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# Effects of Road Infrastructure on Plantain Production among Farmers in Ekiti Southwest Local Government Area of Ekiti State, Nigeria

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***Abstract***
*Road infrastructure is crucial to farmers' productivity, transportation, marketing of food produce and food security. Therefore, this study examined the effects of road infrastructure to plantain production among farmers in Ekiti South Local Government Area. Multistage sampling procedure was used to select 103 respondents for the study; data were collected using structured interview schedule. Data on respondents' personal characteristics, perceived contribution of road infrastructure to plantain enterprise and constraints to plantain production and marketing were analysed with descriptive statistics, Chi-square and Pearson Product Moment Correlation statistical tools. Majority (75.7%) of the respondents were males, large percent (70.8%) were ageing (50-70years), 71.8% cultivated 4-6 acres with a majority (79.6%) having more than 20years of farming and marketing experience. Almost half (47.6%) of the respondents earned between #31,000-#40,000 monthly and majority (78.6%) indicated that their farms to the market were far and not motorable. About (65%) indicated that poor road infrastructure had negative implication on production and marketing of plantain. Educational level ($\chi 2=14.13$), farm size ($\chi 2=0.932$), monthly income ($\chi 2=7.938$), farming experience ($\chi 2=11.831$), marketing experience ($\chi 2=10.609$), farmers age ($r = -0.375$) and constraints to production and marketing ($r = 0.261$) were significantly related to effects of road infrastructure on plantain production. Hence, it is recommended that government should ensure quality rural feeder roads linking urban areas for sustainable farming practices, reduction of postharvest losses and efficient plantain marketing.*
***Keywords:*** *Feeder road, Farmers, Marketing, Plantain, Transport.*

## INTRODUCTION

Plantain is an important staple food crop to many households in Nigeria. It is relished among diverse age groups in its various processed forms; boiled, fried, oven-dried, roasted and plantain flour. It offers livelihood activities to both rural and urban dwellers; such as farmers, plantain processors and marketers of plantain products. According to International Institute of Tropical Agriculture (2007) and Olajide and Adelani (2010), plantain remains the tenth most important staple tropical crop that feed over 70 million people in Africa including Nigeria. This may be connected to the health benefits of plantain consumption known to many consumers. Plantain contains fibre, vitamins A and C, fat, protein, carbohydrates, iron, potassium, magnesium and calories supporting immune development against diseases. Plantain also provides bye-products of high nutritional value as kitchen waste used as feed for small ruminants. Many Nigerian plantain farmers depend solely on climatic parameters to farm in today's contemporary climate changing environment. However, plantain farmers are vulnerable to financial losses from drought, flood, wind and pest infestation, resulting from unpredictable weather conditions of climate variation and change. Despite farmers' application of biological and chemical control measures to control pests attack on their plantain farms and possible adoption of high yielding and disease resistant cultivars as coping strategy to ensure profitability, timely transportation of plantain to the market puts the farmers at greater risk to financial losses. Basic infrastructural facilities such as roads, pipe borne water and communication are essentials for the wellbeing of farmers, mainly populated in the rural areas (Yussuf *et al.,* 2011). However, the roads linking rural farms to the markets in the villages and towns have been in a deplorable state over the years, posing distress and financial losses to the plantain farmers. This often leads to low vehicular movement, poor transports in the rural areas and high vulnerability of farmers to increasing poverty.

Crosssley *et al*., (2009) reported that transport operation is a basic component of agricultural input and produce supply chains; as transport can be the decisive factor for the success of a farm or business activity. Transportation is becoming a barrier for plantain farmers to convey their produce to the markets. This could constrain farmers to low production and poor profit margin. In the same vein, food consumers may be pre-disposed to less nutritional foods that might be more accessible to them for intake, resulting to diseases like diabetes in the society and kwashiorkor among children. This could aggravate poor health status among food consumers in the country. Furthermore, plantain farmers are highly predisposed to post-harvest losses resulting from bruising as a mechanical damage to produce on poor road, perishability of produce through vehicle breakdown on bad road, causing delay in plantain products delivery to the markets. Rural infrastructure, particularly roads and transport services, continue to constrain farm incomes and adoption of technologies among farmers (Banjo *et al*., 2012). Despite considerable investment of successive governments on road construction and transport improvement over the years, poor quality and non-durable rural feeder roads are often delivered as sharp practice.

Poor road leads to splitting, abrasion, vibration and compression, coupled with late delivery, which often affects plantain quality during distribution (Adesope *et al.,* 2004; Akinyemi *et al*., 2010). Moreover, post-harvest distribution and marketing of plantain in the last twenty years have not been very efficient, as there are no established quality and quantity standards for plantain transportation and marketing (Akinyemi *et al*., 2010). Moreover, there is a noticeable reduction in farming activities in the most notable rural farming communities, as high cost of transport services hinder farmers' productivity and diminishes interest of the youthful farming population in farming activities. This puts the country at risk of food insecurity, hunger and social unrest in a nation with increasing population and low economic growth. Banjo *et al.,* (2012) posited that people who cannot move their goods cannot pursue economic and social activities. Hence, rural population constituting the majority of the national farming population are thereby susceptible to low production of plantain, like other food crops, poor farm income and unsatisfactorily economic and social wellbeing. Therefore, the sustainability of farming enterprise and potential for achieving food security in the country is threatened. It is upon this premise that the study sought to examine the effects of road infrastructure on plantain production in the study area.

**Hypotheses**

Ho1: There is no significant relationship between the personal characteristics of the plantain farmers and the effects of road infrastructure on plantain production

Ho2: There is no significant relationship between constraints to plantain production and marketing and the effects of road infrastructure on plantain production

## MATERIALS AND METHODS

The study was conducted in Ekiti State, Nigeria. The area is located between latitudes $41^0$ $14^l$ South, $60^o$ North and longitude $20^o$ and $80^l$ East. It is bounded in the south by the Atlantic Ocean, in the east by Edo and Delta states, in the west by Republic of Benin and in the North by Kwara and Kogi States. The climate is predominantly humid with rainfall ranging between 2000mm in the coastal areas to 1200 mm in extreme northern parts. The rainfall is distributed over April to October, followed by a short break between July and early August. The rainfall is bimodal with peaks in June and September. November to February usually span dry season characterized by harmattan but in the recent time, there has been a slight shift in the weather parameters and events of rainfall and dry season with variations contrasting the usual experience in the past. Farming is the major occupation of the rural population. They grow arable crops such as maize, yam, cassava, vegetables, pepper, okra and some permanent crops like cocoa, kolanut, oil palm, plantain and banana etc.

**Sampling procedure**

The population involved in this study consisted of plantain farmers in Ekiti South Local Government Area of Ekiti State (Ekiti State Government, 2006). The local government was purposively selected because it is the dominant plantain producing area in Ekiti State. A two-stage sampling procedure was used for this study. The first stage involved the random selection of thirty percent of the six cells of Agricultural Development Programme in Ekiti South West Local Government Area (Ilawe and Igbara-Odo). The second stage involved 40% of the 175 registered farmers under the selected Agricultural Development (ADP) cells to make a total of 103 respondents as the sample size for the study.

**Data collection and analysis**

Data were collected with the aid of a structured interview schedule consisting of both open and close ended questions. The data collected were analysed with the aid of the descriptive statistics of frequency counts and percentages. Inferential statistics such as, Chi-square ($\chi 2$) and Pearson Product Moment Correlation were used to analyse the study hypotheses. Effects of road infrastructure on plantain production was measured as Very Much (VM) (4), Much (M) (3), Not Much (NM) (2), No Effect (NE) (1). Respondents' level of the effects of road infrastructure on plantain production was calculated with statistical package for social sciences (SPSS) as below mean (35.0%) and above mean (65.0%) while the mean was 74.9. The minimum score (53.00) and maximum score (95.00). Constraints to plantain production and marketing were measured as serious constraint (2), mild constraint (1) and not a constraint (0).

## RESULTS AND DISCUSSION

### Personal Characteristics of the Respondents

Table 1 shows that majority (75.7%) of farmers were males. This implies that males dominated plantain production and marketing in the study area. This could be as a result of having greater access to land and possibly being more resilient in sustaining plantain production and marketing than their female counterparts. Majority (70.8%) of the respondents were above 50years of age. This indicates that many of the respondents were ageing. This could be that the youthful population was discouraged with the tedious agronomic practices of plantain cultivation, poor marketing of produce and low turnover as return on investment. The result agrees with Jibowo (2003) that rural areas in most countries have higher proportion of its population aged above 45 years. Large percent (67.0%) of farmers were Christians, while (28.2%) were Muslims and (4.9%) were traditionalists, respectively. This shows that Christians dominated the study area and there was no religious taboo against the production and marketing of plantain. Majority (74.8%) of the respondents had no formal education. This implies that large proportion of the plantain farmers were not formally educated and this could negatively affect their adoption of innovation on better practices of plantain production and marketing for improved income.

Majority (71.8%) cultivated between 4-6 acres of farm land. This implies that majority of the plantain farmers practiced at subsistence level. This finding agrees with Orisakwe and Agumuo (2004) who opined that Nigerian farmers are small-scale farmers. Also, (47.6%) of the respondents earned between N31,000-N40,000 on plantain produce monthly income. This shows that about half of the plantain farmers had low farm income as return on their plantain investment. This could discourage many of respondents from sustainable plantain production and could diversify into other livelihood activities that seem to be more profitable to them. Large percent (79.6%) of the respondents belonged to crop farmers association. This indicates that crop farms association offered opportunities to the respondents to source for information on better production practices and marketing of plantain produce. Majority (79.6%) had more than 20years of farming and marketing experience. This means that majority of the plantain farmers had long years of cultivation and marketing experience which could aid adoption of innovation on better plantain production and marketing for enhanced profitability. Majority (78.6%) of the respondents indicated that the location of their farms to the market was far and not motorable while few (9.7%) indicated that the road to their farms was near and motorable. This implies that many of the farmers had poor road network from their farms to the market, thereby experiencing serious hardship to transport their plantain produce to the market.

**Table 1.** Distribution of respondents by Personal Characteristics

| Variables | Frequency | Percentages (%) |
|---|---|---|
| SEX | | |
| Male | 78 | 75.7 |
| Female | 25 | 24.3 |
| MARITAL STATUS | | |
| Single | 4 | 3.9 |
| Married | 91 | 88.3 |
| Widowed | 2 | 1.9 |
| Widower | 6 | 5.8 |
| AGE | | |
| <40 years | 7 | 6.8 |
| 41-50 | 23 | 22.3 |
| 51-60 years | 47 | 45.6 |
| >60 years | 26 | 25.2 |
| RELIGION | | |
| Christianity | 69 | 67.0 |
| Islam | 29 | 28.2 |
| Traditional | 5 | 4.9 |
| EDUCATIONAL LEVEL | | |
| No formal education | 77 | 74.8 |
| Primary | 19 | 18.4 |
| Secondary | 6 | 5.8 |
| Tertiary | 1 | 1.0 |
| FARM SIZE | | |
| 1 - 3 acres | 6 | 5.8 |
| 4 - 6 acres | 74 | 71.8 |
| 7 - 9 acres | 22 | 21.4 |
| above 9 acres | 1 | 1.0 |
| AVERAGE MONTHLY INCOME | | |
| less than N 20,000 | 3 | 2.9 |
| ₦20,000 - ₦30,000 | 32 | 31.1 |
| ₦31, 000 - ₦40,000 | 49 | 47.6 |
| ₦41,000 - ₦50,000 | 8 | 7.8 |
| above ₦50,000 | 11 | 10.7 |
| MEMBERSHIP OF ASSOCIATION | | |
| Crop farmers association | 102 | 99.0 |
| Livestock association | 1 | 1.0 |
| FARMING EXPERIENCE | | |
| 1 - 10 years | 18 | 17.5 |
| 11 - 20 years | 3 | 2.9 |
| above 20 years | 82 | 79.6 |
| MARKETING EXPERIENCE | | |
| 1 - 10 years | 18 | 17.5 |
| 11 - 20 years | 3 | 2.9 |
| above 20 years | 82 | 79.6 |
| LOCATION OF FARM TO THE MARKET | | |
| Near and motorable | 10 | 9.7 |
| Near but not motorable | 12 | 11.7 |
| Far and not motorable | 81 | 78.6 |

Source: Field Survey, 2018

**Distribution of respondents' on effects of road infrastructure to plantain production**

Table 2 shows that majority (90.3%) of the respondents indicated that good road creates much effect in the provision of a competitive plantain market for customers. This implies that good road is a catalyst for plantain farmers to transport, distribute and market their produce, in the same vein, attracting effective commercialization to the plantain producing communities. Majority (88.3%) of the plantain farmers agreed that identification with markets leaders and taking the produce to the market facilitates much significant effect of appreciable sales of their plantain produce. This implies that respondents contact with market leaders and transporting their produce to the market by themselves, offer them better sales to customers as good return on their investment. Majority (85.5%) of the farmers indicated that poor road network had great negative effect on their productivity because it restrains them to a limited farm size. It implies that the bulk of the farmers are constrained to small sized farms as a result of the bad state of feeder roads from their farms to the markets.

Large percent (82.5%) of the respondents reported that bad road has so much unpleasant effect on plantain produce, as it attracted bruises and reduces its profitability value. This implies that the bad state of the feeder roads to the markets often has a damaging effect on the plantain produce and losses to the farmers in the market. Majority (78.6%) of the respondents indicated that the group funding of travel expenses of their plantain produce had much effect on their profit margin. This implies that cooperative arrangement of group sponsorship in conveying and marketing their produce in a designated market reduced their cost of transportation and increased their profit. These showed that wealth of experience gathered through long years of production and marketing by the respondents aided the productivity and profitability of plantain enterprise which could assist plantain farmers in profitable market determination for all concerned members. Adetunji and Adesiyan (2008) corroborated these findings that if marketing system of plantain is well understood by farmers, production could be expanded to ease food situation in Nigeria.

**Categorization of the effects of road infrastructure on plantain production and marketing**

Table 3 showed that 65.0% of the plantain farmers' had unfavourable effect of road infrastructure on plantain production and marketing, having a mean score of below 64.01, belonging to this category. This implies that many of the respondents were negatively affected by poor feeder roads of farms to the market, inhibiting farmers' productivity level, marketing and profitability. Akangbe *et al.* (2013) corroborated this finding that poor rural feeder road, transport services and postharvest losses could eventually discourage farmers in expanding their farm size the next growing season.

**Table 3:** Distribution of the effects of road infrastructure on plantain production and marketing

| Effects of road infrastructure | Frequency | (%) | Minimum | Maximum | Mean |
|---|---|---|---|---|---|
| Favourable | 36 | 35.0 | 53.00 | 95.00 | 64.01 |
| Unfavourable | 67 | 65.0 | | | |

**Constraints Faced by Respondents in Plantain Production and Marketing**

Table 4 revealed that the most severe constraints experienced by the respondents included climate variation (x = 1.65), high cost of hybrid suckers (x = 1.63), poor market (x = 1.63), poor road network from farm to the market (x = 1.61) inadequate capital (x = 1.59), theft poor (x = 1.59), documentation of lease agreement on farm land (x = 1.57) and poor extension services (x = 1.51), while the least of their constraints was poor accessibility to weather forecast (x = 1.39). These imply that climate variation, high cost of hybrid suckers, poor market for plantain produce, poor road network from their farms to the market, inadequate capital and poor documentation of lease agreement respectively, posed severe constraints to the plantain farmers. These could discourage them from plantain production and marketing, thereby pre-disposing plantain farmers to engage in other livelihood activities. Hence, constraints experienced by rural farmers have a far reaching negative significance on food production and sustainability of farming operations in the face of other alternative likelihood activities, most especially among the youthful age group. African Development Bank (2011), Diao *et al.* (2007) and Economic Commission for Africa (2007) supported this finding that smallholder farmers face key challenges to production among them are; road infrastructure and poor transportation of produce to the market.

**Table 2:** Distribution of effects of road infrastructure on plantain production

| Effects of road infrastructure on plantain production and marketing | VM (%) | M (%) | NM (%) | NE (%) |
|---|---|---|---|---|
| Long hours of waiting for vehicle to covey plantain produce to the market | (77.7) | (1.0) | (21.4) | (0) |
| Bad road predisposes plantain produce to bruises and reduces the profitability value | (3.9) | (82.5) | (0) | (13.6) |
| Susceptibility of vehicles conveying plantain produce to mechanical damage and longer trip to the market | (1.0) | (15.5) | (83.5) | (0) |
| Long distance of farm to the market leads to produce sales at poor price | (1.0) | (6.8) | (77.7) | (14.6) |
| Transportation cost determines the price of products | (9.7) | (0) | (78.6) | (11.7) |
| Selling of produce on the farm leads to financial loss | (0.0) | (19.4) | (69.9) | (10.7) |
| Selling to retailers reduce profit margin | (1.0) | (3.9) | (80.6) | (14.6) |
| High travel cost on plantain produce leads to high sales of produce | (0.0) | (16.5) | (68.0) | (15.6) |
| Identification with market leaders and taking the plantain produce to the market facilitates good sales | (0.0) | (88.3) | (2.9) | (8.7) |
| Group funding of travel expenses of our plantain produce to the market increases profit margin | (0.0) | (78.6) | (12.6) | (8.8) |
| Inadequate processing techniques for increased shelf life leads to little or no profit on plantain produce | (2.0) | (9.7) | (78.6) | (9.7) |
| Good road creates competitive plantain market | (0.0) | (90.3) | (0) | (9.7) |
| Good road stimulates economic growth of our farming community | (0.0) | (1.0) | (86.4) | (12.6) |
| Transportation cost is influenced by the state of the road | (0.0) | (1.0) | (90.3) | (8.7) |
| Rising transportation cost on produce to the market limits level of plantain production | (1.0) | (30.1) | (59.2) | (9.7) |
| Poor road provides alternative to diversify into other livelihood activities | (1.0) | (17.5) | (70.9) | (10.7) |
| Getting plantain produce to the secondary market in urban centres results in untold hardship | (14.6) | (69.9) | (1) | (14.6) |
| Poor road network restrains farmers to limited farm size | (0.0) | (85.5) | (0) | (14.5) |
| The state of the road could restrict access and sourcing of improved plantain cultivars, of yield and resistant to diseases. | (1.0) | (64.1) | (11.7) | (23.3) |

**Table 4.** Constraints faced by respondents in plantain production and marketing

| Constraints | Not a constraint (%) | Mild Constraint (%) | Serious Constraint (%) | $\bar{x}$ | Rank |
|---|---|---|---|---|---|
| Climate variation | (4.9) | (0) | (95.1) | 1.65 | 1 |
| Inadequate capital | (1.0) | (13.6) | (85.4) | 1.59 | 5 |
| Poor documentation on land lease agreement | (9.7) | (5.8) | (84.5) | 1.57 | 7 |
| Ineffective coping strategies to climate variation | (0) | (41.7) | (58.3) | 1.48 | 9 |
| Poor accessibility to weather forecast | (2.9) | (70.9) | (26.2) | 1.39 | 10 |
| High cost of hybrid suckers | (1.9) | (5.8) | (92.2) | 1.63 | 2 |
| Theft | (1.0) | (11.7) | (87.4) | 1.59 | 6 |
| Poor extension services | (3.9) | (27.2) | (68.9) | 1.51 | 8 |
| Poor market | (1.9) | (5.8) | (92.2) | 1.63 | 3 |
| Poor road network from the farm to the market | (1.9) | (7.8) | (90.3) | 1.61 | 4 |

**Hypotheses testing**

**Hypothesis 1:** Relationship between respondents' personal characteristics and the effects of road infrastructure on plantain production and marketing

Table 5 shows that there was a significant relationship between educational level of the respondents and the effects of road infrastructure on production and marketing ($\chi 2$ =14.136, p=0.003). This implies that educational level of the respondents positively influenced the coping measures they adapted to the unfavourable effects of road infrastructure on plantain production and marketing. This suggests that education attained by farmers through long year of experience aided their ability to take advantage of profitable opportunities in the challenging situations involved in the venturesome production and marketing of plantain. This finding also corroborates Etuk *et al.* (2013) who asserted that learning is instrumental and informative to knowledge search, likewise its usefulness among a group of people. Respondents farming experience had significant relationship with the effects of road infrastructure on plantain production and marketing ($\chi 2$ =11.831, p=0.003). This implies that respondents farming experience had a positive influence on how they tap gainful opportunities in their challenging farming despite the unfavourable effects of road infrastructure.

The farm size of the respondents had a significant relationship with the effects of road infrastructure on plantain production and marketing ($\chi 2$ =0.932, p=0.001). This shows that respondents' farm size was significantly influenced by the unfavourable effects of road infrastructure, restraining them to low productivity and little financial gain on their farm labour. There was also a significant relationship between respondents marketing experience and the effects of road infrastructure on plantain production and marketing ($\chi 2$ =10.609, p=0.005). This implies that experienced gained over time in marketing of plantain produce by the respondents positively influenced the marketing strategies they utilised for financial gain, regardless of the challenges faced in conveying their produce on poor road to the market. Hence, marketing experience is an incentive for the plantain farmers having guaranteed market and making profit in plantain farming.

Respondents average monthly income had significant relationship with the effects of road infrastructure on plantain production and marketing ($\chi 2$ =7.938, p=0.00). This implies that respondents' average monthly income was influenced by the unfavourable effects of road infrastructure on plantain farming and marketing. This could be that the respondents' monthly income had a bearing on how well they accessed their farms, how much they produced and the state of the produce when they conveyed it to the market on admissible poor feeder roads by the majority of the farmers. Membership of association had a significant relationship with the effects of road on plantain production and marketing ($\chi 2$ =0.543, p=0. 001). This implies that respondents' membership in farmers' association had a positive and significant bearing on the steps they took to produce and market their plantain produce with profitable gain despite the unfavourable effects of road infrastructure. This could be as a result of marketing information accessed from the farmers' association and cooperative actions of members in securing market for their plantain produce. This finding is in consonance with that of Agada and Evangeline (2014) which reported that membership of rural organizations such as cooperatives and farmers association is important to access productive resources, credit, information and other support services.

Respondents age had a significant negative relationship with the effects of road infrastructure on plantain production and marketing (r = -0.375, p=0.000). This implies that inverse significant relationship existed between the age of the respondents and the effects of road infrastructure on plantain production and marketing. This indicates that the age among the respondents were not deploying innovative strategies to produce and market their produce for good profit margin in the face of hindrances experienced by the farmers as a result of poor feeder roads from the farm to the market. Also, there was a significant relationship between constraints faced by respondents and the effects of road infrastructure on production and marketing (r = 0.261, p=0.004). This implies that as the constraints experienced by farmers increase in production and marketing, there was a tendency for them to experience additional risks and stress from unfavourable effects of the contributions of road infrastructure to their farming enterprise, which could influence their farming practice in such locality. This finding is supported by the findings Agada and Evangeline (2014) that farmers have to be adequately assisted especially in terms of investment in rural infrastructure, such as feeder roads that link rural areas to the markets; and other farming constraints must be addressed as they limit farmers' ability to market their produce.

**Table 5:** Relationship between respondents' personal characteristics and effects of road infrastructure on plantain production and marketing

| Variable | Df | Chi-square value ($\chi 2$) | p-value | Decision |
|---|---|---|---|---|
| Sex | 1 | 0.370 | 0.543 | Non-Significant |
| Religion | 2 | 0.249 | 0.883 | Non-Significant |
| Marital Status | 3 | 3.186 | 0.364 | Non-Significant |
| Educational level | 4 | 1 4.133 | 0.003 | Significant |
| Farm size | 3 | 0.932 | 0.001 | Significant |
| Average monthly income | 4 | 7.938 | 0.000 | Significant |
| Membership of association | 1 | 0.543 | 0.001 | Significant |
| Farming experience | 2 | 11.831 | 0.003 | Significant |
| Marketing experience | 2 | 10.609 | 0.005 | Significant |
| Location of farm to the market | 3 | 5.491 | 0.139 | Non-Significant |
| | | **r** | **p** | |
| Age | | -0.375* | 0.000 | Significant |
| Constraints to production and marketing | | 0.261* | 0.004 | Significant |

Source: Field survey, 2018 * df means degree of freedom

**Conclusion**

The study concludes that the plantain farmers were ageing and faced by unfavourable effects of road infrastructure, limiting their productivity and profitability potentials. They are exhibited resilient productive and profitable marketing strategies for profitable plantain business despite experiencing unpalatable and unfavourable effects of road infrastructure. Majority were males, with predominance of Christianity as religion, though Islam and traditional worshippers were also represented in the study area. Majority of the respondents were illiterates and largely depended on their native intelligence for marketing information. The most severe constraints experienced by majority of plantain farmers' were climate variation, high cost of hybrid suckers and poor market for plantain produce. Farmers age, farm size, monthly income educational level, average monthly income, membership of association, farming experience and marketing experience had a significant relationship with the effects of road infrastructure on plantain production and marketing.

**Recommendations**

- Government should improve on the quality of rural feeder roads constructed in the farming communities, linking rural and urban markets for improved food production, better marketing, profitability of farming enterprise and efficiency of the farmers.
- Government should establish marketing boards as guaranteed market for not just plantain but other food staples with regulations on quality and accessible farm inputs to the farmers so as to allow profitability of farming enterprise to the farmers and ensuring food security in the state.
- Farmers should be better equipped on weather information, provided with accessible and affordable hybrid plantain adaptable to climate variation; farmers should be timely informed on better coping strategies of climate variation by the government through extension officers and mass media for improved plantain production and better marketing of plantain produce.
- Public and private extension agents should improve on their extension services delivery to farmers, in the areas of adequate information on how and where they can take up more transparent, reliable and affordable land lease agreement for food crop production, likewise better marketing information should be given to farmers through farmers association for more profitability of farming.
- Farmers should also be encouraged to secure the services of government lawyers at little or no cost in Public Complaints Commission on land lease agreement with members of the community. This will ensure trust and motivation among food crop farmers to farm more.

**REFERENCES**

Adesope, A. A, Usman, J. M., Abiola, I.O and Akinyemi, S.O (2004): Problems and prospects of plantain marketing in Ibadan. Proceedings of 22nd Annual Conference of Horticultural Society of Nigeria. Ibadan, Nigeria3–6, September. pp.142–145.

Adetunji, M.O. and Adesiyan, I.O. (2008): Economic Analysis of plantain marketing in Akinyele Local Government Area in Oyo State, Nigeria. *International Journal of Agricultural Economics and Rural Development,* 1 (1):15-21.

Adeyemo, R. and Bamire, A.S. (2005). Savings and Investment Patterns of Cooperative Farmers in South western Nigeria. *Journal of Social Science,* 11(3):183 -192.

Agada, M. and Evangeline, N.A (2014). Constraints to increasing agricultural production and productivity among women farmers in sub-Saharan Africa: Implications for Agricultural Transformation Agenda. *Nigerian Journal of Rural Sociology* 15(1): 55-65.

African Development Bank (2010). Smallholder Agriculture in East Africa: Trends, Constraints and Opportunities. http://www.ifad.org/drd/agriculture/20.htm (Accessed on 30/10/2013).

Kangbe, J.A., Oloruntoba, O.O., Achem, B. and Komolafe, S. (2013). An appraisal of transportation facilities effects on agricultural development in Moro Local Government Area, Kwara State, Nigeria. *Ethiopian Journal of Environmental Studies and Management.* 6 (2):191-200.

Akinyemi, E. (2003). Four decades of road transport in Africa. In: Whitelegg, J & Haq, G (eds.) *The Earthscan Reader on World Transport Policy and Practice*, pp. 29-34. Earthscan Publications Ltd, London.

Banjo, G., Gordon, H. and Riverson, J. (2012). Rural Transport: Improving its Contribution to Growth and Poverty Reduction in Sub-Saharan Africa. SSATP Africa Transport Policy

Program,Working Paper No. 93. http://www.worldbank.org/afr/ssatp (Accessed on 13/02/2018)

Crossley, P., Chamen, T. and Kienzle, J. (2009). Rural Transport and Traction Enterprises for Improved Livelihoods, diversification booklet 10. Retrieved from www.amazon.ca on 20/09/2013.

Diao, X., Peter, H.l., Danielle R and Thurlow, J (2007). *The Role of Agriculture in Development:Implications for Sub-Saharan Africa*. IFPRI Research Report 153, International Food Policy Research Institute, Washington, D.C.

Economic Commission for Africa (2007). Africa Review Report on Agriculture and Rural Development, Fifth Meeting of the Africa Committee on Sustainable Development,Addis Ababa.

Ekiti State Government (2006). Ekiti State Government Diary. http://www.ekitistate.gov.ng

Etuk, U.R. Olatunji, S.O and Ekong, I (2013). Analysis of health needs on self-medication among rural farmers in Akwa-Ibom State, Nigeria. *Nigerian Journal of Agriculture, Food and Environment,* 9(1): 63-66.

International Institute of Tropical Agriculture (2007). Banana and Plantain Systems Overview. Available at https://www.iita.org/crops/banana-plantain/ Assessed on 15/06/2019

Jibowo, A.A (2003). Essentials of Rural Sociology, Gbemi Sodipo Press. Limited, Abeokuta, Nigeria.

Olajide-Taiwo, L.O and Adebisi-Adelani, O. (2010). Plantain and Banana Production in Owan Community of Edo State: Opportunities and Limitations for Research Development and Production. *Journal of Applied Agricultural Research,* ISSN 2006-750x ARCN pp31-35.

Orisakwe, L. and Agumuo, F. (2004). Adoption of Improved Agro Forestry Technology among Contact Farmers in Imo State Nigeria. *Asia Journal of Agriculture and Rural Development* 1 (2):1-9.

Yusoff, N., Talib, A. and Pon, Y. (2011). Impak pembangunan infrastruktur keatas pembangunan komuniti penduduk di Daerah Pendang dan Kubang Pasu, Kedah Darul Aman, Malaysia. *Journal of Governance and Development,* 7:16-36;