

# The Role of Home Gardens in Household Food Security in Eastern Cape: A Case Study of Three Villages in Nkonkobe Municipality

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## Abstract

Household gardening activities remains an important avenue for food production for most urban and peri-urban populace. The purpose of the study is to examine the relationship between home gardening and household food security in the study area. The specific objectives were to determine the demographic characteristics of farmers in relation to income generated from home garden and examine the role of home garden in household food security. The findings reveals that the mean estimated income earned from vegetable production per year was 473.39 Rand (standard deviation=170.613, N=90), with the mean land size used for farming of 233.60 m<sup>2</sup> (standard deviation=31.545, N=90). A correlation between estimated income generated by household per year in Rand from garden produce and land size was conducted to determine whether revenue from gardening could in fact be assessed by land size. Results demonstrated that land size and estimated income generated were positively correlated ( $r = 0.84$ ,  $p < .001$ ). In sum, home gardening remains an avenue for enhancing food security, health and social interrelation of households in the contemporary South African society.

**Keywords:** home garden, household, health, social cohesion and food security

## 1. Introduction

Home gardens have a long history that dates back to 100BC, hitherto the adoption of gardening activities was further intensified during the World War 1, following severe food insecurity and shortages (Warner & Hansi 1987). Home gardens denotes the traditional land use system around a homestead where numerous types of crops and vegetables are cultivated and maintained by the household with the outputs mainly for family consumption (Gautan et al., 2004). These gardens are important sources of food and vegetables, fodder, spices, herbs for local medicines, flowers and are also an important means of on-farm conservation of resources (Gautan et al., 2004). Food security is variously defined by researchers. Food security situation occurs when there is an adequate and sufficient access to safe food at all times for an active healthy life (USDA, 2006). Recently time Sub-Saharan Africa has been saddled with the problem of food insecurity exacerbated by global weather changes (Omotesho et al., 2007). Presently, the developing countries are facing serious challenges of ensuring that millions of households living in paucity have access to enough food to sustain a healthy life. In South Africa, studies have shown that attempts to improve food security amongst households through the adoption of home gardens programmes have not yielded the desired result (Moorehead & Wolmer, 2001). Nevertheless, home gardens have been identified as an important tool in enhancing food security and decreasing vulnerability amongst households (Buchmann, 2009). In a developing country like South Africa, income is a determinant of household food security and home gardening activities are an essential part of family livelihood providing sustenance and generation of income throughout the year (Kirsten et al., 2003), and filling up the major gaps in food and vegetable supply.

The importance of home gardening cannot be underestimated as it provides household with direct access to a range of nutritionally rich foods, such as roots, tubers, green leafy vegetables, nuts, legumes and fruits (FAO, 2001). Although the practice of home gardening is an auxiliary food production approach among household; it is increasingly becoming popular and receiving attention from development agencies (Action Aid, 2005; Nordin,

2005; HSRC, 2003). According to McLachlan and Kuzwayo (1997) socio-economic conditions play an important role in household food security. This is because ensuring access to food at the household level depends not only on getting food supplies, but also on the purchasing power. Hunger may occur when households are unable to grow or purchase adequate food coupled with the absent of social welfare networks. It is estimated that 39% of the South African population are not food secured because of their inability to cultivate crops and low purchasing power (Mgijima, 1999). Smallholder farmers are the potential drivers of agricultural development in less developed regions (Mathethe, 1999). According to Koyenikan (2007), home gardening is an important activity that can be used in enhancing food security and agricultural intensification but yet neglected over time. Home gardening activities requires low economic resources and farm input as it can be done using only the available local planting materials, available organic manures and indigenous pest control methods. Home gardening around the world have been recognized with a range of useful outcomes for participating households. These include local environmental education and awareness where households learn about local agriculture, biodiversity and improved waste management; and opportunities for training, employment and local economic development in the form of mini-marketing activities (Keeney, 2000). In addition, the most important and commonly reported benefits are in the area of individual household health and well-being. Engaging in gardening require physical exertion that is in the form of exercise providing relief from stress, boredom and stimulate creativity (Francis & Hester, 1990). Household sharing of produce from the garden enhances the building of relationship and thus prompt neighborhood cohesion and enhanced levels of acceptance and belonging in the community. Social capital encompasses the available local resources within a community in linkages of shared support, mutual benefit and trust (Edwards, 2004). These networks of relationship enable cooperation among individuals and groups, which is critical for the functioning of community (Productivity Commission, 2003). In sum, home gardening remains an avenue for enhancing food security, health and social interrelation of households in the contemporary South African society. The purpose of the study is to examine the relationship between home gardening and household food security in the study area. The specific objective includes assessment of the demographic characteristics of farmers in relation to income generated from home garden and to examine the role of home garden in household food security.

## **2. Materials and Methods**

The study was conducted in Nkonkobe which is one of the eight Local Municipalities in Amathole districts in Eastern Cape (Appendix 1). Nkonkobe Municipality is the second largest local municipality covering 3 725 km<sup>2</sup> and making up R63 of the surface areas of the Amatole District Municipality. Nkonkobe Municipality is located in the Eastern Cape which is the second largest provinces of South Africa. Amathole is among the seven districts of Eastern Cape Province of South Africa. The administrative seat of government of Amathole is East London. Amathole symbolise Calves, obtained from the mountain range and forest which forms the northern boundary of the district. Amathole is bounded by Chris Hanu to the North, OR Tambo to the North-East, the Indian Ocean to the South-East, and Cacadu to the West. Nkonkobe Local Municipality consist of five major areas which are Alice, Fort Beaufort, Hogsback, Middle drift and Seymour. Vegetables and livestock farming that thrives in these areas are for both commercial and subsistence. However, small and large stocks of livestock are kept in these areas for economic purpose and for subsistence. The predominant breed of livestock kept in the area is the Nguni, a local breed that is well suited to the locality. While major crops and vegetables grown include: maize, potatoes, cabbage, spinach, beetroot and carrot.

### *2.1 Sampling Procedure and Method of Data Analysis*

Random sampling method was adopted with no special sub-group of the population in the sample selection. The possibility of any member of the group being selected does not depend on any other member of the population. Random sampling technique was used to avoid gender and distance biases. The samples were taken from the three major areas: Alice, Fort Beaufort and Middle drift of Nkonkobe Local Municipality. A random stratified sampling method was used to draw representative samples from 3 villages in Nkonkobe Municipality, 30 respondents were interviewed in each village. The structured questionnaire was chosen, as satisfactory method to fulfil the study purpose. Structured questionnaire was prepared and administered to the sampled respondents, by face to face interviews. Existing literature on role of households in food security was reviewed. The data from completed questionnaire were used for the analysis. Using a widely available and well tested package programmed Statistical Package for the Social Sciences (SPSS 11.0 Windows). Excel statistical programme was used for some descriptive explanations. Multiple regression analysis was used to determine the relevant importance of the predictors on the outcome variable (estimated income earned per year). Pearson Correlation was used to determine the estimate income earned per year.

### 3. Results and Discussion

#### 3.1 Socio-Economic Characteristics of the Sampled Household

The samples interviewed were rural male and female farmers who grow seasonal crops for food and cash (Table 1). The results findings shows that 40% of the households interviewed were male while female households were 60% (Table 1). Therefore females are more dominant in home gardening than men as shown by the results in the table. This is because women spend most of the time taking care of the children and other household chores while men go to urban areas in search for better employment opportunities. This result agrees with Kehler (2001) that in South African rural areas women play a vital role in agriculture as vegetable producers than men. Overall 44.44% (male) & 48.15% (female) of the respondent fall within the age range of 31-45 years which shows that the older men and women are more into home gardens activities. The household 27.78% (male) and 37.04% (female) fall within the range of (46-60years) while 16.67% (male) and 11.11% (female) were within the age bracket of 15-30 years. However, 11.11% (male) and 3.70% (female) fall under the age range of 61 years and above. The older household heads (61 and above) still have garden that is under the care of their sons or daughters. Majority of respondent interviewed (69.44%) male and (64.81%) female were married while 19.44% male and 18.52% female respondent were single. Results also reveal that 8.33% (male) and 9.26% (female) were divorcee. The respondents who are widow and widower were 2.78% male and 7.41% female. The respondent that had secondary school education was 30.56% male and 27.78% female. The number of households that had primary education was 41.67% male & 50% female. Most of these respondents that had tertiary education were 22.22% male & 5.56% female. However, 5.56% male and 16.67% of the respondent had no formal school education but were also actively involved in home gardening.

Table 1. Socio-economic characteristics of sampled household

	Male	Female
Sample size	36(40.00%)	54 (60.00)
<b>Age</b>		
15-30y	6 (16.67%)	6 (11.11%)
31-45y	16 (44.44%)	26 (48.15%)
46-60y	10 (27.78%)	20 (37.04%)
60+y	4 (11.11%)	2 (3.70%)
<b>Marital Status</b>		
Single	7 (19.44%)	10 (18.52%)
Married	25 (69.44%)	35 (64.81%)
Divorced	3 (8.33%)	5 (9.26%)
Widower	1 (2.78%)	4 (7.41%)
<b>Education</b>		
No school	2 (5.56%)	9 (16.67%)
Primary school	15 (41.67%)	27 (50.00%)
Secondary school	11 (30.56%)	15 (27.78%)
Tertiary	8 (22.22%)	3 (5.56%)

#### 3.2 Major Crops Grown in Home Gardens in the Study Area

The crops grown in the study areas (Figure 1) were maize, cabbages, carrot, onion, butternut, tomatoes, potatoes and spinach and are produced by a larger proportion of households. However, vegetable crops that are planted during winter and summer were spinach and cabbage. The types of crop mostly grown in the home garden were 89%, 72% and 70% for spinach, potatoes and cabbage respectively.

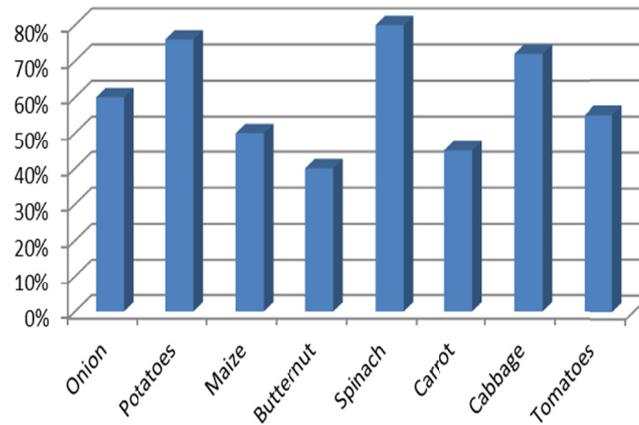


Figure 1. Types crops grown in home gardens

### 3.3 Annual Earnings From Vegetable Sale in the Study Area

Annual earnings from vegetable production were investigated. Incomes earned per year were regressed on gender, age, marital status, education and land size used for gardening to examine their relationships. Multiple regression analysis was used to determine the relevant importance of these predictors on the outcome variable (estimated income earned per year). The results, (Table 2), showed that gender, age, and land size have significant relationships with estimated income earned per year.

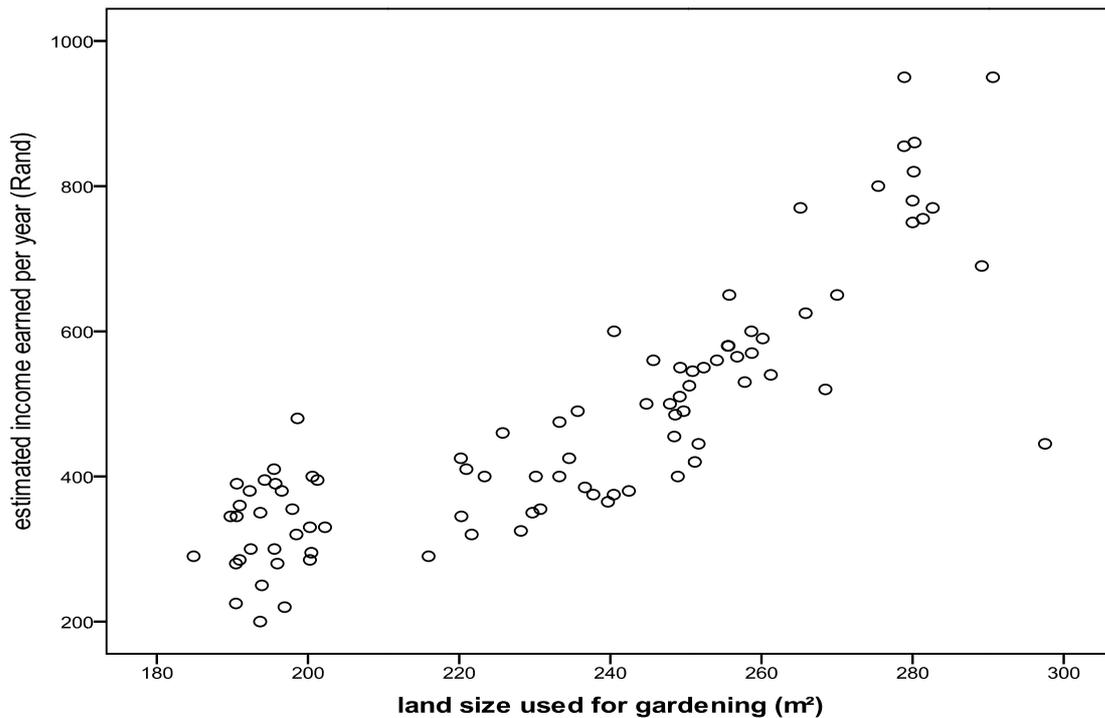


Figure 2. Correlation between estimated income earned per year (Rand) and land size used for gardening (m<sup>2</sup>)

In the opinion of the farmers, the mean estimated income earned per year was 473.39 Rand (standard deviation=170.613, N=90), with the mean land size used for farming of 233.60 m<sup>2</sup> (standard deviation=31.545, N=90). A correlation between estimated incomes generated by household per year in Rand from garden produce and land size was conducted to determine whether revenue from gardening could in fact be assessed by land size.

Results demonstrated that land size and estimated income generated were positively correlated,  $r = 0.84$ ,  $p < .001$ .

Table 2. Relationship between demographic variable and income earned

Equation		
Predictor	b	Beta
Gender	-88.594 <sup>***</sup> (20.879)	-.256
Age	-53.943 <sup>*</sup> (24.082)	-.251
Marital status	35.593 (20.864)	.148
Education	-7.322 (22.875)	-.037
Land size	4.051 <sup>***</sup> (.370)	.749
Constant	-259.177	
R <sup>2</sup>	.787	

Note : N = 90 ; b=unstandardized regression coefficient with standard error in parentheses;

Beta = standardized regression coefficient;

\* $p < .05$  ; \*\* $p < .01$ ; \*\*\* $p < .001$  ( two-tailed tests).

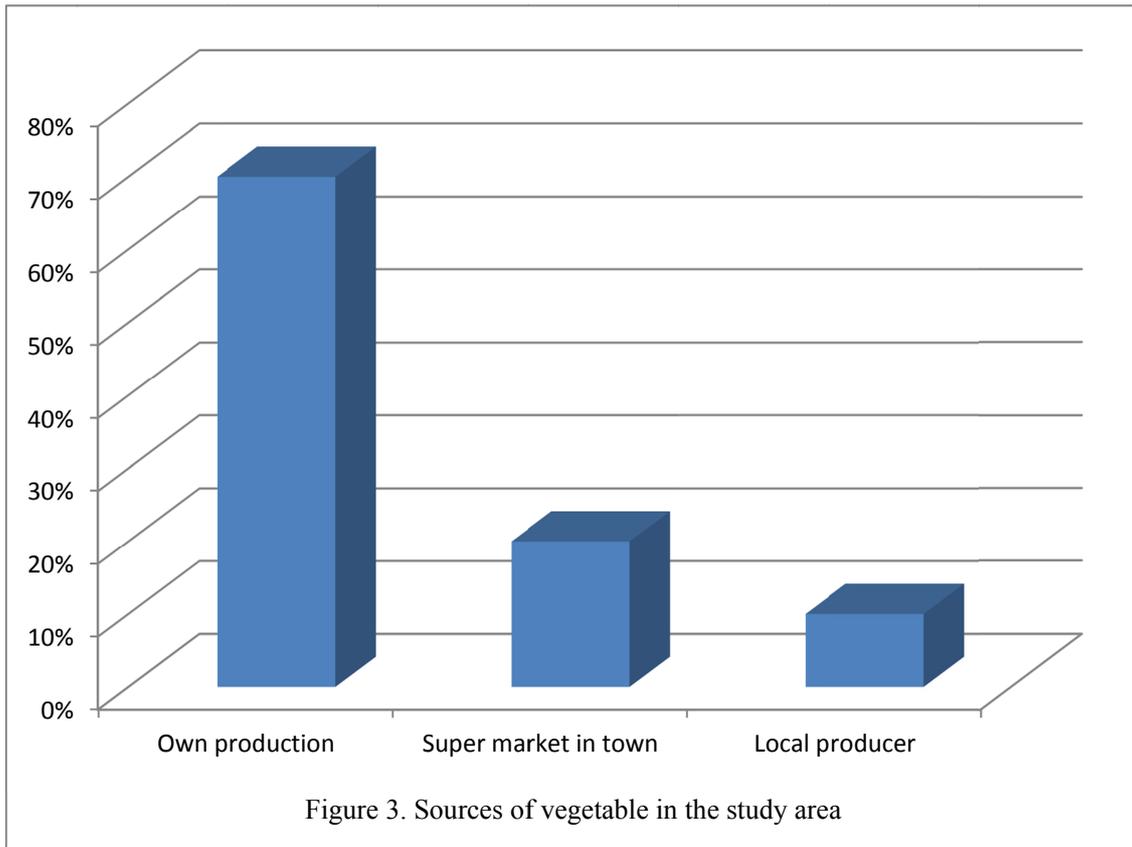
The result of the study reveals that the demographic variables which include: gender, age, and land size have significant relationships with estimated income earned per year. The variables gender and land size have a very strong relationship with income of household with respect to gardening activities. The kinds of vegetables sold by households in the study area are presented in Figures 1. These figures show the different major vegetable groups as well as the total amount earns by individual households during 2012. The result reveals that household incomes from vegetable during 2012 season were not evenly distributed. The earnings from cabbage production stood at 35 %, 15%, 10% for Alice, Middle drift and Fort Beaufort respectively. Spinach had realisable income of 45%, 20% and 5% for Alice, Middledrift and Fort Beaufort respectively (Table 3). However, Spinach generated the highest income of 45% from Alice while onions also generated 45% from Middle drift.

Table 3. Annual earnings from vegetable sale 2012

Area/Locality	Alice	Mid-Drift	Fort Beaufort
Crop/Vegetable	%Earnings/Annum	%Earnings/Annum	%Earnings/Annum
Cabbage	35	15	10
Spinach	45	20	5
Carrot	30	25	20
Butternut	40	30	20
Onions	20	45	20
Lettuce	35	25	10
Green Pepper	30	40	5

### 3.4 Food Security Coping Strategies Adopted by Household

Household's methods of obtaining food were investigated and it was discovered that there are various dimension of food security coping strategies. These strategies are the form of purchasing from supermarket, own food production and through assistance from other neighbours. Findings reveals that some households (30%) obtain vegetables from super market while (10%) from the local shops within the communities. Overall, 60% of the households who are engaged in gardening activities rely on their own production for subsistence. Most household often sell their excess produce to generate income. It implies therefore, that home gardening has a relationship to household food security because income realized from gardening are often used to purchase other food stuff that are not available in the garden.



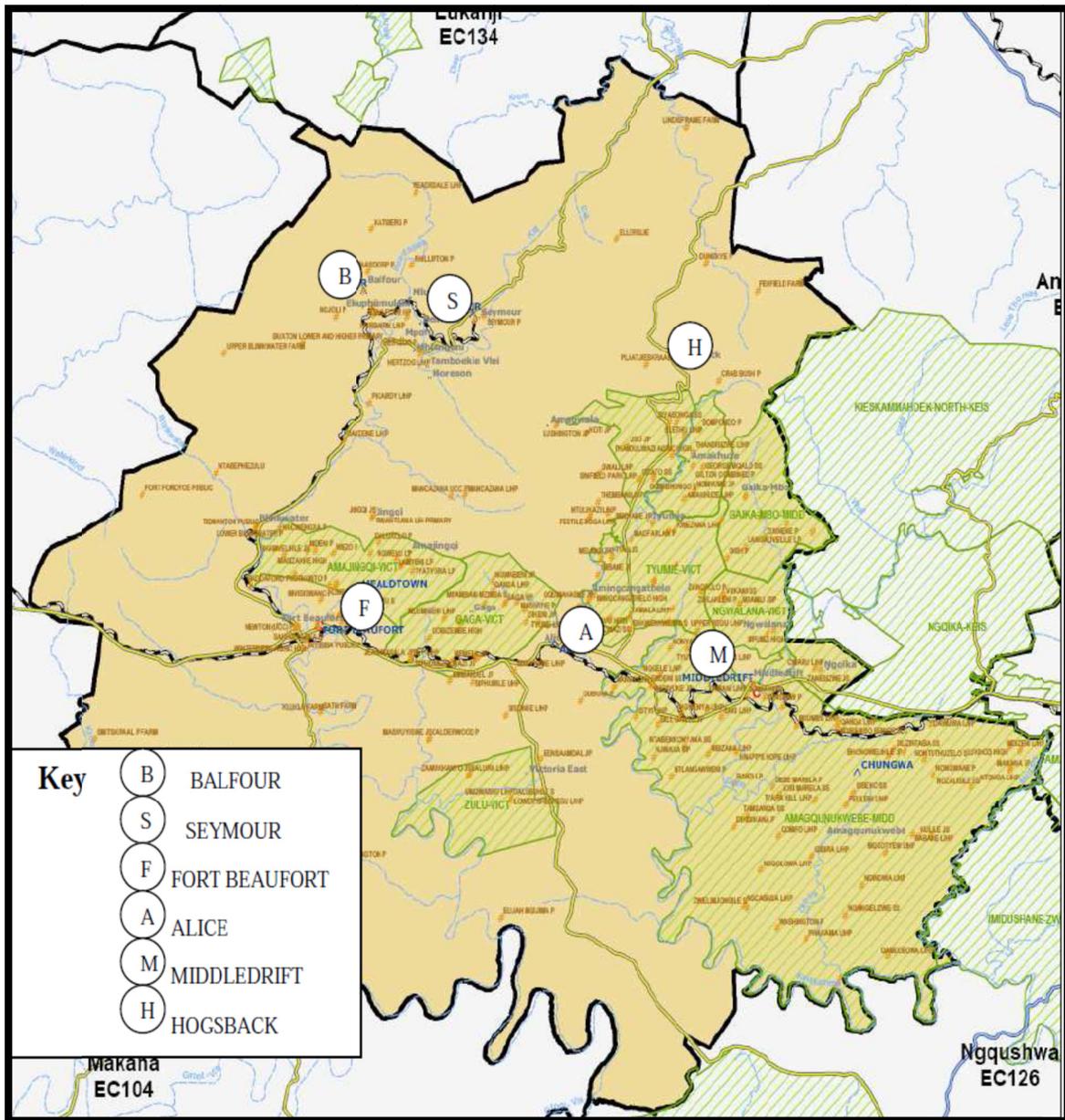
## 4. Conclusion

Food security in Nkonkobe Municipality of the Eastern Cape Province according to the results of the study shows that home garden play a crucial role in rural household. However improving household income by encouraging home gardens activities will yield positive impact in household food insecurity. Home gardens are a palpable strategy that not only enhances household income but also health and well-being. Participating in gardening activities requires physical exertion that is considered as an exercise that invariably assists in the elimination of boredom and stress. The sharing, giving out of garden produce improves relationship and neighbourhood cohesion and increased community acceptance and integration. Through home gardening the problem of food insecurity can be addressed since households can participate in home gardening in order to supplement their household's food basket. But this can only happen when there is moral and social reorientation of majority of the citizenry and delusion of the perception of community dependency syndrome. There are other benefits that accrue from engaging in home gardening and these include: employment creation, reduction of household expenditure on food, and recreational activities. However, despite the envisaged constraints inherent in gardening activities such as inadequate plots of land, water and dilapidated fencing; home garden remains the panacea to enhancing vegetable self-sufficiency and contributes to food security of households.

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Appendix 1. Nkonkobe map showing major towns



Source: Pyle, 2006.

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