ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 23 No. 4 April 2023 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

Afr. J. Food Agric. Nutr. Dev. 2023; 23(4):22963-22983 https://doi.org/10.18697/ajfand.119.22525

CONTRIBUTION OF HOMESTEAD FOOD GARDENS TOWARDS FOOD AVAILABILITY IN TSHWANE METROPOLITAN MUNICIPALITY-REGION 7, GAUTENG PROVINCE OF SOUTH AFRICA

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ajfand SCHOLARLY, PEER REVIEWED
AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT
Volume 23 No. 4
April 2023
PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST
ISSN 1684 5374

ABSTRACT

The government of South Africa has a political and economic incentive to guarantee that people have access to enough nutritious food to always meet their needs, but many households in the nation still struggle to attain food security. Among its various initiatives, the South African government has introduced a Homestead Food Garden (HFG) program that aims to increase food production to combat hunger, malnutrition, and food insecurity. Even though the struggle to achieve food security at household level in peri-urban areas of Gauteng Province dates back a long period, it has remained as a challenge goal even today. The study's objective was to determine how much HFG contributes to the availability of food in households in region 7 in the City of Tshwane and the factors that influence this availability using the Ordered Logistic Regression (ORD) model. A total of eleven explanatory variables were included in the pragmatic model. To ensure a representative sample size, 258 individuals were chosen at random from the study's survey design, which was quantitative in nature. Face-to-face interviews were conducted to gather data using a semi-structured questionnaire. The results showed that 83% of the participants continued to cultivate their homestead gardens after receiving support from HFG program; thus, the program improved food availability in the households of the gardeners. Food availability was positively and significantly influenced by age, other support program received, and the availability of homestead gardens ($p<0.01$). From seasonal perspectives, there were more food available from domestic gardens in the summer than in the winter. In addition, more food was available in spring season gardens than in summer and winter. The type of food crops cultivated by majority (65%) of the participants was spinach. As such, HFG program improved household food availability mostly during spring and summer. Therefore, it is advised that policymakers should encourage targeted communities and youth to utilize vacant space in their backyards for food gardening. As part of HFG program, government should provide training about rainwater harvesting techniques to enable gardeners to conserve water for sustainable production throughout the year.

Key words: Homestead Food Garden, Food availability, Food security, Households, Gauteng Province

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 23 No. 4 April 2023 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

INTRODUCTION

At the national level, South Africa has a secure supply of food, yet households within the nation continue to face food insecurity [1]. In 2017, about 20% of South African families had insufficient or severely insufficient access to food, with percentages varying by province, home size, and population group of the head of the family [1]. Food availability is the capacity to accumulate enough quantities of suitable, fundamental food types from regional production, commercial imports, or contributors that are consistently available in close vicinity [2-4]. Homestead Food Garden (HFG) is referred to as a four-in-one solution to food and nutrition concerns, promoting household food availability, permitting increased physical, economic, and social access, offering a variety of nutrients, and safeguarding homes from food shortages [5]. Homestead Food Gardens have a significant part to play in assuring access to food at the household level [6, 7].

The household food production initiative in Asia improved availability and consumption of food, particularly fruits and vegetables [8]. Again, studies indicate that home gardening, particularly in low-income and landless rural households, contributed to household food availability and income creation in two states of Nigeria and the Kingdom of Eswatini [9, 10, 11]. The HFG program in Gauteng Province in South Africa was launched in 1997 as a project to increase availability of affordable, variety, high-quality food products and to boost levels of food security [12]. Food insecurity is still a problem at the household level despite the government's efforts over the past ten years to improve food security in the province [13]. This demonstrates that the government initiative has not entirely decreased household food insecurity. Sometimes the assistance given to low-income households is discontinued for a variety of reasons that impede the HFG's growth. An example to this, is when households construct backrooms in areas intended for the establishment of a HFG, reducing the amount of land available for crop production [14]. It is unclear how successful the homestead garden has been, even though it has the potential to increase household food availability. Therefore, the purpose of this study was to determine if homestead gardens started under the HFG program increased availability to food for households. The main goals were to (i) provide baseline data on the HFG's contribution to household food availability, (ii) identify the variables influencing food availability from homestead gardens, and (iii) assess the type of food crops cultivated and their seasonal availability.

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MATERIALS AND METHODS

The Tshwane Metropolitan Municipality Region 7, Gauteng Province of South Africa, is where the study was carried out. It is in the border of the provinces of Gauteng and Mpumalanga, located in the east of Tshwane. To get data from the target group that can be applied to the entire population, a survey research design was adopted [15]. Participants in HFG from 2013 to 2016 made up the study population. The sample size (n) was calculated using a 20% sampling fraction, and from a total sample of 1 284 people, 258 were chosen at random to represent the study population. Simple random sampling makes sure that every potential population subject has an equal chance of being chosen [16].

Both qualitative and quantitative data were collected for the study. Semi-structured and open-ended questions used for gathering qualitative data were included in the survey questionnaire. Qualitative data was only collected to establish why the participants cultivated different types of crops. Additionally, Ordered Logistic Regression (OLR) was utilized to identify the variables that affected the availability of food crops in the participant's households. The OLR classified the availability of food in HFG as 1=Never, 2=Sometimes, 3=Half of the time, 4=Often, and 5=Always. The model has the ability to predict polychotomous ranked dependent variables as a function of explanatory variables that describe the characteristics of a unit, individual or economic agent [17].

The model specification for OLR used is as follows:

$$\Pr(Y_i \leq j) = \Pr(\beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_k X_{ki} + u_i \leq \alpha_j) \quad \text{..... (1)}$$

Where the probability is that Y_i (dependant variable) is within category j and below. Therefore Y_i is in category 1, 2, ..., or j), whereas the error term is u_i and α_j is the intercept. The ordered logistic regression model was preferred because information for dependant variables was collected using a five-point Likert scale (1 = never; 2 = sometimes; 3 = half of the time; 4 = often; 5 = always). Gender, age group, education level, family composition, number of family members employed, monthly income, other support programs, availability of garden tools, presence of homestead garden, availability of backrooms, and access to water were the factors used to predict the impact of independent variables on the availability of food crops.

Statistical Package for the Social Sciences (SPSS) Version 24 was used to analyse quantitative data. A portion of the data analysis included descriptive and

inferential statistics. The frequency, percentage, mean, and standard deviation of the descriptive statistics were used to establish the HFG's contribution to the provision of vegetables for consumption in the participant's households. The mean score (MS) values were interpreted as follows: 2.4=Inadequate; 2.5-3.4=Moderate; 3.5=Adequate. Additionally, the Friedman test was run to see if the four seasons had an impact on the availability of food crops. The Wilcoxon signed-rank test was used in a post hoc analysis to pinpoint the locations of the differences. Qualitative data was analysed using themes and codes. The data was limited because there was only one open-ended question used to collect qualitative data.

RESULTS AND DISCUSSION

The socio-demographic specifics that formed part of the research were gender, race, age group, level of education, marital status, family composition, main source of income and net income.

According to Table 1's gender distribution results, women made up 73% of all participants. Females dominated because they are more susceptible to food insecurity, according to the gender distribution results among homestead gardeners in two distinct District Municipalities in South Africa and the Southern District of Botswana [7, 18–21]. Internationally, women are crucial to food production and domestic food activities [22]. The outcome is linked to the fact that women spend much of their time caring for their families and doing household duties, while males go to urban areas in pursuit for better job possibilities. On the other hand, a study on homestead gardeners in Msinga, in the KwaZulu-Natal Province in South Africa, and Northern Sri Lanka revealed that a large majority of the farmers were led by male members [23, 24].

The racial affiliation results depicted that black Africans were the dominant participants with 97 % and coloureds with 3 % as equated to the other race (Table 1). This is consistent with the findings of homestead gardeners in the North West Province of South Africa, wherein the racial affiliations were dominated by black African [25]. Seemingly, households headed by black Africans and coloured (mixed race) were less likely to have adequate access to food compared to households headed by Indians and whites [1]. The reason why Africans and coloureds were less likely to have adequate food was due to the previous South African racial system that segregated and marginalized them in favor of white people. As a result, the HFG program was more embraced by the black people because of their high level of poverty and food insecurity. Again, the research area is a black dominated community.

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According to Table 1's age group distribution, 19% of participants were under the age of 35, and 81% of the homestead gardeners were above the age of 55. These findings are analogous to a study by Kubheka [7], which found that the HFG in the Amathole District, Eastern Cape Province in South Africa, had no youth engagement since participants' ages ranged from 37 to 87 years old, with an average age of 50. Youth maybe detached from farming activities since it was used as corporal punishment to instill discipline during their school years. Again, agricultural work is perceived as dirty work by some youth; as a result, young people have no interest in farming.

According to Table 1's findings on education level, 84% of the participants could read and write because they had received primary (27%), secondary (47%) and tertiary (10%) education. The findings support what was found in three different District Municipalities in South Africa, where most homestead food gardeners had formal education (primary, secondary, tertiary, and Adult Basic Education and Training), and could therefore read and write [12, 18, 25]. The fact that the research region is a peri-urban area dominated by black Africans, could be the reason why most participants had no tertiary education because they were over 35 years old and grew up during the segregation system (government). In South Africa black communities had limited educational opportunities and support for post-secondary (tertiary) education prior to the formation of democratic government in 1994.

The marital status results displayed that 71% of the participants had no spousal support, as shown by the proportion of single (49 %), widowed (16 %), divorced (5 %) and separated (0.4 %) (Table 1). The results are consistent with the study on homestead food gardeners conducted in the North West Province of South Africa, wherein most farmers were single, windowed, and divorced [25]. In contrast, the study conducted in three villages in the Nkonkobe District, Eastern Cape Province in South Africa, revealed that most of the participants in homestead gardening were predominately married couples [18]. This shows that marital status in homestead food gardens varies from one area to another.

According to Table 2, the participants' average family size was 5, with each household having between 1 and 47 people, with three more adults living there than children. These results are consistent with what other researchers have found, that big families are typical in subsistence agriculture because they provide the necessary labour on the land [23, 25]. However, compared to smaller households, bigger families were more likely to have inadequate or severely

inadequate availability of food [1]. The reason could be that bigger households had too many mouths to feed with limited resources. This is not surprising because family planning is hardly practised in poor households, that are dominant in peri-urban areas.

In addition, there was only one adult working in each home (Table 2). Due to the high unemployment rate among HFG participants in the study area, 62% of the participants were unemployed (Table 2). This was similar to another study, in which many homestead gardeners lacked employment [19]. Consequently, a sizable portion (83%) of the participants relied on social grants from the government (for children, the elderly, and people with disabilities) as their primary source of income. In addition to having few income earners and many dependents, poor households are more susceptible to economic shocks [1].

On average, there were two (2) family members being the receivers of government social grants, but some homes did not receive the grants (Table 2). In contrast, a survey of diverse farming households in the Eastern Cape Provinces in Amathole District found that the majority (86%) of participants in homestead food gardens made money by selling their produce [7]. Less than 40% of people relied on both full-time and part-time employment. A smaller percentage of participants (12%) made extra money from homestead businesses and gardening. The members' income from backroom rentals, at 2%, was their least active source of income (Table 2).

With a minimum and maximum of R400.00 and R24 520.00, respectively, the participants' average monthly net income was R4 193.72 (Table 3). The members' monthly net income varied widely, as evidenced by the fact that the standard deviation of annual net income was quite high at 3 431.07 (Table 3). It suggested that homestead food gardeners had a significant level of inequality. These results are analogous to the finding that most homestead gardeners earn a monthly household income of R1 270 or less [23, 26].

Figure 1's findings indicate that 81% of the participants had no support from other programs. Participants found it challenging to continue planting because they could not afford the necessary production inputs. The participants who had support from other programs continued cultivating their homestead gardens. The result in Figure 1 also demonstrates that 67% of the participants kept their gardening equipment after receiving them through the HFG program. However, there were participants who mentioned that some of their equipment were damaged or worn out. This is a definite sign that most participants did not misplace their gardening equipment.

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Participants who lost their gardening tools indicated that drug addicts (often known as *"nyaope people"* in the local language) stole them. Garden equipment stolen by drug addicts were mostly sold to the scrapyard for income generation.

Figure 1's outcome showed that 83% of the participants had household gardens that produced food. These results are consistent with those of other researchers, who reported that >80% of homestead gardeners in the Eastern Cape and Gauteng provinces of South Africa cultivate their gardens [7,26]. Thus, the number has remained steady, demonstrating a high level of continuity in the cultivation of homestead gardens in the post HFG program support.

In contrast, 17% of participants in the current study had no homestead gardens, and 8% built backrooms on their unoccupied land to house their extended family members, particularly larger families. Even though there were limited industrial activities in the neighbourhoods, smaller families used backrooms to rent to migrant workers. The results, presented in Table 5, demonstrate that homestead gardens in the study area did not adequately contribute to food availability in the households of participants. This was shown by the average Mean Score (MS) of 2.2 obtained.

According to the findings in Figure 1, 81% of the participants had access to both municipal taps in their households and a community taps as sources of water for irrigation. These findings are in line with scholars who revealed that beneficiaries of the HFG program in the Gauteng and Eastern Cape provinces of South Africa relied on municipal water, with only a small proportion using rainfall, grey water, boreholes, rivers, or dams as an alternate source of water for irrigation [7, 25, 26].

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Volume 23 No. 4
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ISSN 1684 5374

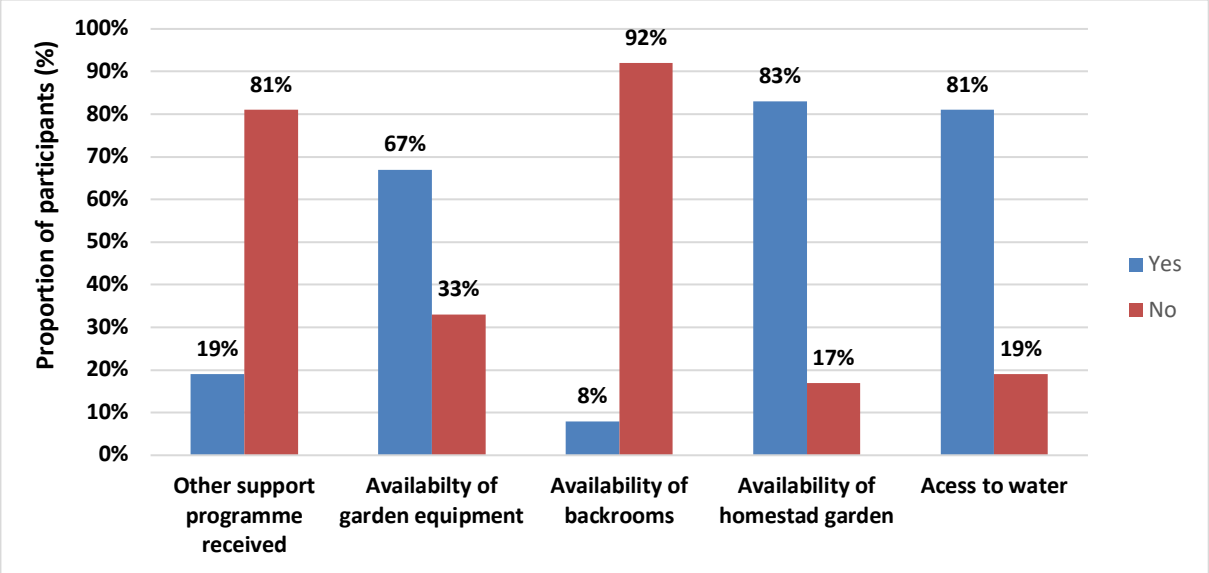

Figure 1: Availability of garden equipment, backrooms, and homestead garden, access to water and other support programs received by the participants

In addition, Ordered Logistic Regression was used to identify the variables affecting the availability of food crops. At the 1% level of significance ($p<0.01$), the model fitting information findings showed a p-value of <0.001, which is statistically significant. As a result, the threshold was strongly anticipated by the model. In the Pearson chi-square statistics, the goodness-of-fit test results revealed a non-significant p-value of 0.675. There was no statistical significance ($p>0.05$) in the deviation chi-square statistics, which showed a p-value of 1.000. The results of Deviance and Pearson chi-square were not statistically significant; hence the data analysis model was appropriate for the type of data. Cox and Snell = 0.356, Nagelkerke = 0.375, and McFadden = 0.147 were the three pseudo R-squared values measured. R-square values in the latter were accepted since they have a different meaning because there are not any actual R-square values in logistic regression like there are in regular least-squares regression. Therefore, their analysis is less significant. The findings in Table 4 show that eight of the independent factors (gender, age group, education level, other support programs, existence of HFG, availability of backrooms, and water access) were effective predictors of food availability. Only three variables, age group, the presence of other support programs, and homestead garden presence, were statistically significant at 1% ($p<0.01$). It implies that the availability of food crops in the households of the participants grew as they aged. As a result, homestead gardens gave older individuals greater access to food security than young people. The outcomes of additional assistance programs revealed that participants' access to

food increased. It means that gardeners who received greater assistance were more likely to have food crops cultivated in their domestic gardens; thus, making them food secure from availability point of view. These results are similar to those of another study, which found that households with additional support from government other than the HFG program were food secure [12]. Additionally, there was a strong and positive association between the presence of homestead gardens and food availability. Similarly, several researchers have revealed that there is a positive and significant relationship between home gardening and food security [27, 28]. Therefore, the current findings are consistent with the existing literature about the importance of homestead gardens in improving food security of resource poor households.

According to Table 5, the crop cultivated and harvested by most of the participants (65 %) in their homestead gardens was spinach. The MS of 3.8 supports these findings, which indicates that spinach was adequately cultivated by the participants (MS>3.5). Tomatoes (40 %), onions (35 %), beetroot (32 %), carrots (30 %) and beans (28 %), on the other hand, were moderately cultivated by the participants. Implying that these crops were moderately available in homestead gardens and households of the participants. Most participants indicated that spinach was easy to plant, can be harvested on several occasions because it regrows and can be cultivated most part of the year compared to other crops. Food crops such as pumpkin, chillies, potatoes, cabbage, sweet potatoes, lettuce, and broccoli, were not highly cultivated, resulting in their inadequate availability in the households of the participants. As such, participants indicated that the above crops were unyielding positive results and required regular rotation because they are prone to diseases and insects. However, homestead gardens cultivated with various vegetables enables households to consume a variety of them, which is an important part of diverse and healthy nutrition provision [7, 29, 30].

Every season of the year saw cultivation in the study area (summer, autumn, winter, and spring). The winter season runs from May to July, the spring season runs from August to October, and the summer season runs from November to January. Determining the seasonal availability of the food crops grown in the participants' household gardens was crucial. According to Table 6, most participants (50.8%) tended to their household gardens over the summer (half of the time and always combined). As a result, there were enough food crops accessible in the summer.

Food crops were, however, moderately (MS=3.3) and insufficiently (MS=2.5) accessible in the spring. Homestead gardens generally had a modest impact on

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the availability of food in the participant's households (average MS=2.9). The increased response rate among those who planted in the summer was attributed to the study area's summer rains. Selected participants claimed that using municipal tap water for irrigation during dry seasons resulted in unusually high municipal water costs. Therefore, using municipal water to irrigate vegetables in their domestic gardens was not a financially viable option. Due of the high cost of tap water, most gardeners in South Africa do not use it for irrigation [31]. Because of this, many of the participants in the current study did not cultivate their homestead gardens during the winter months when municipal water was the only source available. Since food gardening is an activity that depends on seasonal factors including rainfall, temperature, wind, and sunlight, it has been stated that abundant harvests take place from November to February [26]. The product that was gathered from gardens varied over the course of the year. The fact that less than 10% of the participants consistently grew food crops in their homestead gardens during the winter and autumn is also clear from Table 6, which explains the seasonal availability of food crops from those gardens.

The Friedman test was used to examine whether there were seasonal differences in the availability of food crops. According to the test results, there is a very statistically significant variation between the seasons for homestead gardens' food harvests ($p<0.001$). Three degrees of freedom (df=3) and a Chi-square value of 301.512 were obtained. Wilcoxon signed-rank test was carried out as a post hoc analysis to establish where the difference occurred due to the significant difference (Table 7). The higher mean rank for summer (negative ranks - MR=82.36) compared with that of winter (positive ranks - MR=59.17) indicates that there was more food available in the summer than in the winter.

As a result, there was substantially more food from domestic gardens available in the summer than in the winter; greater mean rank (negative ranks) (MR=82.36) than winter (MR=59.17). Thus, summer had a greater availability of food from domestic gardens than winter. In the spring, there was considerably more food available from homestead gardens than in the summer ($p<0.05$) (MR of 47.19 vs. 46.08). A significant amount of food from gardens was available in the spring (MR=87.85) than it was in the winter season (MR=67.90). The fact that most of the participants grew vegetables may have contributed to the fact that there was more food available from these gardens in the summer than in the spring and winter. Vegetables are seasonal and require more water [26]. Since summer is when the study area receives most rainfall, there would be more water available to irrigate summer-grown crops than during other times of the year. Additionally, due to the

warmer summer climate compared to the colder winter in the study area, most food crops may be grown during the summer.

CONCLUSION

The study discovered that homestead gardens in the study area made insufficient contributions to the participants' households' year-round availability of food. The amount of food distributed in the summer, however, was much more than in the other seasons of the year due to the seasonal availability of food crops. Food availability in the houses of the participants was positively and significantly influenced by age, the number of support programs received, and the presence of homestead gardens. Therefore, it is advised that policymakers and implementers should educate targeted people, especially the youth, about the benefits of cultivating unused land in their homestead all year long to increase year-round access to food. Participants should be trained on rainwater harvesting and conservation techniques to boost sustainable food production throughout the year. Participants will benefit from being able to save enough water during the summer rainy season and use it for irrigation during the dry seasons. Furthermore, it is suggested that further assistance be given to HFG program participants in addition to starter kits for establishing gardens. Such assistance can take the shape of instruction, access to consulting and extension services, the provision of production inputs for a predetermined amount of time, and water tanks to collect rainwater.

ACKNOWLEDGEMENTS

The author acknowledges the University of South Africa Women in Research Grant and Department of Agriculture, Forestry and Fisheries bursary for funding the research.

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Table 1: Demographic information of the participants (n=258)

Variable	Frequency	Percentage (%)
Gender		
Male	71	27.5
Female	187	72.5
Total	258	100.0
Race		
Black African	250	96.9
Coloured	8	3.1
Total	258	100.0
Age		
≤35	50	19.4
35-45	56	21.7
46-55	65	25.2
>55	87	33.7
Total	258	100.0
Level of education		
No formal education	42	16.3
Primary education	70	27.1
Secondary education	121	46.9
Tertiary education	25	9.7
Total	258	100.0
Marital status		
Single	126	48.8
Married	76	29.5
Divorced	14	5.4
Widow or Widower	41	15.9
Separated	1	0.4
Total	258	100.0

Source: survey data (2018); n=Number of participants

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Table 2: Family composition and social grants of the participants (n=258)

Item	Value				
	Number of family members	Number of adults in the family	Number of children in the family	Number of adults working in the family	Number of households on social grants
Mean	5.17	3.06	2.16	0.89	1.90
Std. Error of Mean	0.22	0.15	0.11	0.05	0.10
Std. Deviation	3.52	2.34	1.70	0.84	1.68
Minimum	1	0	0	0	0
Maximum	47	31	16	4	14

Source: survey data (2018); n=Number of participants

Table 3: Participant's monthly net income and expenditure on vegetables (n=258)

Item	Net income	Expenditure on vegetables
Mean (in Rand)	4 193.72	184.55
Std. Error of Mean	213.609	6.30
Std. Deviation	3431.07	101.11
Minimum	400	0
Maximum	24 520	600

Source: survey data (2018); n=Number of participants

https://doi.org/10.18697/ajfand.119.22525

ajfand SCHOLARLY, PEER REVIEWED AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT Volume 23 No. 4 April 2023 PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST ISSN 1684 5374

Table 4: Parameter estimates of the Ordered Logistic Regression model of the factors influencing availability of food crops (n=258)

Variable		Estimate	Std. error	Sig.
Threshold	Never = 1	-0.689	1.356	0.612
	Sometimes = 2	1.945	1.330	0.144
	Half of the time = 3	4.056	1.351	0.003
	Often = 4	4.565	1.357	0.001
Location	Gender	0.176	0.271	0.517
	Age group	0.353	0.129	0.006
	Level of education	0.111	0.159	0.484
	Family size	-0.005	0.035	0.897
	Number of family members working	-0.139	0.172	0.421
	Total monthly net income	-6.063E-6	4.152E-5	0.884
	Other support programme(s) received	1.552	0.308	<0.001
	Availability of garden tools	-0.163	0.257	0.526
	Existence of homestead garden	2.571	0.385	<0.001
	Availability of backrooms	0.026	0.432	0.951
	Access to water	0.370	0.311	0.234

n=Number of participants

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Table 5: Types of food crops cultivated by the participants in the study area (n=258)

Type of crop	Proportion of the participants					Mean score (MS)	Mean rank (MR)
	Never	Sometimes	Half of the time	Often	Always		
Spinach	12.8	9.7	12.8	19.4	45.3	3.8	1st
Tomatoes	18.2	22.5	19.8	36.0	3.5	2.8	2nd
Onions	25.6	18.2	21.3	28.7	6.2	2.7	3rd
Beetroot	19.8	25.6	22.9	27.1	4.7	2.7	3rd
Carrots	25.2	23.6	20.5	24.8	5.8	2.6	4th
Beans	34.1	21.3	16.3	24.4	3.9	2.4	5th
Pumpkins	46.1	21.3	16.3	14.7	1.6	2.0	6th
Chillies	58.1	8.5	14.7	13.2	5.4	2.0	6th
Potatoes	52.3	22.5	12.8	11.2	1.2	1.9	7th
Cabbage	60.1	20.2	7.4	10.9	1.6	1.7	8th
Sweet potatoes	70.5	10.1	11.6	7.8	0	1.6	9th
Lettuce	72.9	14.0	9.7	2.7	0.8	1.5	10th
Chamolia	91.1	4.7	1.6	2.3	0.4	1.2	11th
Broccoli	89.5	6.6	3.1	0.8	0	1.2	12th
Average	48.3	16.3	13.6	16.0	5.7	2.2	13th

n=Number of participants

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Table 6: Seasonal availability of food crops from the homestead gardens (n=258)

Season	Proportion of the respondents (%)					Mean score (MS)	Mean rank (MR)
	Never	Rarely	Sometimes	Half of the time	Always		
Summer	9.7	18.2	21.3	16.7	34.1	3.5	1st
Spring	14.7	18.2	17.1	20.5	29.5	3.3	2nd
Autumn	25.6	32.6	22.1	14.7	5.0	2.4	3rd
Winter	26.4	31.4	24.4	11.2	6.6	2.4	3rd
Yearly	19.1	25.1	21.2	15.8	18.8	2.9	-

n=Number of participants

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Table 7: Results of the Wilcoxon signed-rank test showing seasonal availability of food in the study area (n=258)

Seasons	Ranks	N	Mean rank	Sum of ranks	Z	Asymp. sig. (two-tailed)
Autumn–summer	Negative ranks	162	87.00	14094.00		
	Positive ranks	9	68.00	612.00	-	<0.001
	Ties	87			10.619	
	Total	258				
Winter–summer	Negative ranks	156	82.36	12848.00		
	Positive ranks	6	59.17	355.00	-	<0.001
	Ties	96			10.631	
	Total	258				
Spring–summer	Negative ranks	57	46.08	2626.50		
	Positive ranks	35	47.19	1651.50	-1.988	0.047
	Ties	166				
	Total	258				
Winter–autumn	Negative ranks	48	50.29	2414.00		
	Positive ranks	48	46.71	2242.00	-0.340	0.734
	Ties	162				
	Total	258				
Spring–winter	Negative ranks	20	67.90	1358.00		
	Positive ranks	150	87.85	13177.00	-9.385	<0.001
	Ties	88				
	Total	258				

n=Number of participants

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