

FOOD INSECURITY VULNERABILITY IN SOUTH WESTERN ZIMBABWE: A CASE OF RURAL HOUSEHOLDS IN MATOBO DISTRICT

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ABSTRACT

Household food insecurity has risen amongst the low income communities that are more vulnerable to the health and environmental risks posed by climate change and socio-economic factors. In Southwestern Zimbabwe, this has precipitated nutrition problems and health issues due to increased hunger thereby inhibiting sustainable development of human resources. This study used the quantitative research based on the survey design which was undertaken in Matobo district, Southwestern Zimbabwe. The questionnaire was administered to sixty household heads in the district which were systematically sampled. The results show that most households are food insecure and vulnerability to food insecurity at household level occurs mainly in October to December due to household size, HIV and AIDS, loss of entitlements such as employment, erratic rains leading to loss of assets such as animals. Various coping strategies were observed such as eating wild fruits, cutting meals and eating less preferred foods. Therefore, it is prudent for policy makers to advocate for agricultural activities that are area specific so as to reduce the effects of climate change.

Keywords: Entitlements, undernourished, sustainable sub-Saharan Africa, livelihoods and poverty

INTRODUCTION

Over the last few years there has been increasing evidence of links between food insecurity and loss of entitlements. Entitlements have been defined by Sen (1984, p. 497) as “the set of alternative commodity bundles that a person can command in a society using the totality of rights and opportunities that he or she faces”. Legal sources of food are reduced to four categories by Sen (1981, p.2): “production-based entitlement” (growing food), “trade-based entitlement” (buying food), “own-labour entitlement” (working for food) and “inheritance and transfer entitlement” (being given food by others). External factors such as climate change and land degradation have further exacerbated the problem of food insecurity. Southwestern Zimbabwe lies in agro-ecological region IV which is prone to seasonal droughts. There has been an increase in the overall population of undernutrition in the African continent from 29% in 1992 to 30% in 2004 (Hyder *et al*, 2005). The increase in under nutrition in sub-Saharan Africa has been called “a catastrophe for African development”, (UNICEF, 2006). Food insecurity is attributed to lack of development which eventually leads to poverty. Matthew and Hammill (2009: 1118) state that “the paramount issue sustainable development must seek to resolve, is how to reduce poverty and improve the welfare and security of the world's poor while protecting the natural resources and ecosystems that development practices often over exploit and damage”.

The definition of food security agreed upon at the World Food Summit in 1996 is that it exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life, (FAO, 1996 in Marcelino dj da Costa *et al*, 2013). Food security can be investigated by focusing on various levels of the population, i.e. from global to individual level. The above definition also implies that when there is food security, food is available, accessible, and affordable when and where needed-in sufficient quantity and quality and this state of affairs should be sustainable (Phillips and Taylor, 1990). Food should be available to all people on a regular basis (WFC, 1998).

At the household level food security exists when all members of the family have access to food in adequate quantity and quality consistent with decent existence at all times (Ahmed, 2014). This is determined by the adequacy and sustainability of livelihoods (Hendricks, 2002). It is further highlighted that food security depends on sufficient, efficient and sustainable food production, storage and access, and stable purchasing power for food production inputs and foods. Loss of entitlements to livelihoods results in food insecurity (Hendricks, 2002). Phillips and Taylor (1990) state that food insecurity exists when members of a household have an inadequate diet for part or all of the year or face the possibility of an inadequate diet in the future. When household members skip meals or when they get worried about their food stocks, this is an indication of food insecurity.

The level of food insecurity varies from one household to another. Hesselberg and Yaro (2006) classified households into three types with regards to food security, thus enduring households are those that maintain household food security on a continuous basis; resilient households suffer shocks but recover quickly and fragile households become increasingly insecure in response to shocks. Taxonomy of household types reflects the means and methods by which households acquire food for consumption, i.e. the market-food-oriented household and the non-market-food oriented household. A market-food-oriented household may be defined as any household that acquires the bulk of its food through the exchange of resources such as cash,

services, or goods and a non-market-food oriented household acquires the bulk of its food supplies through home production (Phillips and Taylor, 1990).

Loss of entitlements exposes market-food-oriented households to food insecurity as stated by Tarasuk and Vogt (2009) that the prevalence of food insecurity increased markedly as income adequacy declined. External factors render non-market-food-oriented households vulnerable to food insecurity as highlighted by Bogale (2012) that vulnerability to food insecurity is also determined by external factors such as rainfall patterns, land degradation and climate change.

Vulnerability is usually portrayed in terms of susceptibility to harm from exposure to stress associated with environmental and social change and from the absence of capacity to adapt (Adger, 2006 in Bogale, 2012). The most vulnerable households to food insecurity are those with poor entitlement to incomes, resources and assets, namely: single parent women, children, the elderly, the unemployed, the landless and those affected and/or infected with HIV and AIDS (Hendricks, 2002). Therefore, households which have entitlement insecurities are highly vulnerable to food insecurity. Poverty leads to food insecurity as it results from lack of entitlements. Paarlberg (1999) pointed out that out of the twenty poorest countries in the world, sixteen are in sub-Saharan Africa, and this persistence of poverty is clearly one source of Africa's food insecurity. Poverty diminishes people's capacity to access adequate food. Older adults are widely acknowledged to be a group vulnerable to nutritional risk due to poverty and economic stress caused by lack of income and assets, as well as to competing demands for money, such as medications, health care and transportation (Quandt *et al*, 2001). It is acknowledged that rural elders have lower incomes and poorer health than their urban and suburban counterparts (Glasgow, 1997 in Quandt *et al*, 2001).

Most of the households in southern Zimbabwe rely on rain-fed agriculture which is very vulnerable to droughts. Successive droughts in the area have greatly impacted on agricultural output. They have led to the loss of livestock, especially cattle. Vulnerability to food insecurity continues to recur and increase during extended periods of drought (KNHR, 2004).

Households headed by women tend to be more vulnerable because access to livelihood opportunities by women is severely constrained by cultural, socio-economic and political factors, thereby increasing their vulnerability to food insecurity (Hedricks, 2002). About 65 percent of rural women in Zimbabwe derive their livelihoods from agriculture (UN, 2011). Women farmers lack access to agricultural extension training, agricultural inputs, land, water, technology, innovation, credit, financial services, and markets (WEF, 2013a). This restriction renders female-headed households vulnerable to food insecurity.

Various strategies have been employed by rural households to cope with food insecurity. These are referred to as food insecurity insurances. Insurances may address the root causes of food insecurity (e.g. increasing employment opportunities, land reform and use of improved agricultural production techniques) or they may address the symptoms of food insecurity, namely hunger (e.g. local charity, supplementary feeding programs and emergency food aid) (Phillips and Taylor, 1990). Although some studies have looked at household food insecurity in Zimbabwe (Breslin, 1994; Tawodzera, 2011; Mapolisa, 2011 and Chazovachii and Mutami, 2013), to date less work has specifically looked at vulnerability to food insecurity among rural households. Akerele *et al* (2013) argued that a food insecurity study that takes into account the socioeconomic characteristics of households is worthwhile in order to gain a better understanding of the relationship between socioeconomic

factors and food insecurity and to help in proper identification of the most vulnerable groups. This study, therefore, seeks to investigate vulnerability to food insecurity among rural households in Matobo district.

METHODOLOGY

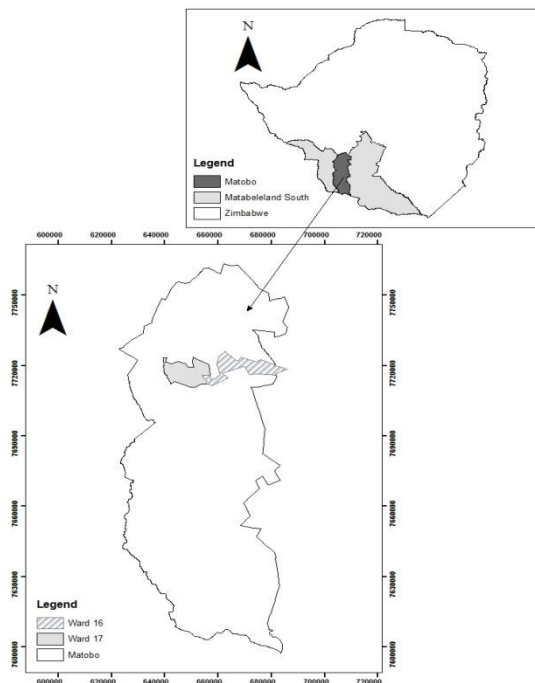


Figure 1: Study area

The study was carried out in Matobo district, in Matabeleland South province of Zimbabwe. Matobo is situated in agro-ecological region IV. The average annual temperature is 19.9 °C and precipitation averages 457 mm as shown in figure 2. The area experiences a semi-arid climate as it is subject to periodic seasonal droughts and severe dry spells during the rainy season (Meteorological Services Department, 2007). The rainy season occurs from November to March. Most of the areas in the district have wetlands which sustain community gardens during the dry season. Vegetation is dominated by *Acacia fleckii*, commonly known as black thorn; mopane (*Colophospermum mopane*) and *Cactus*spp, a dry land plant species (Ndhlovu, 2009).

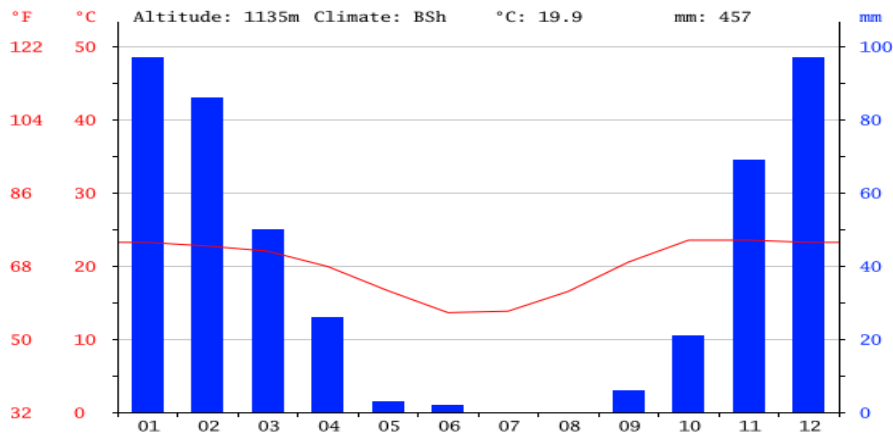


Figure 2: Climate of Matobo district

Data collection and sampling procedure

Data on vulnerability to food insecurity were collected over a month, August, 2014 through survey research design. A structured questionnaire was used as a data gathering tool. The data collected included demographic profiles, types and quantities of food consumed at household, causes of food insecurity and food security coping strategies at household level.

The study adopted a multistage sampling technique in order to select 60 households in the study area. The first stage involved random selection of two wards (ward 16 and 17) out of 25 wards in the study area, from which a random selection of one village from each ward was selected in the second stage, i.e. Shumbeshabe and Silungudzi villages. In the third stage, 30 households were sampled from each village by means of systematic sampling technique making a total of 60 households. The definition of households in this study links to members who share the same consumption baskets (Akerlele *et al*, 2013).

RESULTS AND DISCUSSION

Socioeconomic characteristics of households

Most of the households were headed by males, 55% compared to 45% headed by females (Table 1). However, female headed households also constituted a substantial number which is close to half of the sampled households. The mean age for participants was 57.8 years and there was an average of seven (7) persons per household mainly children, i.e. grand children to household heads. This is in agreement with the findings of Marcelino dj da Costa *et al*, (2013) that rural households comprise between five and nine members. Most of the households are comprised of people who are less energetic and productive, i.e. the old and the young who are less productive. The majority of household heads (38.3%) were widowed. A large number of household heads (80%) was unemployed and this gave rise to also a large number of participants (56.7%) relying on agriculture. The mean farm size was 2.25 hectares. The relationship shows that the smaller the size of a household's farmland, the higher the odds of being in the fragile category or food insecure.

Table 1: Distribution of Surveyed Households in Matobo by Socioeconomic Factors

Characteristics	Frequency (N=60)	Percentage
Gender of household head		
Female	27	45.0
Male	33	55.0
Age of household head		
Below 21	1	1.7
21 – 30	1	1.7
31 – 40	7	11.7
41 – 50	7	11.7
51 – 60	16	26.7
61 – 70	14	23.3
70+	14	23.3
Marital status		
Married	21	35.0
Single	9	15.0
Widowed	23	38.3
Divorced	1	1.7
Separated	2	3.3
Co-habiting	2	3.3
Other	2	3.3
Household size		
Less than 6	21	35.0
6 – 10	30	50.0
11 – 15	9	15.0
Employment status		
Employed	12	20.0
Unemployed	48	80.0
Main source of food		
Farming	34	56.7
Shops	21	35.0
Friends and relatives	3	5.0
Other	2	3.3
Farm size (hectares)		
0 – 2	39	65.0
3 – 5	17	28.3
6 – 8	4	6.7

The effects of socioeconomic factors on food intake

This study revealed that the largest percentage of participants who cut meal sizes are those who are widowed (38.3%) (Table 2). Households headed by widowed people are food insecure as they do not have access to sufficient food at all times. This could be attributed to a large dependency ratio as most households have elderly people and children.

Table 2: Marital status and meal size

Marital Status	Cut Meal Size		Total
	Yes	No	
Married	17	4	21 (35%)
Single	8	1	9 (15%)
Widowed	22	1	23 (38.3%)
Divorced	1	0	1 (1.7%)
Separated	2	0	2 (3.3%)
Co-habiting	2	0	2 (3.3%)
Other	2	0	2 (3.3%)
Total	54	6	60 (100%)

Table 3 shows that the larger the family the higher the odds of cutting meal sizes. All households that have 10 – 14 members indicated that they cut their meal sizes. This finding is consistent with Hesselberg and Taro (2006) who also found that there is a positive relationship between household size and fragility, meaning that the more members in the household, the higher the chances of being in the fragile category. Akerele *et al.*, (2013) also indicated that incidence, depth and severity of household food insecurity increased with greater household size and number of dependents.

Table 3: Household size and meal size

Household Size	Cut Meal Size		Total
	Yes	No	
Less than 5	15	6	21 (35%)
5-9	30	0	30 (50%)
10-14	9	0	9 (15%)
Total	54	6	60 (100%)

Table 4 shows that most of the respondents were unemployed (80%) and a very large percentage (76.7%) in this category cut meal sizes, implying that unemployment leads to food insecurity. This concurs with the assertion of Hendricks (2002) that the most vulnerable households to food insecurity are those with poor entitlement to incomes, resources and assets, namely: single parent women, children, the elderly, the unemployed and landless people. Rubey (2003) in Hadju *et al.* (2009) observes, in accordance with this reasoning that food crisis is a result of a decline in the purchasing power of rural households as was experienced in Malawi in 2002. Unemployment is a result of lack of sustainable development which is associated with to civil war, plague, ignorance. Countries with low levels of development “are often trapped into violent conflict, victims of an abundance of lootable natural resource such as oil or diamonds, surrounded by other unstable and violent countries, and governed by corrupt and incompetent officials” (Matthew and Hammill, 2009: 1120) Unemployment

leads to the weakening of the “trade-based entitlement” as the household lacks the purchasing power for food and farm inputs.

Table 4: Employment status and meal size

Employment Status	Cut Meal Size		Total
	Yes	No	
Employed	8	4	12 (20%)
Unemployed	46	2	48 (80%)
Total	54	6	60 (100%)

Dynamics of food insecurity in Matobo district

The participants were asked whether they have worried that they would not have enough food in the next twelve months, since the date of interview. The results in Figure 3, show that the majority, which is 86.7%, have worried about not have enough food. This indicates that most of the households in Matobo district are fragile households since they are insecure in terms of food availability. They are food insecure since they face the possibility of an inadequate diet in the future.

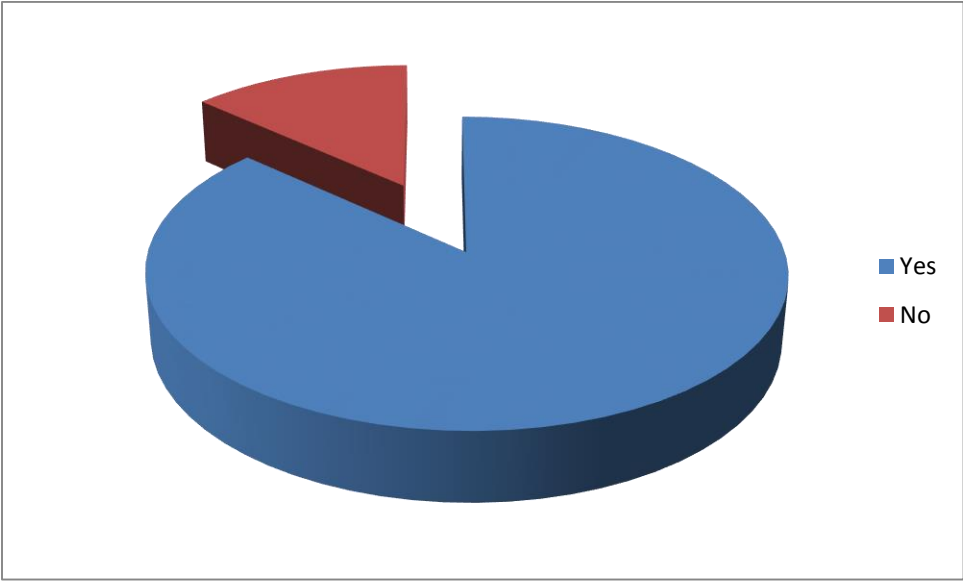


Figure 3: Worrying about not having enough food

Figure 4 also shows that most of the time (some months but not every month) a lot of people, 27 (51.9%), are worried about not having enough food and 19 (36.7%) are worried almost every month and lastly a small number, 6 (11.5%), is worried only one or two months. There is food insecurity as some households do not have stable stocks of food. Food is not available to all people on a regular basis.

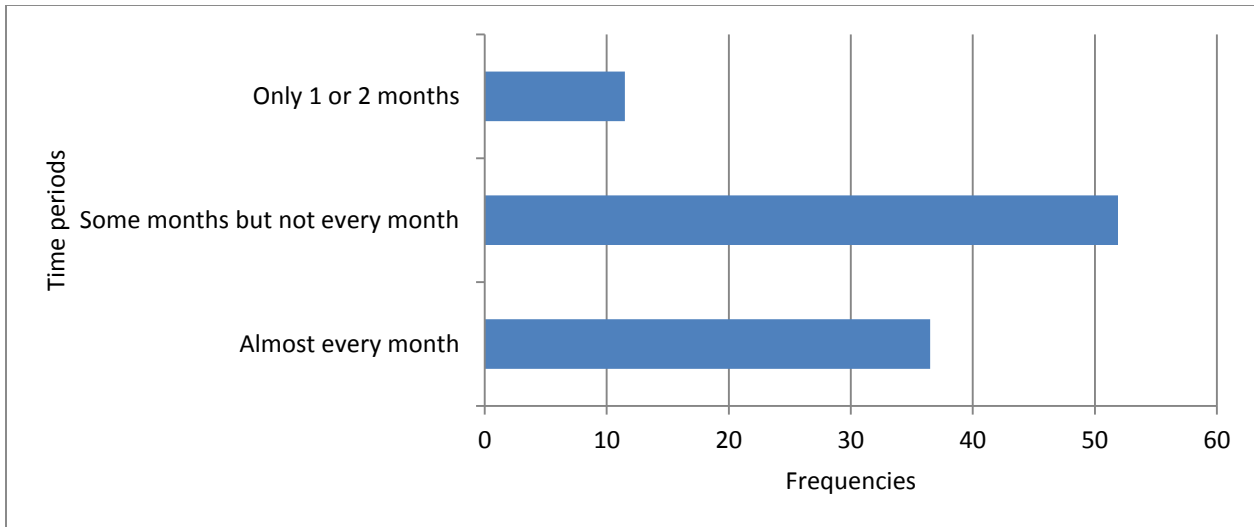


Figure 4: Number of people worried per given time period

The study also revealed that 73.3% of participants ate foods that they did not prefer to eat due to lack of resources as shown in figure 5. The majority of participants, 54.5%, experience this state of affairs in some months but not every month and 31.8% experience it almost every month (figure 6). This is in agreement with the findings Akerele *et al* (2013) who found out that in South-West Nigeria the most prevalent strategy is eating less expensive and less preferred food. Therefore, households in Matobo district are food insecure as they lack physical and economic resources to access sufficient and nutritious food to meet their dietary needs and food preferences. Most households find themselves eating food they do not prefer due to shortage of resources.

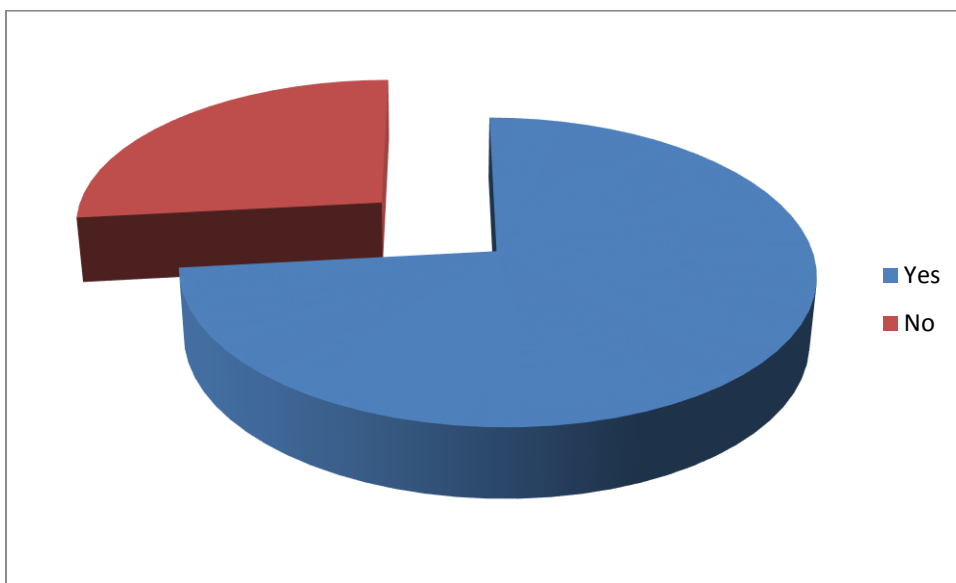


Figure 5: Eating less preferred foods due to lack of resources

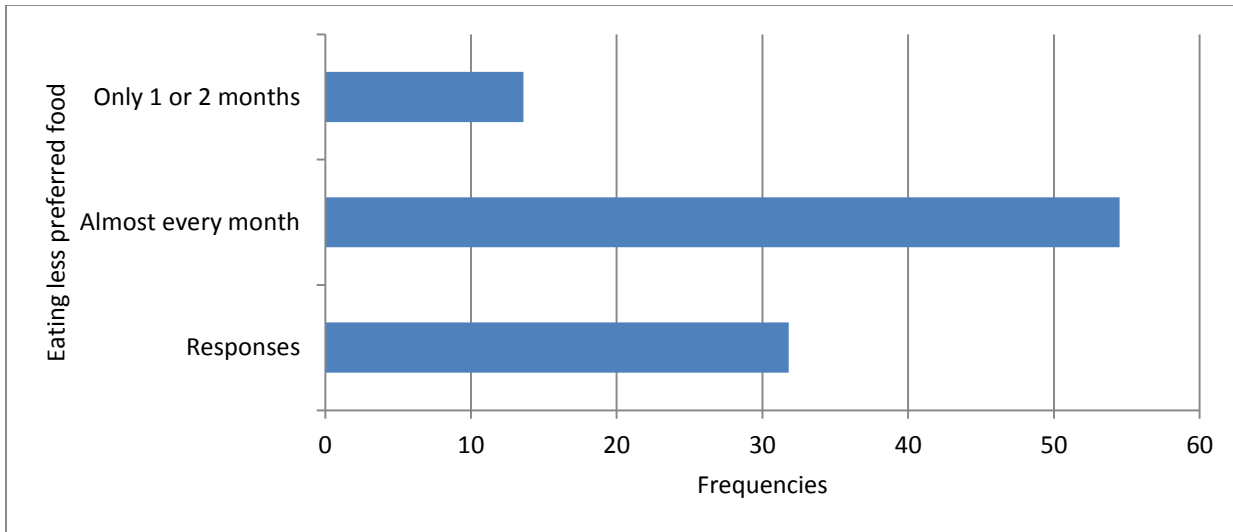


Figure 6: Frequencies on eating less preferred foods due to lack of resources

Food insecurity in Matobo district is seasonal as shown in figure 7. Most households (48.3%) experience food shortages from October to December. Food insecurity is transitory or periodic as it is experienced over a certain period of the year. The period between October and December is the beginning of the rain season and food from the previous rainy season would have been exhausted.

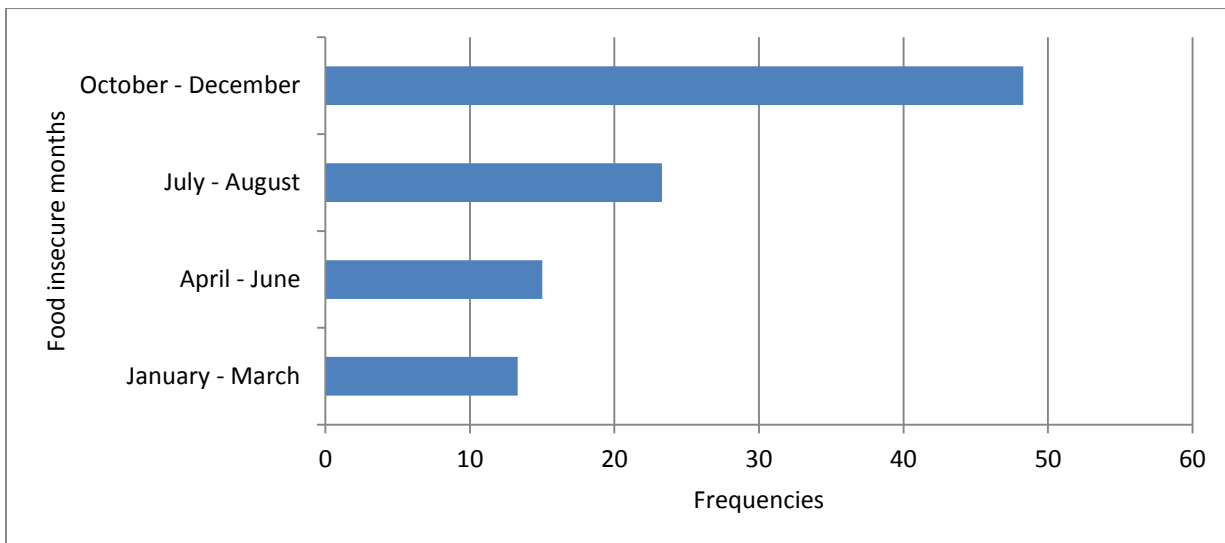


Figure 7: Months associated with food insecurity

The study revealed that most households, 55%, do not stock food and 45% stock food (figure 8). This is caused by low agricultural output. A limited variety of food is produced, constraining dietary diversity and very little produce is stored for extended periods leading to hunger between harvests. There were no granaries in the study area.

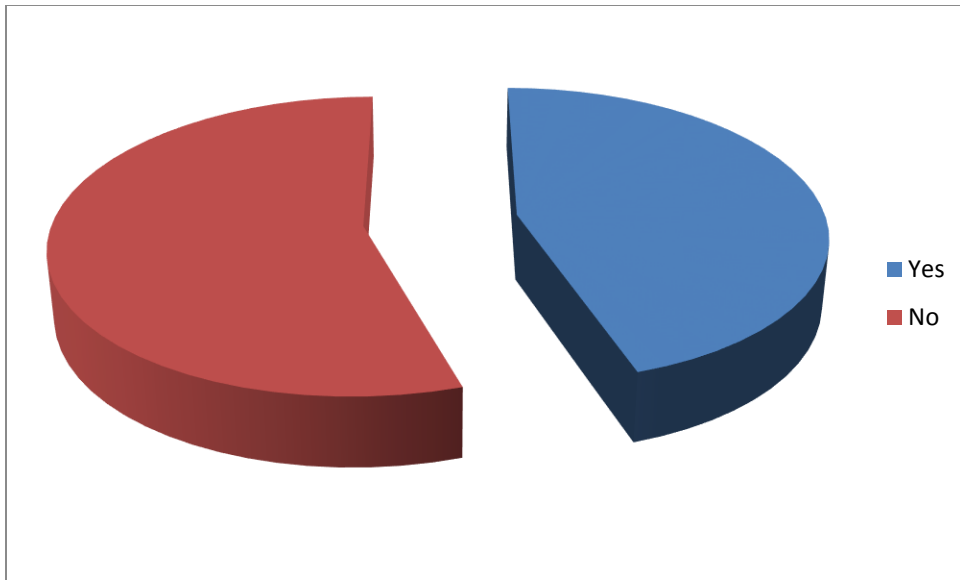


Figure 8: Food stocks for households

The research findings, in Table 5, reveal that the majority of participants, 66.7%, strongly agree that erratic rains lead to food shortages. The study area is in agro-ecological region 1V, which is semi-arid as it is prone to periodic droughts. Rainfall tends to be below normal for most of the time. This shows the effects of external factors on food insecurity. Shortage of inputs (36.7%); unemployment (36.7%) and small plot sizes (28.3%) were indicated as some of the major contributory factors to food insecurity. Hesselberg and Yaro (2006) stated that the larger the size of a household's farmland, the lower the chances of being in the fragile category. However, plot sizes in Matobo district are small because the area is mountainous. Some participants indicated that most areas have inselbergs leaving less land suitable for crop cultivation and grazing land and since the area is mountainous, it is infested with pests such as baboons, monkeys, warthogs and leopards that devour crops, poultry and small livestock. It is nearly impossible for most farmers to diversify through crop cultivation and keeping of small livestock. Livestock is an important endowment accounting for the bulk of peasant savings and buffers in times of crisis, (Hesselberg and Yaro, 2006). The ability of rural people to procure food when reserves are low is heavily dependent on the availability of 'disposable' livestock (ibid). Households with few or no livestock and poultry tend to be more vulnerable to food insecurity since the lack assets that can be easily turned to cash or traded for food stuffs.

Table 5: Causes of food shortages per household

What are the causes of food shortages to this household?	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Erratic rains	66.7%	11.7%	5.0%	10.0%	6.7%
Shortage of inputs	36.7%	35.0%	11.7%	15.0%	1.7%
Shortage of labour	20.0%	31.7%	16.7%	16.7%	15.0%
Pests and diseases	23.3%	46.7%	8.3%	8.3%	13.3%
Small plot size	28.3%	13.3%	10.0%	30.0%	18.3%

Unemployment	36.7%	13.3%	13.3%	13.3%	23.3%
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The study also revealed that 56.7% of participants indicated that they skip meals as a coping strategy to food insecurity, 41.7% have established nutritional gardens close to wetlands and 35.0% eat less preferred food as shown in Table 6. Coping strategies such as skipping meals and eating less expensive and less preferred foods can be regarded as “negative mechanisms” as they do not actually alleviate food insecurity but secure the continued existence of people under compromised living conditions (Orewa and Iyangbe, 2010 in Akerele *et al*, 2013). It is also highlighted by Tarasuk and Vogt (2009) that a household is considered food insecure if there are indications of compromise in the quality and/or quantity of food consumed among either adults or children in the household because of financial constrain. These strategies normally result in loss of weight and in an increase in the overall population of under nutrition. It was indicated that gardening was no longer robust due to climate change that has led to the shrinking of most wetlands in the area. During the months of August to October of each year some households gather wild fruits for family consumption and for sale. The mostly gathered wild fruit is *Mimusops decorifolia (umbumbulu)*. It is sold along the main road by, mostly, women and children. Participants indicated that they sell this wild fruit and thatch grass in order to get cash for purchasing food, clothes and to pay school fees.

Table 6: Coping strategies

During food shortages in the past 12 months, what coping strategies did you use to ensure the adequacy of food for this household?	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Skipped meals	56.7%	25.0%	3.3%	8.3%	6.7%
Eating less preferred food	35.0%	48.3%	3.3%	8.3%	5.0%
Eating wild fruits	6.7%	28.3%	23.3%	28.3%	13.3%
Growing drought tolerant crops	8.3%	18.3%	16.7%	30.0%	26.7%
Establish nutritional gardens	41.7%	31.7%	5.0%	20.0%	1.7%

Social networks are also one of the strategies used by some households to cope with food insecurity. Farmers rely on each other for support during times of crisis. Types of support include lending, borrowing and barter trading. Some households get remittances from their relatives in neighbouring countries such as South Africa and Botswana. However, most participants indicated that social networks were not sustainable as they normally result in quarrels when people fail to repay borrowed food stuffs and remittances are not regularly received. This result further authenticates the high level of food insecurity among the sample households in the study area.

CONCLUSION AND RECOMMENDATIONS

Drawing from the above findings, the study concludes that socioeconomic characteristics are pivotal in determining the level of food security. Therefore, understanding the influence of these socioeconomic characteristics on food insecurity is important for planning purposes and determining vulnerable groups. Lack of sustainable development leads to the loss of entitlements, causes poverty and this eventually renders people vulnerable to food insecurity. The study established evidence of seasonal food insecurity in the study area. Food insecurity reduced with employment, low household size and large farm size but increased with unemployment, larger household size and numbers of dependants. Incidence of food insecurity was higher among households headed by women, single parents and elderly people. External factors such as erratic rains and pests and diseases, including small plot sizes greatly contributed to food insecurity. Households resorted to skipping meals, eating less preferred food and establishing nutritional gardens as coping strategies to food insecurity.

The study, therefore, supports policies that increase household farm sizes such as land reform, establishment of irrigation schemes for all year crop cultivation, pen feeding to reduce loss of livestock and increasing employment opportunities. These strategies address the root causes of food insecurity. Gardening provides households with fresh and nutritious food when various vegetables are grown. Households should also build more storage facilities for their produce to ensure food availability and accessibility all year round.

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