

THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

Analysis of Socio-Economic Factors Influencing Participation of Farm Families on Watermelon Production in Sabon-Birni, Sokoto State, Nigeria

Abubakar, S. A.

Lecturer, Agricultural Technology, Umaru Ali Shinkafi Polytechnic, Sokoto, Nigeria

Attahiru, M.

Lecturer, Agricultural Technology, Umaru Ali Shinkafi Polytechnic, Sokoto, Nigeria

Tambari, I. W.

Lecturer, Agricultural Extension and Rural Development,
Usmanu Danfodiyo University, Sokoto, Nigeria

Abstract:

This study was carried out based on the analysis of socio-economic factors influencing participation of farm families on watermelon production in Sabon-Birni, Sokoto State, Nigeria. The sampling procedure used for the selection of the study area was achieved using multistage sampling, while proportionate sampling was used for the selection of 188 farm families participated on watermelon production as sample size of the study. Structured questionnaire administered through the interview schedule was used for the collection of primary data, while empirical and contextual information obtained from published and unpublished materials were used as secondary data for the study. The instrument for data collection was subjected to face and construct validation to modify the items with the ambiguity, while descriptive and inferential statistics were used in the study for data analysis. The study revealed that the majority of farm families participated on watermelon production in Sabon-Birni were males (95%); age (53.2%) between 15-30 years; married (87%); acquired informal education (88%); family size (50.2%) between 11-20 members; farm size (55.9%) between 1-2 hectares; farming experience (57.4%) between 6-10 years; land acquisition through inheritance (57.9%); used watermelon local seeds (86%) as planting materials and obtained N500,000-1,000,000 as annual income for watermelon production. The study further revealed that the majority of farm families participated on watermelon production in Sabon-Birni were at the medium level of participation (52.1%); security challenges (96.3%) affect the optimum participation of farm families on watermelon production; armed bandit (97.3%) was the most security challenge that affect the optimum participation of farm families on watermelon production. The formulated null hypothesis of the study was rejected, because (calculated F value of 75.45 > tabulated F value of 1.24) at 5% level of significance. The study recommended the need for farm families participated on watermelon production to have adequate security for stability and continuity of watermelon production.

Keywords: Analysis, socio-economic factors, participation, farm families, watermelon production

1. Introduction

According to Daily Trust (2014), Sokoto State is the major supplier of watermelon across the 36 States of Nigeria. Hence, the production of watermelon in Sokoto State was predominantly associated with the active participation of the farm families that are typically found in Sabon-Birni, Isa and Shagari Local Government Areas (Abubakar and Tambari, 2019). Vis-à-vis, participation is a social framework upon which the farm families in Sokoto State are participated on watermelon production, while the participation of farm families on watermelon production especially in Sabon-Birni is characterized to be influenced by certain socio-economic factors (Abubakar, 2018). It is based on this premise that the answers are provided by this study in accordance with the specific objectives of the study that include the socio-economic characteristics of farm families participated on watermelon production in Sabon-Birni; the level of participation of farm families on watermelon production in Sabon-Birni and conditions affect the optimum participation of farm families on watermelon production in Sabon-Birni. Therefore, the null hypothesis between the socio-economic factors and participation of farm families on watermelon production in Sabon-Birni was formulated for the study. Hitherto, the choice of Sabon-Birni as the study area is based on the outcome of preliminary study, where there is participation of farm families on watermelon production in comparison with other areas of watermelon production in Sokoto State (Figure 1). However, the selection of farm families participated on watermelon production was limited to specific areas due to prevailing security challenges such as rural banditry around the study area. Furthermore, the recommendations of this study could be added to existing stock of knowledge that might guide the government institutions, policy makers, development partners and farm families to deal with the constraints inherent to the watermelon production.

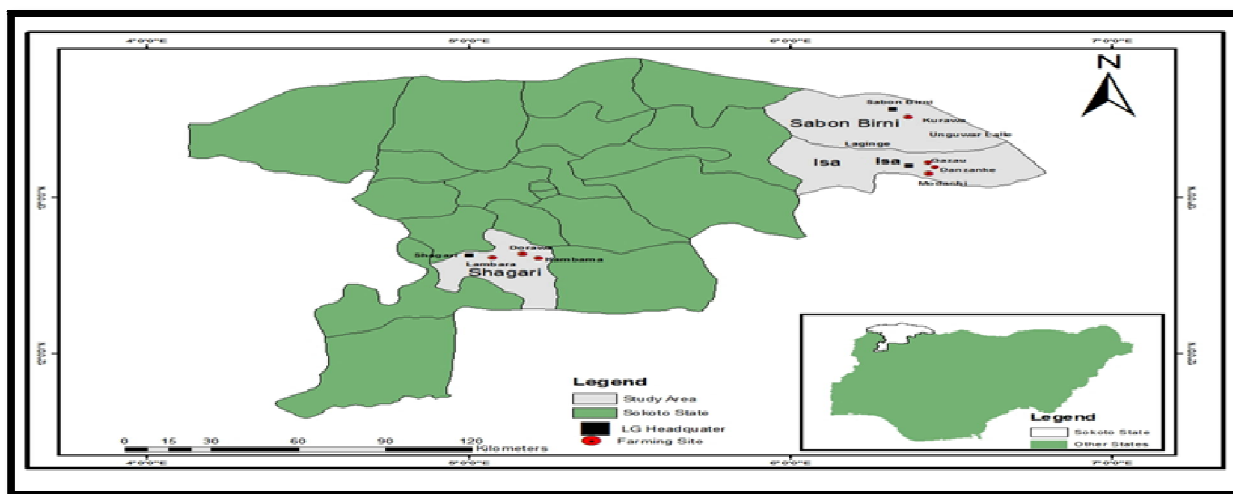


Figure 1: Map of Sokoto State Indicating the Areas of Watermelon Production

2. Methodology

2.1. The Study Area

Sabon-Birni is among the 23 Local Government Areas (LGAs) of Sokoto State, Nigeria. Sabon-Birni is located between Latitude $13^{\circ} 33' 40''$ North and Longitude $6^{\circ} 19' 30''$ East with a total land area of 2,354 km². According to National Population Commission (2019), Sabon-Birni has a projected population of 288,563 people rising at 3% birth rate as against the population of 207,599 people as at 2006 national population census. Sabon-Birni shared a regional border with Niger Republic to the North and East and common boundary with Isa LGA to the South, Goronyo and Gada LGAs to the West respectively (Sokoto State Government Diary, 2018).

2.2. Sampling Procedure and Sample Size

Multistage sampling was used in the study to achieve the sampling procedure and sample size. However, the first sampling stage involved the purposive selection of Sabon-Birni LGA. The second sampling stage involved the convenient selection of 5 villages from Sabon-Birni LGA. The third sampling stage involved the selection of 940 farm families as sample frame of the study. The final sampling stage involved 20% proportionate selection of sample frame that produced 188 farm families as the sample size of the study.

Selected LGA	Selected Villages	Sample Frame	Sample Size
Sabon-Birni	Unguwal Lalle	240	48
	Kurawa	170	34
	Lajinge	180	36
	Tsamaye	150	30
	Gangara	200	40
Total	5	940	188

Table 1: Sampling Procedure and Sample Size

Source: Field Survey, 2019

2.3. Instrument for Data Collection, Validation and Analysis

Structured questionnaire administered through the interview schedule was used for the collection of primary data, while empirical and contextual information obtained from published and unpublished materials were used as secondary data for the study. The instrument for data collection was also subjected to face and construct validation by different experts from the field of agricultural extension and rural development with a view to modify the items with the ambiguity. However, the pretest of the instrument was made on 22 farm families that were outside the sample size of the study as part of the validation. Thus, socio-economic characteristics of farm families participated on watermelon production in Sabon-Birni; the level of participation of farm families on watermelon production in Sabon-Birni and constraints affect the optimum participation of farm families on watermelon production in Sabon-Birni was achieved using descriptive statistics such as table, frequency distribution, percentage and mean. Likewise, the inferential statistics such as multiple regression model was used to test the null hypothesis between the socio-economic factors and participation of farm families on watermelon production in Sabon-Birni.

3. Results and Discussion

3.1. Socio-Economic Characteristics of Farm Families

3.1.1. Sex

The result presented in Figure 2 indicated that the majority of farm families participated on watermelon production in Sabon-Birni were males. It implies that the male's participation into watermelon production was associated to socio-cultural milieu, where females were saddled with the off-farm activities. The result corroborates with Abubakar and Tambari (2019) that the participation of farm families into watermelon production was dominated by males.

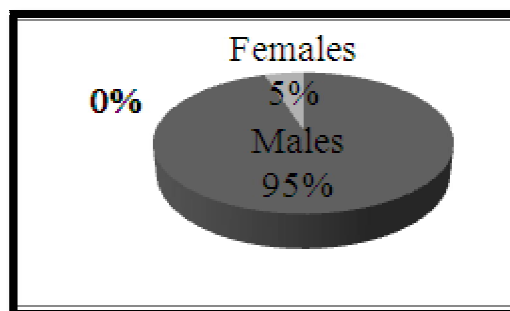


Figure 2: Sex Distribution of Farm Families Participated on Watermelon Production

3.1.2. Age

The result presented in Figure 3 indicated that the majority of farm families participated on watermelon production in Sabon-Birni were within the ages of 15-30 years. It implies that the participation of farm families into watermelon production was dominated by energetic farm families. The result concurs with Chamo et al(2016) that the watermelon production was dominated by energetic farmers.

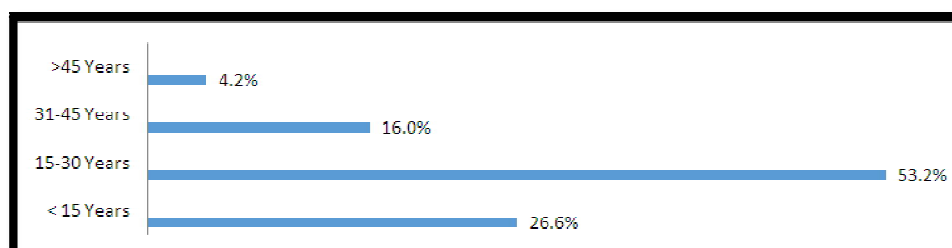


Figure 3: Age Distribution of Farm Families Participated on Watermelon Production

3.2. Marital Status

The result presented in Figure 4 indicated that the majority of farm families participated on watermelon production in Sabon-Birni were married. It implies that the participation of farm families into watermelon production was dominated by married farm families as means for preservation of families' norms and values. The result coincides with Tambari and Umar (2018) that the farmers respect marriage as a social institution for the preservation of family's norms and values.

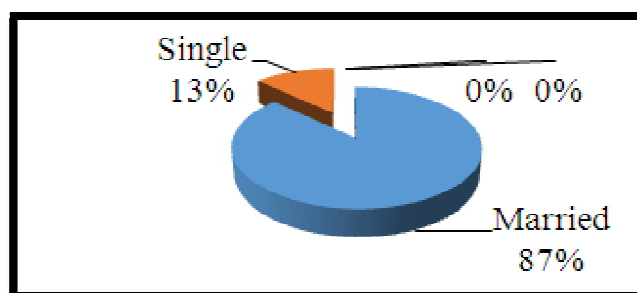


Figure 4: Marital Status Distribution of Farm Families Participated on Watermelon Production

3.3. Educational Attainment

The result presented in Figure 5 indicated that the majority of farm families participated on watermelon production in Sabon- Birniacquired informal education. It implies that the participation of farm families into watermelon

production could have effects on productivity due to low level of formal education. The result conforms with Olajide and Oladipupo (2017) that the informal education affects the productivity of farmers.

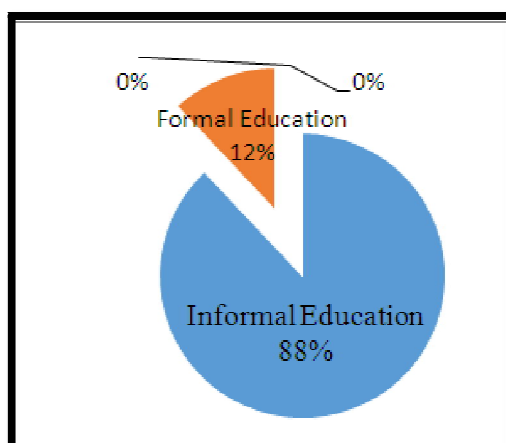


Figure 5: Educational Attainment Distribution of Farm Families Participated on Watermelon Production

3.3.1. Family Size

The result presented in Figure 6 indicated that the majority of farm families participated on watermelon production in Sabon-Birni had 11-20 family members. It implies that the participation of farm families into watermelon production was utilized by family labour. The result agrees with Tijjani et al(2018) that the family labour was utilized among the farmers to carry out the farming practices.

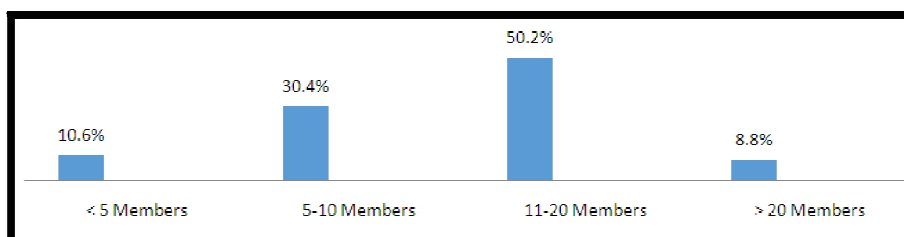


Figure 6: Family Size Distribution of Farm Families Participated on Watermelon Production

3.3.2. Farm Size

The result presented in Figure 7 indicated that the majority of farm families participated on watermelon production in Sabon-Birni possessed 1-2 hectares of farmland for watermelon production. It implies that the participation of farm families into watermelon production was usually dominated by small scale farm families. The result concurs with Abubakar (2018) that the watermelon production was usually dominated by small scale farm families.

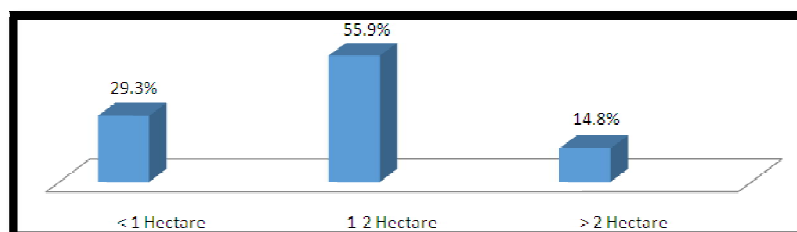


Figure 7: Farm Size Distribution of Farm Families Participated on Watermelon Production

3.4. Farming Experience

The result presented in Figure 8 indicated that the majority of farm families participated on watermelon production in Sabon-Birni were ultimately into watermelon production between 6-10 years. It implies that the farming experience of farm families participated on watermelon production was determined by years of farming practice. The result conforms with Oladele (2011) that the farming experience of farmers is usually determined by years of farming practice.

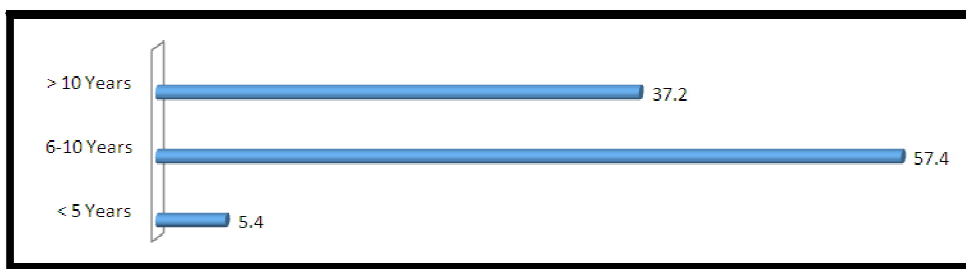


Figure 8: Farming Experience Distribution of Farm Families Participated on Watermelon Production

3.5. Land Acquisition

The result presented in Figure 9 indicated that the majority of farm families participated on watermelon production in Sabon-Birni acquired through inheritance. It implies that the participation of farm families on watermelon production was characterised by the use of farmlands acquired through inheritance. The result concurs with Ango et al(2017) that the inheritance was the means through which the farmlands were acquired among the farmers.

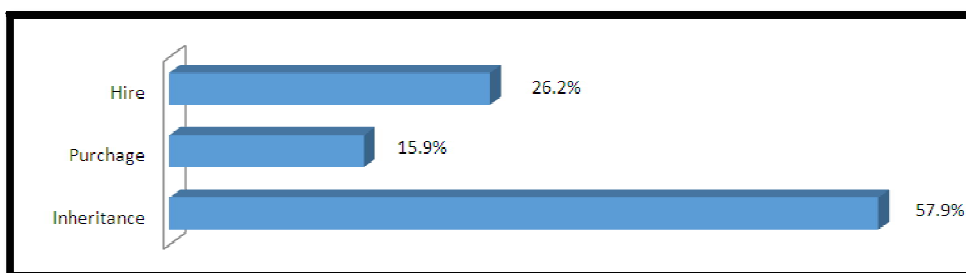


Figure 9: Land Acquisition Distribution of Farm Families Participated on Watermelon Production

3.6. Watermelon Seeds

The result presented in Figure 10 indicated that the majority of farm families participated on watermelon production in Sabon-Birni used local seeds of watermelon. It implies that the participation of farm families on watermelon production was usually characterised by the use of local seeds of watermelon. The result agrees with Mani (2018) that the local seeds were the planting materials used by farmers.

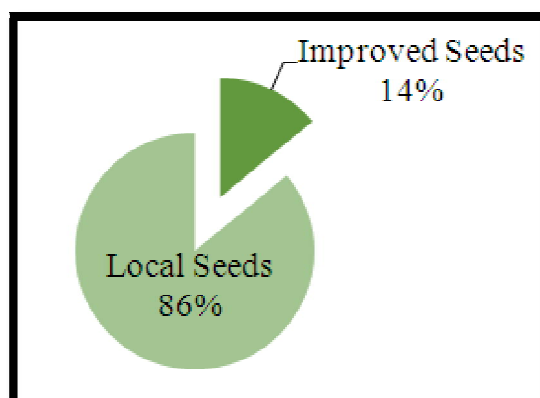


Figure 10: Watermelon Seeds Distribution of Farm Families Participated on Watermelon Production

3.7. Annual Income

The result presented in Figure 11 indicated that the majority of farm families participated on watermelon production in Sabon-Birni obtained N500,000-N1, 000,000 as annual income for watermelon production. It implies that the participation of farm families on watermelon production was served as the means of income generation. The result concurs with Chamo et al(2016) that the watermelon production was the means of income generation among watermelon farmers.

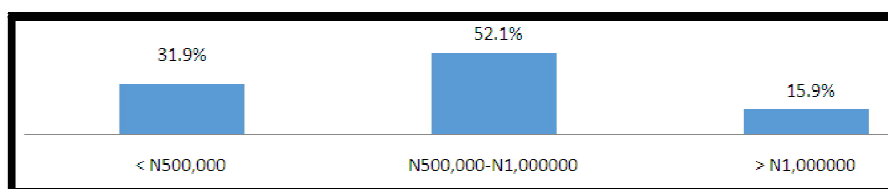


Figure 11: Annual Income Distribution of Farm Families Participated on Watermelon Production

3.8. Level of Participation of Farm Families on Watermelon Production

The result presented in Figure 12 indicated that the majority of farm families participated on watermelon production in Sabon-Birni were at the medium level of participation, because of certain conditions and factors that could critically influenced the level of participation of farm families on watermelon production. It implies that the participation of farm families on watermelon production was determined by factors and conditions that include the farm size, farming experience, land acquisition patterns, credit facilities, post-harvest technologies, agricultural extension services, irrigation and mechanization facilities as well as farming inputs (Alphonse et al, 2017).

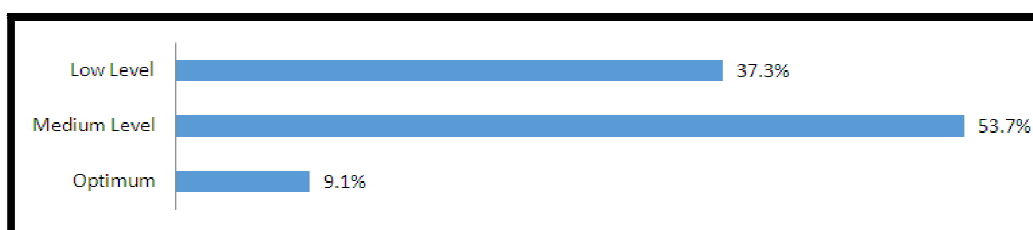


Figure 12: Level of Participation Distribution of Farm Families Participated on Watermelon Production

3.9. Conditions Affect the Optimum Participation of Farm Families on Watermelon Production

The result presented in Table 2 indicated that the majority of farm families participated on watermelon production in Sabon-Birni expressed the prevailing security challenges as the condition that affect the optimum participation of farm families on watermelon production. It implies that the security challenges had deleteriously affected the level of participation of farm families on watermelon production as it's generally affected other agricultural activities in North-West Nigeria. This result conforms with the Leadership (2019) that the agricultural activities in North-West Nigeria were endangered due to security challenge.

Variable	*Frequency	Parentage	Ranking
Security Challenges	181	96.3	1
Storage Facilities	177	94.1	2
Credit Facilities	170	90.4	3
Improved Varieties	164	87.2	4
Extension Services	159	84.6	5
Irrigation Facilities	153	81.4	6
Transportation Facilities	144	76.6	7
Marketing Challenges	139	73.9	8
Insects and Pests	132	70.2	9

Table 2: Conditions Affect the Optimum Participation of Farm Families on Watermelon Production

Source: Field Survey, 2019 *Multiple Responses

3.10. Security Challenges Affect the Optimum Participation of Farm Families on Watermelon Production

The result presented in Table 3 further indicated that the majority of farm families participated on watermelon production in Sabon-Birni expressed proliferation of armed bandit as the most pressing security challenge that affect the optimum participation of farm families on watermelon production. This result concurs with the Leadership that many farmers were killed and several farmlands remained uncultivated due to activities of armed bandit. Likewise, cattle rustling, kidnapping and land conflict were also expressed by farm families as the security challenges that affect the optimum participation of farm families on watermelon production. This expression of farm families coincides with Samuel (2016) that the rural banditry is usually accompanied by rapping, kidnapping and attack on villages due to land conflict between farmers and herders.

Variable	*Frequency	Parentage	Ranking
Armed Bandit	183	97.3	1
Cattle Rustling	171	91.0	2
Kidnapping	169	85.6	3
Land Conflict	150	79.8	4

Table 3: Security Challenges Affect the Optimum Participation of Farm Families on Watermelon Production

Source: Field Survey, 2019 *Multiple Responses

3.11. The Null Hypothesis

The null hypothesis of the study stated that there is no significant relationship between the socio-economic factors and participation of farm families on watermelon production in Sabon-Birni. Table 4 indicated that the marital status and family size are the socio-economic factors with a negative coefficient and was not significant, while the farm size, farming experience, land acquisition and annual income are the socio-economic factors with a positive coefficient and was found to be significant at 5%. The negative coefficient implies that the watermelon production was not influenced by marital status and family size of farm families participated on watermelon production. Meanwhile, the positive coefficient implies that the watermelon production was influenced by farm size, farming experience, land acquisition and annual income of farm families participated on watermelon production. The R^2 value of 0.81 implies that about 81% of the variation due to participation of farm families on watermelon as dependent variable was explained by socio-economic factors as independent variables. Thus, the calculate F-Value of 75.45 was greater than the tabulated F-Value of 1.24, which means that the formulated null hypothesis of the study was rejected.

Variable	Standardized Coefficient	Df	P-Value	Decision
Marital Status	-0.614	5	1.753	Not Significant
Family Size	-0.736		1.611	Not Significant
Farm Size	0.135		0.032	Significant
Farming Experience	0.211		0.045	Significant
Land Acquisition	0.174		0.029	Significant
Annual Income	0.311		0.039	Significant
R-Square	0.81			
F-Value	75.45			

Table 4: Socio-Economic Factors and Participation of Farm Families on Watermelon Production

Source: Field Survey, 2019

4. Conclusion

The conclusion of the study was based on highlight of the results in accordance with the specific objectives of the study. For the socio-economic characteristics of farm families participated on watermelon production, the study highlighted that the dominance of males participation into watermelon was due to socio-cultural milieu; the watermelon production was dominated by energetic farm families; the watermelon production was also dominated by married farm families; the watermelon production could be affected by the level of informal education; the watermelon production was utilised by family labour; the watermelon production was determined by years of farming practices; the watermelon production was characterised by the use of farmlands acquired through inheritance; the watermelon production was relied on the use of local seeds of watermelon and watermelon production was the means for income generation among the farm families participated on watermelon production. For the level of participation of farm families on watermelon production, the watermelon production was dominated by medium scale farm families. For the conditions that affect the optimum participation of farm families on watermelon production, the security challenges had deleteriously affected the level of participation of farm families into watermelon production. For the null hypothesis of the study, the watermelon production was not influenced by marital status and family size of farm families involved on watermelon production, while the watermelon production was influenced by farm size, farming experience, land acquisition and annual income of farm families participated on watermelon production in Sabon-Birni.

5. Recommendations

The following recommendations were emanated from the results of the study in accordance with the analysis of socio-economic factors influencing participation of farm families on watermelon production in Sabon-Birni:

- There is need for balance in terms of participation between males and females farm families on watermelon production.
- There is need for farm families participated on watermelon production to acquire formal education for the improvement of productivity.
- There is need for farm families participated on watermelon production to alternate the family labour with the mechanised labour.
- There is need for farm families participated on watermelon production to shift from medium scale production to optimum scale production.

- There is need for farm families participated on watermelon production to use improved seeds against the local seeds of watermelon.
- There is need for farm families participated on watermelon production to have adequate transportation facilities.
- There is need for farm families participated on watermelon production to have adequate credits, storage, irrigation and transportation facilities.
- There is need for farm families participated on watermelon production to have adequate extension services.
- There is need for farm families participated on watermelon production to have adequate security for stability and continuity of watermelon production.

6. References

- i. Abubakar, A. S. (2018). Analysis of factors influencing participation of farm households in watermelon production in some selected local government areas of Sokoto State, Nigeria. Dissertation for M.Sc. Degree in Agricultural Extension, Usmanu Danfodiyo University, Sokoto.
- ii. Abubakar, S. A. & Tambari, I. W. (2019). Determination of subsistence farm family's involvement on watermelon seasonal cultivation in Sokoto State, Nigeria. *International Journal of Current Agricultural Sciences* 04(A), 387-392.
- iii. Alphonse, N., Moris, O. O., Xu-hui, Z., Lianqing, L., Gen-xing, P. and Stephen, J. (2017). Factors influencing farmers participation in crop intensification program in Rwanda. *Journal of Integrative Agriculture* 16 (6), 1406-1416.
- iv. Ango, A. K., Ibrahim, S. I. & Tambari, I. W. (2017). Roles of agricultural extension workers in disseminating agricultural technologies to vegetable farmers under Jibia Irrigation Project, Katsina State, Nigeria. *International Journal of Agriculture and Development Studies* 2 (1), 134-141.
- v. Chamo, A. M., Sabo, B. B., Karaye, A. K. & Rabi, A. M. (2016). Factors affecting watermelon production among farmers of Gada community, Kazaure, Local Government Area, Jigawa State, *Global Advanced Research Journal of Agricultural Science*, 5(12), 432-439.
- vi. Daily Trust (2014). The watermelon farmers in Sokoto. <https://www.dailytrust.com.ng>. Accessed on 19/05/19.
- vii. Leadership (2019). Insecurity and its impacts on Northern Nigeria. <https://www.leadership.ng>. Accessed on 23/05/19.
- viii. Mani, J. (2018). Introduction of improved cowpea sampea 7 variety to cowpea farmers in Isa Local Government Area, Sokoto State, Nigeria. Project for B.Sc. Degree in Agricultural Extension and Community Development, Usmanu Danfodiyo University, Sokoto.
- ix. National Population Commission-NPC (2019). Projected population of Nigeria Retrieved from www.npc.ng.
- x. Oladele, O. I. (2011). Contribution of indigenous vegetables and fruits to poverty alleviation in Oyo State, Nigeria. *Journal of Human Ecology*, 34 (1), 1-6.
- xi. Olajide, B. R. & Oladipupo, O. K. (2017). Effects of audience simulation on the knowledge of dieback disease management among Cocoa farmers in Ife East Local Government Area of Osun State, Nigeria. *International Journal of Agriculture and Development Studies* 2 (1), 01-07.
- xii. Samuel, E. (2016). *The Political Economy of Rural Banditry in Contemporary Nigeria: Rural Banditry and Conflicts in Northern Nigeria*. Edited by Kuna, M. J. & Ibrahim, J. Center for Democracy and Development, Abuja, Nigeria
- xiii. Sokoto State Government Dairy (2018). *Its peoples, climate and vegetation*. A publication of Sokoto State Government, 1-3.
- xiv. Tambari, I. W & Umar, L. A. (2018). Evaluation of farmers livelihood assets affected by 2010 flood disaster in Sokoto State, Nigeria. *International Journal of Agriculture and Environmental Research* 04 (05), 1119-1140.
- xv. Tijjani, H., Tijjani, B. A. & Audu, A. (2018). Socio-economic determinants of vegetable farmers awareness of safety measures in pesticides use in Jere Local Government Area, Borno State, Nigeria. *Agrosearch* 18 (1), 66-76.