1.1. Living Conditions in Underprivileged Communities

Twenty-six years after South Africa transitioned to democracy, the country still struggles with the triple threat of poverty, unemployment, and inequality. These livelihood challenges mainly affect the rural poor, whose socio-economic status seems to be one of constant insufficiency. Previous reports from Statistics South Africa (SSA, 2011a) and other formal institutions indicate that underprivileged communities are often at the lower end of the socio-economic stratification, which is typically marked by poor access to essential services, such as lack of access to clean water, electricity, poor infrastructure, and gravel roads (Perret *et al.*, 2005). In the north of KwaZulu-Natal (KZN), from which the Ntuzze community was selected, Lewu and Mavengahama (2010) reported that in KZN, most underprivileged communities achieve resilience through agriculture, they do not generate income that could significantly cater for

household needs. Lewu and Assefa (2010) further indicated that one of the challenges people from underprivileged communities face is their inability to access markets for market participation. This lack of market access places vulnerable groups at a disadvantage, as this could be a possible way to improve the rural economy.

1.2. Value of Indigenous Vegetables in the Agricultural System

For many years, indigenous vegetables have formed an essential part of indigenous people's livelihood in both the developed and underdeveloped parts of the world. However, these indigenous species have declined in recent years because of the increasing pressure of land development in natural habitats and improper resource management practices. An investigation into the roles and values of wild foods in agricultural systems, Barucha and Pretty (2010) points out that despite the importance of wild indigenous foods, these foods are still excluded from official statistics on the economic value of natural resources. Similarly, Shackleton *et al.* (2007) raise a concern that there is a lack of information regarding the association between non-timber forest products (in the context of this study, this is used synonymously as wild indigenous vegetation), rural livelihoods, and poverty in South Africa. Therefore, this study aims to respond to the link between indigenous vegetation, livelihood development, and food security.

2. METHODOLOGY

2.1. Profiling the Study Area

This research was undertaken at Ntuzi, an underprivileged rural community on the outskirts of Richards Bay within the King Cetshwayo District (KCD) Municipality in the north of the KwaZulu-Natal (KZN) province. Lewu and Assefa (2009) indicate that the rural farming systems in the northern region of KZN are dominated by smallholdings of tracts of land not more than 0.9 ha. While this agrees with our findings, it is important to emphasise that most households grow sugarcane at a scale that ranges between three to eight hectares. However, only farmers participating in small-scale vegetable farming land were considered for this study. Based on the national census by Statistics South Africa (SSA, 2011b), the KCD Municipality consisted of 48.9% female-headed households, most of whom were unemployed. According to Lewu and Mavengahama (2010), the poverty rate in northern KZN affects 64.4% of the population, 78.2% of whom primarily reside in rural communities and rely on the government for financial support (Lewu & Assefa, 2010). The KCD Municipality has a subtropical climate

with annual rainfall temperatures ranging from 1640 mm to 1740 mm. The maximum mean summer and maximum mean winter temperatures are 32°C and 18°C, respectively.

2.2. Gaining Access to the Community

Access to the community was gained through consultation with the tribal leaders. This undertaking was influenced by Tindana *et al.* (2006), who avow the importance of explaining the research and seeking permission from tribal authorities before accessing the community. Similarly, household leaders gave written consent as evidence that they understood the study and that their participation was willing and voluntary.

2.3. Sampling Procedure

The study participants from the Ntuze community were selected using a non-probability sampling technique, employing a snowball sampling method. Snowball sampling is a purposive sampling technique that relies on participants to identify further and encourage other participants to participate in the study (Taherdoost, 2016). This method helped identify households actively involved in similar small-scale agricultural activities, and it worked to the study's benefit and the researchers' convenience. A total of 40 participants (n=40) were drawn to build a case of the Ntuze community based on their lived experiences and perceptions about the role of indigenous vegetables in their livelihoods.

2.4. Data Collection and Analysis

Before the primary data collection, a preliminary study was conducted to pre-test the research instrument. While the use of preliminary research does not give any guarantee about the results of the main study, it points out the critical research deficiencies that need to be addressed. According to Moore *et al.* (2011), it is not necessary to justify the size of a preliminary study, although issues of practical feasibility must be considered. For this reason, the researchers piloted the study in a community neighbouring Ntuze. Data was collected using an interview schedule whereby interactive one-on-one interviews with the study participants were held and recorded. The open-ended questions and discussion data were then analysed using Computer-Assisted Qualitative Data Analysis Software (CAQDAS). This research adopted a qualitative approach to provide an instrument for understanding the 'contexts and settings' of the agricultural environment. Data were analysed using systematic inductive coding methods for qualitative research to develop towards theory or phenomenon. This qualitative method study

utilised an interpretivism paradigm (Denzin & Lincoln, 2011). In this analysis, perceptions from different participants were compared, and their differences or similarities contributed to the thematic development. The data were further used to ascertain patterns that led to general concepts or themes (Glaser, Strauss & Strutzel, 1968).

2.5. Ethics

Ethical clearance was obtained from Nelson Mandela University's Faculty of Science RTI Committee (reference number H17-SCI-AGR-001). Because the study involved human participants, ethical approval was necessary to ensure the 'participants' protection. These ethical guidelines are outlined in the Belmont Report, which contains three basic ethical principles: (i) respect for persons, (ii) beneficence, and (iii) justice; this report provides research-based protective guidelines for informed consent, risk/benefit assessment, and participant selection (NCMHD, 1978).

2.6. Rationale for the Study

Livelihood development and food security co-exist. Despite the threats of vulnerability, such as high unemployment rates, poverty, and systematic segregation, the resilience of some underprivileged communities, such as the Ntuzze community, rests on harnessing indigenous vegetables. Therefore, it is of utmost importance to learn and document the perceptions of the knowledge holders (mostly the elderly) in the context of indigenous vegetables and to lay a foundation for future generations interested in advancing their knowledge of the subject matter. The study also promotes the production and utilisation of indigenous vegetables as a solution to livelihood development and food security.

3. RESULTS AND DISCUSSION

3.1. Value of Indigenous Vegetables

The findings suggest that the participants association of indigenous vegetables with terms such as 'rural', 'poverty', 'hunger', 'food for the poor', and 'low-status food' is one of the reasons behind the stigmatisation of these vegetables. This perception dates back to the early 1960s when South Africa saw the introduction of agricultural extension officers who were deployed to promote high-production, exotic crops. According to Akinola *et al.* (2020), extension officers referred to indigenous vegetables as 'weeds' to stigmatise these crops while fast-tracking the mass adoption of conventional, exotic crops. Our findings indicate that, in Ntuzze,

these indigenous vegetables are primarily utilised based on preference and convenience rather than on circumstances of unfavourable poverty. Two elderly women were recorded expressing their appreciation for indigenous vegetables:

1. "...*mina ungibona nje, angiziboni ngiphila ngaphandle kokudla kwesintu. Ngingaka nje kungenxa yakho.*" (...I do not see myself living without indigenous food. I am this old because of it.)
2. "*Lapha ekhaya yimi kuphela odla imfino yesintu, uma ngiyivunile elami ibhodwe liphekwa lodwa eceleni.*" – meaning that she is the only one in the household that eats indigenous leafy vegetables and that if she has harvested these vegetables, her food is prepared separately in a different pot.

It is worth noting, however, that there is a possibility of preferential bias due to a generational gap since it was mostly the older generation that favoured indigenous vegetables. One of the common themes that emerged was that the attitude of most of the younger generation was condescending towards indigenous vegetables, and they considered them to be 'poverty' food with which they did not want to be associated.

3.2. The Younger Generation's Perspective

In most communal areas of Africa, many kinds of culture-specific cuisines determine what foods should be valued and in what form they should be consumed. During the interviews, participants indicated that the older generation highly favoured indigenous vegetables in the community. They (the older generation) produced and consumed these vegetables, while the younger generation was less inclined to include them in their diets. According to the study participants, the youth often associate indigenous vegetables with low socio-economic status and poverty. This finding corroborates that of van Rensburg *et al.* (2007), who reported that South African youth generally tend to associate the consumption of indigenous vegetables with poverty. However, Hanemaayer *et al.* (2020) reported a positive association between the youth of first-world nations and their perception of traditional foods. This finding indicates that, in some parts of the developed world, the younger generation identifies with certain indigenous foods. At the same time, those from poor counties are indifferent to local, wild-grown foods.

3.3. Influence of Westernisation on Heritage

Our findings indicate that indigenous vegetables play an important part in people's culture and heritage. For this reason, the older generation expressed concern about the loss of indigenous

knowledge and the youth's rejection of the consumption of indigenous vegetables, which is part of their growing western socio-cultural identity (Sibani, 2018). A common response to the question of the cause of this stigmatisation was that social media and the westernised education system greatly influence western teachings. A primary concern voiced by the elderly is that they value the convenience indigenous vegetables provide and fear that they face extinction if the younger generation is not educated about their perceived benefits. The older generation sees this attitude as a threat since indigenous foods form an essential part of the peoples' heritage, an assertion supported by Akinola *et al.* (2020), who refer to indigenous foods as a symbol of heritage, a trademark, and a part of culture.

3.4. Household Food Security

The status of household food security in South Africa has been in decline for almost three decades. As far back as 1996, the FAO reported that South Africa was food secure as a nation but severely lacked nutritious food at the household level. Over two decades later, a similar report by Statistics South Africa indicated that the country is food insecure at the individual household level (SSA, 2018). The Ntuze community, as a previously disadvantaged rural community, is characterised by high levels of poverty, inequality, and unemployment. This research revealed that most households were headed by elderly women who relied on a government pension grant as their primary source of income, which was R1600.00 (112 USD) when this study was conducted. The study participants reported that the community faced high levels of food insecurity, which does not entail food inadequacy alone, but also difficulty accessing a variety of nutritious foodstuffs due to socio-economic challenges. In line with the FAO's definition of food security as a situation that exists at all times when people have access to adequate and nutritious foods that are necessary for a healthy lifestyle (FAO, 1996), the Ntuze community utilises indigenous vegetables as their survival strategy. These vegetables are believed to be a significant contributor to hunger alleviation. One of the neglected aspects of indigenous vegetables is recognition as superfoods that offer healthy, accessible, and affordable nutrient-dense alternatives able to address nutrition gaps (Maseko *et al.*, 2017). These vegetables contribute to food security and the existing conditions of vulnerability (national disasters, seasonal changes, and governance) in northern KwaZulu-Natal, which impacts agriculture. Indigenous vegetables can also withstand seasonal changes and conditions and provide a reliable food source for the Ntuze community.

3.5. Water Insecurity

The Ntuze community is a rural community marked by poor access to water and receives limited water service. Residents rely on the local municipality to fill up the communal water tanks. However, one of the respondents expressed the following grievance regarding the delivery of water:

"... do not tell me about the municipality; they are useless! Their water trucks only visit the community once or twice a month, only when it suits them, and that water does not last even a day because so many of us rely on it. And some of these truck drivers illegally sell water to some of the individual households that have water tanks which leave many of us even more deprived."

Considering that the Ntuze community lies in a humid subtropical climatic region, the prevailing water challenges pose a significant threat to conventional farming, which often requires high water consumption for commercial crop species. Maseko *et al.* (2017) confirm that exotic crops, such as Swiss chard, are not as tolerant to abiotic stresses such as drought and heat stress as their indigenous leafy crop counterparts. The lack of resilience and the inability to withstand such stressors indicates that the water challenges experienced by rural communities do not favour the conventional production of exotic crops, thus threatening the state of household food security. Discussions about the water challenges with smallholder farmers in Ntuze, revealed that the production of indigenous vegetables was convenient because they withstand prolonged periods of water deficit. This characteristic provides an opportunity to acknowledge the importance of producing and using indigenous vegetables in rural communities. They are more resistant to biotic and abiotic challenges and are further considered to require less production effort than exotic crops. With the onset of climate variation and increasing heat in some areas of South Africa, indigenous crops will become an essential water-wise crop option for rural communities.

3.6. Perceived Medicinal Benefits

There exist perceptions around the medicinal value of indigenous vegetables in Ntuze. Some of the participants stated:

"I also use *intshungu* (wild cucumber) to suppress blood pressure." _ P1

"I know that *uqadolo* (blackjack) is used when one has heart problems." _ P2

"*Imbuya* (pigweed) is used for a runny stomach." _ P6

"*Intshungu* is popular in this area because almost everyone who is above the age of 60 uses it to cure BP." _ P10

The Ntuze residents believe that the indigenous vegetation they utilise has curative effects able to heal specific ailments, such as blood pressure which is cured by consuming wild cucumber (*Cucumis africanus L.*). Other indigenous vegetables regarded as having health benefits were blackjack (*Bidens pilosa L.*) and pigweed (*Amaranthus hybridus*), believed to cure heart-related complications and diarrhoea. One of the common characteristics of these vegetables is that they are all leafy vegetables that generally occur naturally in the wild. Only their vegetative parts are utilised, not necessarily the fruits they produce. These findings are consistent with those of Kimiywe *et al.* (2007) and Njume *et al.* (2014), who stated that indigenous leafy vegetables have healing powers and are rich sources of nutrients and antioxidants, indicating that, in addition to household food security, indigenous vegetables can provide medicinal benefits to the residents of the Ntuze community.

3.7. Income Generation

Some of the Ntuze community members sold indigenous vegetables to generate income which, in turn, is used for other household's needs, such as purchasing food, paying school fees and transport. These crops were primarily sold in a local town on the streets, sold to street vendors, or to neighbours. Unlike the group of vegetables that are used for medicinal purposes (indigenous leafy vegetables), vegetables used to generate profit were cultivated indigenous vegetables, which included *amadumbe* (taro), *ubhatata* (sweet potatoes), *izindlubu* (jugo beans), *imbumba* (cowpea) and *umdumbulu* (cassava). However, agricultural products are not always a good source of income; some respondents indicated that non-agricultural related businesses (such as spaza shops, buildings, and sewing) assisted with individual income generation.

3.8. Extension Services

Agricultural extension support services are a challenge in the Ntuze community. Most participants explained that they had never interacted with the extension officer deployed in the community. Extension officers and government support services have yet to make house-to-house visits to small-scale 'farmers' homes. Participants attribute this to laziness, favouritism, lack of resources and a poor work ethic on the part of extension personnel. One of the participants raised a question asking:

"But how would you expect her (extension officer) to travel the entire community knocking door-to-door when she does not even have a vehicle? – She doesn't have wings, does she?"

Evidently, there needs to be effective extension services in the community to help farmers develop their farming systems, become commercially productive, and link them to potential markets. However, we argue that this is an issue of local governance rather than individual inefficiency. Efficient extension and advisory services are essential for successful rural development and for farmers to realise the full potential of their crops (Davis, 2016).

4. CONCLUSION

Subsistence farming communities have survived many environmental changes since the Paleolithic period and have carried valuable indigenous knowledge for centuries; they are repositories of information about adaptations that could be vital in the context of climate variation. However, the indigenous knowledge of how these communities have coped and adapted has received limited recognition. In most cultures, this indigenous knowledge is practical and generally transferred by elders when youths are involved in subsistence, harvesting and foraging. Indigenous communities have been framed as ignorant and primitive, with nothing to offer modern western society. Still, there has never been a more critical time in history when the transfer of this traditional knowledge is becoming a crucial resource as in the present rapid decline and extinction of plant life species. This research has shown that, as youth are becoming more interested in Western culture, they are losing interest in following indigenous practices.

Rural communities face increasingly high unemployment rates, especially among young men; simultaneously, the number of woman-headed households involved with small-scale agriculture is increasing. The survival arrangement of these households means they rely entirely on state grants, becoming a threat to long-term generational wealth creation and sustainable rural economic development. The impact of climate variation and increased global temperatures will increase the risk to standard agriculture practices and crop selection. Further research is required on how indigenous vegetables can provide more resilience in the changing environment that climate variation will cause. Water-wise crops will be important in areas that need new options for hardy and resilient forms of cultivation. This is especially important because rural communities such as Ntuze have water deficit challenges. In this research, the

sale of indigenous vegetables was part of livelihood survival. It formed an essential part of the mix of household strategies that seek to use available resources in the rural context.

5. RECOMMENDATIONS

To enhance the use of indigenous vegetables as an official livelihood strategy, the value of the crop needs to be realised and promoted as a potential commercial agriculture crop. Successful promotion would assist in enhancing the image of indigenous vegetables and reducing their stigma as a poor man's crop. Further, pharmaceutical companies need to recognise the medicinal benefits of indigenous vegetables. Such recognition could lead to indigenous vegetables being farmed on a large, more intensive scale, as has been the case following the recent change of cannabis policies for medicinal use in South Africa. If the potential of indigenous vegetable crop production is realised for large-scale commercial ventures, further financial investment would follow, and the involvement of a younger, entrepreneurial generation would be developed.

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