

Determinants of Food Accessibility of the Rural Households in Sekhukhune District Limpopo Province, South Africa

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ABSTRACT Using the Household Food Insecurity Access Scale (HFIAS), this study investigated food accessibility of rural households. The study was conducted in 21 villages in Sekhukhune District, Limpopo Province. A sample of 36 extension workers and 602 household members participated in the study. The study used both qualitative and quantitative methods. A multi-stage random sampling technique was used to select the final respondents, who came up to 602 households. The research was analysed using the Software Package for Social Scientists (SPSS version 20). Descriptive analysis was done. The results from the extension workers indicated that there are six accessing strategies, while the results from household members indicated that 80% of them lack food access. The findings highlighted and reinforced the importance of social grants, the promotion of accessing strategies, employment opportunities, agricultural production as a facilitating factor to improve food access, and household food security in Sekhukhune District.

INTRODUCTION

The World Food Summit of 1996 defined food security as existing when all people, at all times, have physical, social and economic access to enough, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO 2003; FAO 2008 in De Kock et al. 2013). Food security encompasses four main components, namely: availability, stability, access and utilisation (Du Toit 2011; Baiyegunhi and Makwangudze 2013; De Kock et al. 2013). This paper focuses on food access. Access is defined as a household's ability to acquire enough food of sufficient quality to have all its members meet their nutritional requirements and lead productive lives (Labadarios et al. 2011).

Southern Africa has experienced a steady rise in levels of vulnerability to food insecurity in recent years. Food insecurity is a major developmental problem in southern Africa, and has

been the focus of many non-governmental organizations and state development initiatives (Battersby 2011). Food insecurity in South Africa is not viewed as a failure to produce enough food nationally, but rather as a failure to provide adequate cash to purchase food at household level (Grobler 2013). The seriousness of this problem is evidenced by the Millennium Development Goal 1, which seeks to eradicate hunger (Labadarios et al. 2011; Sakyi 2012; De Cock et al. 2013).

South Africa is an upper middle income country in the sub-Saharan region of Africa. It has its food policy located within a wider regional context in the Southern African Development Community. According to its Integrated Food Strategy (Department of Agriculture 2002), a country can be considered as food secure at national level, while, at the same time, it has some pockets of food insecurity at the local level, especially in rural areas (Du Toit 2011; De Cock et al. 2013). Several studies in South Africa, have shown that many households, especially those in rural areas, are food insecure (Altman et al. 2009; Modirwa and Oladele 2012; Sakyi 2012; De Cock et al. 2013).

Over the past two decades, development has been shifting its focus towards household issues and particular problems such as food insecurity due to lack of food access. As a result, the household has become an increasingly impor-

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tant institution for development, and it has come under increased scrutiny as development practitioners and scholars seek to better understand this institution's functions and food insecurity issues more clearly (Carr 2005). According to Vogel and Smith (2002), the fact that many households in rural areas continue to experience food insecurity in South Africa is an indication that the problem is not about food shortages, but rather a problem of inadequate access to food by the vulnerable groups. According to Ndhleve et al. (2012), inadequate access to food and poverty are prevalent problems in rural South Africa, and poor households are increasingly failing to afford and procure food. Food accessibility is a major problem in South Africa.

According to United States Department for International Development (1992), food access is defined as "when individuals have adequate income or other resources to purchase or better to obtain levels of appropriate foods needed to maintain consumption of adequate diet or nutrition". According to Sakyi (2012), food access is the ability of the household to acquire food regularly through one or a combination of home production and stocks, purchases, barter, gathering and hunting, gifts, borrowing, or food aid. Food access in a rural setting will include the ownership of land to produce food or having a reliable source of income to secure food (Sakyi 2012). The implication is that sufficient foods may be available in the country, but that does not guarantee access by households unless they possess adequate resources to acquire such foods.

In South Africa, many studies have examined the household food security status, by focusing on the description of indicators and their distribution. Very little has been done with regard to the analysis of the determinants of food security at household level. Moreover, studies were conducted mostly at the national or provincial levels, disregarding the household's issues. The result is that data on various important community and household variables related to food security is limited (Ndhleve et al. 2012). According to De Cock et al. (2013), "food security is multidimensional in nature and that makes accurate measurement and policy targeting quite challenging".

Therefore, there is a wide distinction between national food security and household food security in terms of the approach to assess them and the levels of assessment also differs

(Du Toit 2011; Ndhleve et al. 2012; De Cock et al. 2013). Household food security refers to the availability of food in one's home, which one has access to (Du Toit 2011; Ndhleve et al. 2012). The relationship between household food insecurity and the determinants of food accessibility of the rural households in Sekhukhune District is not yet clear. This paper, therefore, explores the determinants of inadequate access to food with reference to the following objectives:

- i To give an outline of the food accessing strategies as perceived by extension workers; and
- ii To analyze food accessibility at household level using the Household Food Insecurity Access Scale (HFIAS).

METHODOLOGY

According to De Cock et al. (2013), the population of the Limpopo Province was approximately 5.55 million people, or 10% of South Africa's total population. About 90 % of the population of the province lives in rural areas and 47.5% is younger than 15 years old. Limpopo Province had the highest population growth in the country, that is, 3.9 % per annum (De Cock et al. 2013).

The study used both qualitative and quantitative methods. Probe questionnaires/check list which included matters relating to food accessing strategies as perceived by the extension workers were used. To analyze food accessibility at household level, a Household Food Insecurity Access Scale (HFIAS) was used. The researcher sought permission from the Limpopo Department of Agriculture to conduct research in Sekhukhune District. A multi-stage random sampling technique was used to select the respondents. The first stage was the random selection of three municipalities, namely Ephraim Mogale, Makhuduthamaga and Elias Motswaledi. From the three municipalities, a random sample of 21 villages was selected, namely Mohla-laotwane, Mmmakgatle, Tsatane, Letebejane, Mogaladi, Moomane, Mmatilu, Mphane, Elandskraal, Phokwane, Herford, Mogalatsane, Thabaleboto, Makgopheng, Gemspokspruit, Tafelkop, Wonderboom, Mamaneng, Mabitsi, Ngwalemong and Leeufontein.

The selection of the villages was based on the fact that they can access extension services. Although extension workers in the district were

more than 36, only those who were willing participated in the study. Therefore, purposive sampling was used to select 36 extension workers, who then guided the researcher in the villages. Further permission to conduct the research was granted by the chiefs of the selected areas and the village head men. With the help of the local extension workers at village level, stratified random sampling was used to select 602 household members. Multi-stage random sampling was used because a complete list of the population could not be found and the method also cut down on expenses and time. It took the researchers five months to collect the data.

Data were captured and analyzed using the Software Package for Social Sciences (SPSS version 20). As part of the standard protocol, in each village, a village meeting was held with the villagers in the presence of community representatives such as the head men. The nature of the research and the contents of the questionnaire were explained to them. The questionnaire covered open and close-ended questions such as those found in HFIAS.

RESULTS AND DISCUSSION

Characteristics of the Sample in 21 Villages

The following villages were visited: Mohlalaotwane, Mmmakgatle, Tsatane, Letebejane, Mogaladi, Moomane, Mmatilu, Mphane, Elandskraal, Phokwane, Herford, Mogalatsane, Thabaleboto, Makgopheng, Gemspokspruit, Tafelkop, Wonderboom, Mamaneng, Mabitsi, Ngwalemong and Leeufontein. The number of households which participated in each village are shown in Table 1.

An Outline of the Food Accessing Strategies of the Rural Households as Perceived By the Extension Workers (n=36)

Extension workers were asked to list and explain the most commonly used food accessing strategies employed by the rural households in the villages. All the extension workers (100%) indicated that the most used accessing strategy is the purchasing of food *using cash from social grants*. The reliance on social grants as a major source of income was a significant determinant of household food security (Sakyi 2012). According to Atman et al. (2009), hunger could

be reduced dramatically if eligible households are given such grants. Ndhleve et al. (2012) also indicated that households with social grants as the main source of income, were at a lower risk of inadequate access to food, and this indicates the effectiveness of social grants. A study conducted by De Cock et al. (2013) in Limpopo Province of South Africa, concluded that, out of a sample of 599 respondents, 75% indicated that they receive social grants from the state. Maponya and Moja (2012) further argue that government support services in the form of grants continue to play an important role as a source of income used to make food accessible to the households in Sekhukhune district. The grant is also received by a third of the households. These correlate with the results from the extension workers.

Table 1: Characteristics of the sample in 21 villages

Variable	Number of households	Percentages*
Mohlalaotwane	27	4.5
Mmakgatle	25	4.2
Tsatane	22	3.7
Letebejane	35	5.8
Mogaladi	32	5.3
Moomane	26	4.3
Mmatilu	41	6.8
Mphaane	26	4.3
Elandskraal	88	14.6
Phokwane	25	4.2
Di Plotong–Herford	12	2.0
Mogalatsane	35	5.8
Thabaleboto	29	4.8
Makgopheng	24	4.0
Motsephiri/ Gemspokspruit	19	3.2
Tafelkop ga Matsepe	22	3.7
Wonderboom	23	3.8
Mamaneng	31	5.1
Mabitsi	38	6.3
Ngwalemong	12	2.0
Leeufontein	10	1.7
Total	602	100

According to Labadarios et al. (2011), social grants have been shown to increase women's purchasing power, as well as their access to food. According to Lemke (2001), "... still today, government grants provide incentives for people to remain in the rural areas and provide a regular income to access food for a large section of the rural population". Furthermore, research conducted by De Cock et al. (2013) in Limpopo Province, South Africa also revealed that "social

grants were the most prevalent source of income across all the districts". Therefore, social grants appear to be the most important contributor to the reduction of poverty and food insecurity in the poorest households (Altman et al. 2009).

Cash as a Food Accessing Strategy

For the purpose of this paper, cash is derived from sources such as remittances, working full time or part time. The responses from the extension workers (100%) emphasize the importance of using cash to buy food in the markets. Cash plays an important role in the accessibility of food for most rural households in the study area. Cash income is seen as one of the most important determinants of food insecurity and hunger (Lemke 2001). According to Chopra et al. (cited in McLachlan and Landman 2013), "...even in rural areas, most households were net deficit food producers, as their access to food was partially or wholly reliant on household income. As a result, food security was directly or indirectly linked to access to cash to purchase food". Extension workers in the study pointed out that most of the rural households in Sekhukhune lack cash as one of the food accessing strategies. According to Stats SA (Statistics South Africa 2006) only 27% of the households receive income from regular wage employment. This indicates that employment opportunities are very scarce in this district resulting in lack of cash to access food.

Cash and Food Production as Accessing Strategies

The extension workers (72%) reported that some households are involved in food production, which is supplemented with cash to buy food from the markets. This is supported by research conducted by Baiphethi and Jacobs (2009) who concluded that food purchases from markets, in many cases, make up about 90% of the household food sources, while only 10% of the food is obtained through subsistence farming or the public transfers. A study conducted by Sakyi (2012) in Limpopo Province, indicated that 31% of the rural households produce their own vegetables for household consumption. Land ownership, land-use practices and possession of livestock are all indicators of food security (Lemke 2001).

However, most poor households in rural areas are primarily dependent on purchasing food rather than own production, which is likely to remain the case even in the event of a successful land reform (Lemke 2001). According to Labadarios et al. (2011), the majority of the South African population has no land to grow its own food and, therefore, will have to continue to purchase food items commercially. Thus, households should always have cash to supplement food production.

A study conducted in the research area (Limpopo Province) by De Cock et al. (2013) concluded that household food production does not seem to contribute to a higher food security status. In their words, "This entails that currently households who might have weaker access to external income are not able to compensate by producing food for subsistence purposes" (De Cock et al. 2013). These results are similar to the findings of Ndhleve et al. (2012) who concluded that agriculture is failing to sustain households' food requirements.

According to Du Toit (2011), about 4 million people in South Africa are engaged in smallholder agriculture. The reasons for participating in smallholder agriculture are to provide food and for subsistence. While extension workers' responses indicate that food production is an accessing strategy, Du Toit (2011) argued that the problem is that there is no credible long term national data that has established the contribution of the subsistence/small holder agricultural sector to food security.

Food Aid as an Accessing Strategy (The Use of the National Feeding Scheme)

The extension workers (44%) indicated that some members of the households access food through food aid. In these villages, food aid is only in the form of school feeding programmes where school-going children are given food at school. This is known as physical accessibility, which implies that food must be accessible to the vulnerable groups such as school-going children. This form of accessing food is only possible for households with school-going children and the meals are offered once a day at some of the schools during break time. Unfortunately, this strategy cannot cover all the needs of the household members.

Food Gathering as an Accessing Strategy

Another accessing strategy involves the gathering of food from the veldt. Forty two percent (42%) of the extension workers indicated that some households access food such as indigenous vegetables and fruits from the veldt or through fishing in the local dams and rivers. Findings obtained from extension workers are also supported by a study conducted by Matla (2008) elsewhere in South Africa in the Oranje farm. Matla concluded that food gathering is an accessing strategy. A study conducted by Ndhleve et al. (2012) in a rural coastal area in South Africa indicated that 15.7% of the respondents resorted to the environment as a strategy to access food. According to Da Costa et al. (2013), farmers in Timor-Leste harvest wild food such as yams, bitter beans and sago palms to cope with repeated periods of food insecurity.

Bartering and Payment in Kind as an Accessing Strategies

The last accessing strategy revealed by extension workers (22%) is the bartering or exchange of food such as sugar for maize meal for labour/ payment in kind (piece jobs). This strategy is commonly used by members of the household to make food accessible at household level. This was also supported by a study conducted by Matla (2008) who concluded that bartering and payment in kind are some of the accessing strategies for the farm workers.

In another study in Timor-Leste, the researchers concluded that social networks play a major role in helping households to access food (Da Costa et al. 2013). According to Da Costa et al. (2013), there are a number of levels of support ranging from lending, borrowing and battering to outright gifting. The gifting of food between neighbours and members of extended families may be characterized as “delayed reciprocity” whereby the gift is returned at a later date when the household that has received the gift has surplus and/or its members are aware that the other household has a shortage (Da Costa et al. 2013). Food items that are subject to gifting in Timor-Leste are cassava, maize, hulled rice and leafy greens (Da Costa et al. 2013).

Analysis of Food Accessibility at Household Level Using the HFIAS

Out of a sample of 602 respondents, 83.1% were females, while 16.9% were males. In the

sampled villages, females participated in the study more than males because at the time of the research (during the week, Mondays to Fridays), men were either at work or had migrated to the urban areas.

The HFIAS questionnaire was used to gather data. According to Jacobs (2009), there are a number of indicators available to measure food insecurity. Some of the more widely used indicators are: Household Economy Analysis, Dietary Energy Consumption, Child Malnutrition, Sustainability Assessment Based Resilience, and the Household Food Insecurity Access Scale (HFIAS). For the purpose of this study, HFIAS was used to measure the food access of rural households (n=602) in Sekhukhune District.

The HFIAS was developed because, formerly, information on household food insecurity was difficult and costly to collect, as well as technically difficult owing to the use of econometric approaches (Swindale and Bilinsky 2006; Ballantine et al. 2008; De Cock et al. 2013). The HFIAS is based on the premise that food insecurity actually causes universal reactions and experiences. These can be measured, coded, and used to assess household food insecurity in an easy and straightforward manner. The measure can be used for assessing contemporary food insecurity situations, as well as for longitudinal studies (Ballantine et al. 2008).

The HFIAS was designed to assess the access component of household food insecurity. The measure is aimed at capturing the universal experience of accessing food across cultures and in individual countries (Ballantine et al. 2008). The wording developed is seen to be universally appropriate; minor editing for local contexts is possible. According to Swindale and Bilinsky (2006), Ballantine et al. (2008) and Baiyegunhi and Makwangudze (2013), the HFIAS covers the following experiences associated with food insecurity: Anxiety and uncertainty about household food access; insufficient quality of food including variety; preferences and aspects of social acceptability; and insufficient food intake and its physical consequences.

The Household Food Insecurity Access Scale (HFIAS) was developed by the Food and Nutrition Technical Assistance Project 2 (Swindale and Bilinsky 2009; De Cock et al. 2013). HFISA asks the respondents nine food accessing questions. This method assesses whether households have experienced problems with

accessing food in the past four weeks or within one month or within the past 30 days. This method has been tested and validated in some developing countries and it has generated the required indicators (Coates et al. 2006 and 2007; Fringilo and Namana 2006; Sakyi 2012; De Cock et al. 2013; Baiyegunhi and Makwangudze 2013).

The selected indicators were drawn from the extensive review of literature representing both the household's past experiences and the socio-economic conditions. The nine questions serve as a tool to assess whether households have experienced problems in accessing food in the preceding 30 days or 4 weeks.

Percentage Distribution of Household Responses to the HFIAS

Of the respondents surveyed, 76% said they often worry about not having enough food for themselves and their household members. Twenty-four percent (24%) of the respondents reported never worrying about food, meaning they were food secure. The results indicate that a higher percentage (76%) of the respondents have poor food access. A study conducted by Balantyne et al. (2008), elsewhere in South Africa, concluded that, out of a sample of 459 respondents, 90% often worried about not having enough food for themselves and their families. Another study conducted by De Cock et al. (2013) concluded that out of 599 households surveyed in Limpopo Province, 53.1% of the households were severely food insecure. The food insecure households were living below the poverty line of R502 per person per month (Gumede 2010 in De Cock et al. 2013). This has major implications for lack of household food security.

One of the reasons for not accessing enough food is the lack of resources. Eighty-one percent (81%) of the respondents indicated that they lack resources for accessing food, while 19% have access them. The implications for this scenario is that about 81% are food insecure due to a lack of resources for accessing food. This is because the households cannot afford to buy preferred foods, thus they resort to monotonous diets because it is all that they can afford.

Eighty-four percent (84%) of the respondents indicated that they ate a limited variety of foods due to a lack of resources to access a variety of

food. Eighty-four percent (84%) indicated that this situation happened very often. Only 16% of the respondents had access to food.

Lack of resources in a rural setting could be as a result of lack of land for production, lack of assets to rely on as coping mechanism and lack of money to buy foods. Eighty-five percent (85%) of the respondents indicated that they were eating foods that they really did not like because they lack resources to access and acquire what they need. Foods which they did not want to eat included, for instance, maize meal served with potatoes or dried indigenous vegetables served with maize meal on a daily basis. Eighty-two percent (82%) of the respondents indicated that they were forced to eat smaller meals because there was not enough food to go around due to lack of food access at household level. Out of the total sample of 602 respondents, only 18% could eat their normal meals. Nutritionally, an adult person should at least eat three meals a day. However, due to a lack of food access, households eat limited amounts of food.

The majority (81%) of the respondents also reported that they or their household members sometimes ate fewer meals in a day (once a day) than required, owing to lack of food. The respondents ate fewer meals a day because there was not enough food in their households, implying that they lacked food access. Eighty-one percent (81%) of the respondents resorted to eating a few meals in a day to save food for the next day. Sometimes the adults ate a few meals to save the food for siblings and/or their children. These findings correlate with the results of a study conducted by De Cock et al. (2013) who concluded that female adults (18 years and above) eat less when confronted with a food shortage. This makes them the most vulnerable group to food insecurity. According to De Cock et al. (2013), children under 5 years were the most likely to have adequate food to eat, followed by older children (5-18 years).

Sixty percent (60%) of the respondents indicated that for the past four weeks, they lacked resources to access food, while 40% had resources to access food. The results indicate that the majority (60%) of the households lack food security. Out of the 60% of the respondents who lack food, most of them ate once or twice a day to save food for the next day. Eating twice or once a day correlates with a study conducted by De Cock et al. (2013) who concluded that

most adults ate, on average, two or three times a day, with 54.6% of the household having two meals and 35.4% having 3 meals per day.

When asked how often the respondents or their families went to bed hungry, most (67%) reported never going to bed hungry, while 33% went to bed feeling hungry. This result shows that 33% live below the poverty line, while 67% at least have dinner before they sleep. Twenty-four percent of the respondents indicated that sometimes they went for the whole day and night without food, while 76% indicated that they had food. Therefore, only 24% of the households are severely food insecure, meaning that they are poor and suffer absolute poverty. Table 2 presents the percentage distribution of household responses to the HFIAS.

The results from Table 2 indicate that households in Sekhukhune lack proper means to access food. This is supported by the study conducted by Sakyi (2012) who used the HFIAS and concluded that the majority of rural households in Sekhukhune District were experiencing food insecurity ranging from mild-to-moderate food insecurity to severe forms. A report on a survey in Sekhukhune District (Rule et al. 2005 in De Cock et al. 2013) confirmed that most of the households experienced a lack of food or money to buy food, especially in January and February because of the "... household budget deficit caused by high spending patterns during the festive season; lack of income during the festive seasons, due to vacation leave and more funds being allocated to other cost items such as school fees and uniforms".

CONCLUSION

Data obtained from extension workers (n=36) indicated that households use different access-

ing strategies to ensure that food is available at household level. All the extension workers indicated that the most used accessing strategy is the purchasing of food using cash and, in most cases, cash comes from the social grants. The results show that different accessing strategies are used by rural households, namely the use of cash; cash and food production; food production, the use of social grants, food aid in the form of school feeding programmes; food gathering; bartering and payment in kind. The percentage distribution of household responses to the HFIAS indicated that the majority (80%) of the households lack food access, resulting in food insecurity. It is very clear from the results that the majority (80%) of the households lack food access.

RECOMMENDATIONS

Extension workers should create awareness on different food accessing strategies available to rural households. This will help rural households to utilize these strategies, thus improving their food access and food security status. The role of food production should be emphasized by extension workers, in order to increase food accessing strategies in Sekhukhune District. Agricultural activities, if promoted, can contribute to improved nutrition, especially if implemented in conjunction with direct nutrition interventions. Therefore, there is need to create awareness on different food accessing strategies and different interventions to ensure that households are in a better position to access food.

Interventions required could range from emergency food relief and other forms of social protection to measures aimed at ensuring more effective participation of people in the formal

Table 2: Percentage distribution of household responses to the HFIAS (n=602)

<i>Variable: Impressions of food accessibility</i>	<i>Total (%) Yes</i>	<i>Total (%) No</i>
Worry that your household would not have food	n = 458/76%	n = 144/24%
Unable to eat a balanced meal	n = 488/81%	n = 114/19%
Worried that the household would not have enough food	n = 506/84%	n = 96/16%
Ate no preferred food	n = 512/85%	n = 90/15%
Reduced the size of meals	n = 494 82%	n = 108/18%
Skipping some meals in a day	n = 488/81%	n = 114/19%
No food at all in the household	n = 361/60%	n = 241/40%
Went to sleep hungry	n = 199/33%	n = 403/67%
Did not eat the whole day and night	n = 144/24%	n = 458/76%

and informal economies. The findings highlight and reinforce the importance of social grants, food aid in the form of school feeding programmes, employment opportunities such as small businesses, remittances, agricultural production, bartering as facilitating factors to improve food access and household food security in Sekhukhune District. The national and provincial Departments of Health, Social Development, Agriculture and Rural Development need to proactively address these issues.

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REFERENCES

- Altman M, Hart T, Jacobs P 2009. Household food security status in South Africa. *Agrekon*, 48(4): 345-361.
- Baiphethi MN, Jacobs PT 2009. The contribution of subsistence farming to food security in South Africa. *Agrekon*, 48(4): 473-475.
- Baiyegunhi LSJ, Makwangudze KE 2013. Home gardening and food security status of hiv/aids affected households in Mpophomeni, KwaZulu-Natal Province, South Africa. *Journal of Human Ecology*, 44(1): 1-8.
- Ballantine N, Rousseau GG, Venter DJL 2008. Purchasing behavior as a determinant of food insecurity in Klipplaat. *Journal of Family Ecology and Consumer Sciences*, 36: 1-8.
- Battersby J 2011. Urban food insecurity in Cape Town South Africa: An alternative approach to food access. *Development Southern Africa*, 28(4): 545-561.
- Carr ER 2005. Development and the household: Missing the point? *Geo Journal*, 62: 71-83.
- Chopra M, Witten C, Drimie S 2009. Combating malnutrition in South Africa. *GAIN Working Paper Series No. 1*. Global Alliance for Improved Nutrition, Geneva.
- Coates J, Swindale A, Bilinsky P 2006. Household Food Insecurity. Access Scale For Measurement of Food Access. Food and Nutrition Technical Assistant Project. From <www.fantaproject.org/publications/hifias.shtml> (Retrieved on 30 March 2011).
- Coates J, Swindale A. and Bilinsky P. 2007. Household Food Insecurity Access Scale (HFAS) for Measurement of Food Access: Indicator Guide. Volume 3. USAID: pp. 1-4.
- Da Costa MDJ, Lopes M, Ximenes A, Ferreira AR, Spyckerelle L, Williams R, Nesbitt H, Erskine W 2013. Household food security in Timor-Leste. *Journal of Food Security*, 5: 83-94.
- De Cock N, D'Haese M, Vink N, van Rooyen CJ, Staels L, Schonfeldt HC, Haese LD 2013. Food security in rural areas of Limpopo province, South Africa. *Journal of Food Security*, 5: 269-282.
- Du Toit CD 2011. Food Security by Directorate Economic Services Production Economics Unit. Pretoria. Department of Agriculture, Forestry and Fisheries. Republic of South Africa. 1: 1-8.
- Department of Agriculture. 2002. *The Integrated Food Security Strategy of South Africa*. Pretoria: Department of Agriculture.
- Food and Agriculture Organization (FAO) 2003. *The State of Food Insecurity in the World: Monitoring Progress towards the World Food Summit and Millennium Development Goals*. Rome: FAO of the United Nations.
- Food and Agriculture Organization (FAO) 2008. *The State of Food Security in the World*. Rome: Food and Agricultural Organization of the United Nations.
- Frongillo EA, Nanama S 2006. Development and validation of an experience-based measure of household food insecurity within and across seasons in Northern Burkina Faso. *Journal of Nutrition*, 136(5): 1409S-1419S.
- Grobler W.C.J. 2013. Food security of Social Grant Recipients in Low Income Neighborhood in South Africa. *Proceedings of the World Business and Social Science Research Conference*. Novotel Bank on Siam Square, Bangkok, Thailand. 24-25 October 2013.
- Gumede V. 2010. Poverty, inequality and human development in post-apartheid South Africa. *Conference Paper Presented At Overcoming Inequality and Structural Poverty In South Africa: Towards Inclusive Growth and Development*, Johannesburg, 20-22 September 2010. Institute for Land and Agrarian Studies.
- Jacobs PT 2009. The status of household food security targets in South Africa. *Agrekon*, 48(4): 410-433.
- Labadarios D Mchiza ZJR Steyn NP Gericke G Mauneder EMW Davids YD, Parker W 2011. *Food Security in South Africa: A Review of National Surveys*. Bulletin of the World Health Organization.
- Lemke S 2001. Food and Nutrition Security in Black South African Households. *Creative Ways of Coping and Survival*. Ph.D. Thesis, Unpublished. Technische Universitat Munchen – Weihenstephan.
- Maponya P, Moja S 2012. Asset portfolios and food accessibility in Sekhukhune District, Limpopo Province, South Africa. *Journal of Agricultural Science*, 4(11): 144-153.
- Matla MTH 2008. *The Contribution of Food Accessing Strategies to Dietary Diversity of Farm Workers Households on Oranje Farm in the Fouriesburg District (South Africa)*. Masters dissertation, Unpublished. Department of Consumer Sciences, University of Pretoria. Pretoria.

- McLachlan M, Landman AP 2013. Nutrition-sensitive agriculture: A South African perspective. *Journal of Food Security*, 5: 857-871.
- Modirwa S, Oladele OI 2012. Food security among male and female-headed households in Eden District Municipality of the Western Cape, South Africa. *Journal of Human Ecology*, 37(1): 29-35.
- Ndhleve S, Musemwa L, Zhou L 2012. Household food security in a coastal rural community of South Africa: Status, causes and coping strategies. *Journal of Agricultural Biotechnology and Sustainable Development*, 4(5): 68-74.
- Rule S, Aird R, Drimie S, Faber M, Germisuyse T 2005. *Report on Survey in Sekhukhune to Pilot the Development of a Food Insecurity and Vulnerability Modeling System (FIVIMS) for South Africa*. Pretoria: Human Science Research Council for the FIVIMS Consortium.
- Sakyi P 2012. *Determinants of Food Accessibility of the Rural Households in the Limpopo Province, South Africa*. Masters Thesis, Unpublished. Ghent University.
- Stats SA (Statistics South Africa) 2006. Limpopo Province Profile. *Report-00-91-09*, Pretoria.
- Swindale A, Bilinsky P 2006. Household Dietary Diversity Score for Measurement of Household Food Access: Indicator Guide, Version 2. USAID:1-9. From <www.jn.nutrition.org> (Retrieved on 1 September 2012).
- Swindale A, Bilinsky P 2009. Development of Universal Applicable Household Food Insecurity Measurement Tool: Process, Current Status, and Outstanding Issues. *The Journal of Nutrition*, 136 (5) 1449S-1452S. From <www.jn.nutrition.org>. (Retrieved on 1 September 2012).
- United States Department for International Development. 1992. USAID Policy Determination: Definition for food security. PD No.19.USAID.
- Vogel C. and Smith J. 2002. The politics of scarcity: Conceptualizing the current food security crisis in Southern Africa. *South African Journal of Sciences*, 98: 315-316.