

Survey of Existing Pests among Cashew Farmers' Farms in Oyo and Osunstates, Nigeria

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Abstract— Cashew is a versatile tree nut with high potential for foreign exchange in Nigeria but despite its huge economic value, its production is plagued by several factors such as insect pests and diseases. However, there is dearth of information on the dynamics of pest incidence on cashew farmers' farms which is important for development of appropriate management measures. Consequently, a survey was conducted on farmers' farms in order to determine the current pest status of new and existing pests of cashew and means of control. Structured questionnaire was used to obtain data on respondents' personal characteristics, existing pest among cashew farmers and sources of information on pest control. Multi-stage sampling procedure was used to select 63 respondents from four communities in Oyo and Osun States. Descriptive statistics was used for the analysis. Majority (46.03%) of the respondents were between the age range of 25 and 45 years, 93.65% were males, 55.56% had no formal education, 74.60% had between 1 and 20 years of farming experience and 87.30% had farm size less than 5 hectares. Respondents indicated cashew stem girdler 20.5%, grasshopper 15.4%, fruit borer 12.8%, while 28.2% indicated inflorescence and twig dieback disease as some of the pests attacking their crop. The respondents received information on pest from radio 22.22%, from CRIN and Newspaper 3.17% from bulletins 1.59% while 49.22% from other farmers. Most of the famers were males and small scale farmers. Existing insects and diseases attack their cashew farms and information access was mainly from other farmers.

Keywords— Communities, diseases, cashew stem girdler, information, insects.

I. INTRODUCTION

Cashew is a versatile tree nut with high potential for foreign exchange and a source of raw materials for Nigeria and other tropical Countries (Olunloyo, 1975). It is an environmentally friendly crop and has been used in the past

for stabilizing agro-ecological systems; cashew can also be used to sequester carbon. The main cashew products traded on the international market are raw nuts, cashew kernels, and cashew nut shell liquid (CNSL). A fourth product, the cashew apple which is a rich source of Vitamin C presents other marketing opportunities but it is generally processed and consumed locally. In Nigeria, the cashew industry is one of the major non-oil foreign exchange earner after cocoa with production in excess of 800,000 tonnes of raw cashew nuts in 2012 (FAO 2013) and an estimated value of N234million.

However, despite its huge economic value, its production is plagued by several factors such as low yield, insect pests and diseases, poor processing and marketing infrastructure among others. In 2009, an average yield of cashew nuts in shells of about 0.7 MT/ha was reported in Africa whereas yield was about 6 times higher in Vietnam (FAO, 2011). In Nigeria, average yield of cashew is between 0.22MT/ha and 0.44MT/ha (Alawode, 2012). Insect pests and diseases constitute major contributory factor to low yield in cashew production. According to CABI (2005), there are 36 major insect pests of cashew and 67 minor insect pests across the globe. In Nigeria, 141 insect species have been reported on cashew (Eguagie, 1973) while Mokwunye *et al.*, (2011) reported the incidence of five economic insect pests in a 3-year field survey on CRIN cashew plantation in Ibadan, Nigeria. These insect pests attack the crop during its different stages of growth. They include sap-sucking bugs, beetles, borers, leaf miners. They cause considerable damage to the tree and the crop by bringing about the death of the floral-flushing shoots, the early abortion of young nuts and loss of yield. However, there is dearth of information on the dynamics of pest incidence on cashew farmers' farms which is important for development of appropriate management measures. Consequently, a survey was conducted on farmers' farms in order to determine the current pest status of new and existing pests of cashew and means of control.

General Objective

The main objective of this study is to assess the existing pests among farmers' farms in selected states of Nigeria.

The specific objectives are to;

1. Describe the personal characteristics of the respondents
2. Ascertain existing pests among cashew farmers
3. Determine the sources of information on pest control

II. METHODOLOGY

Multi-stage sampling technique was used to select respondents. The first stage was the purposive sampling of two cashew producing States which are Oyo and Osun States. Oyo and Osun States are the major cashew producing states in the Southwestern Nigeria. The second stage is the random selection of two Local Government Areas (LGAs) from each State, making four LGAs from the two States. The third stage is the random selection of one community from each LGA, thus making a total of four communities from the two states. The last stage is the random selection of 63 respondents (cashew farmers) from the four communities. Information was collected from the respondents with the aid of structured questionnaire and the data retrieved from the information collected was analysed using descriptive statistics. Descriptive statistics was used to describe the personal characteristics of the respondents as well as to analyse the sources of information on pest control and existing pest in farmers' cashew farms in the study area.

III. RESULTS AND DISCUSSION**1.0 Selected personal characteristics**

Age is an important factor in farm work. Increase in number of years of farmer might result in additional experience of the farmer, to improve upon their level of productivity and income (Uwagboe, 2010). The result in Table-1 shows that many (46.03%) were between the age range of 25 and 45 years, 44.44% were between 46 and 65 years while 9.53% were greater than 65 years. This implies that most of the cashew farmers in the study area were in their prime age and could be vulnerable to rural urban drift in search of white collar job which can adversely affect cashew production.

Cashew farming requires labour, which is also gender sensitive. Table-1 shows that most (93.65%) of the Cashew farmers were male while 6.35% were female. The male domination of cashew farming activities as observed in the study area could be attributed to the fact that women are given opportunity to cultivate arable crops on the their husband's plots while access to permanent crop production is usually restricted to men (Abubakar, 2003). In a similar study Bzugu (1995) reported that men are generally considered as head of family decisions with regards to resources acquisition and utilization in Ogbomoso area. This could be a limitation to women contribution to cashew production.

It is generally believed that farmer's level of education would enhance their farming activities and level of awareness. Most (55.56%) of the respondents have no formal education, (23.81%) had primary education, 14.29% had secondary while 6.35% had tertiary which is an indication that the farmers level of education in the study area is very low which could affect their level of receptivity of improved technologies hence their high dependency on the use of unimproved technologies. This could reduce their yield and consequently result in low income of the farmers (Table-1).

The result on Table 1 also revealed that most (82.54%) of the respondents were married which indicates that they are matured in decision making in cashew farming activities. This is favourable in terms of improving cashew production. Majority (74.60%) had between 1 and 20 years and some 22.22% had between 21 and 40 years while few (3.18%) had between 41 and 60 years. Long farming experience is likely to enable the respondents to properly identify their areas of extension needs regarding cashew production (Adeola, 2012)

As regards the farm size, a high proportion of the respondents (87.30%) had not more than 5 hectares of farm while only 12.7% of the total respondents had above 6 hectares of farm. It can also be deduced from the finding that majority of the respondents could be considered as small scale farmer cultivating less than 5ha which is in agreement with Uwagboe (2010) findings that majority of farmers in Ogbomoso area are small scale farmers as they cultivate less than 10ha of farm land.

Table.1: Selected personal characteristics of respondents

Variables	Frequency	Percentage	Mean
Age			
25-45	29	46.03	48.33
46-65	28	44.44	

>65	6	9.53
Total	63	100.00
Sex		
Male	59	93.65
Female	4	6.35
Total	63	100.00
Education		
No formal education	35	55.56
Primary	15	23.81
Secondary	9	14.29
Tertiary	4	6.35
Total	63	100.00
Marital status		
Single	4	6.35
Married	52	82.54
Divorced	7	11.11
Total	63	100.00
Years of farming experience		
1-20	47	74.60
21-40	14	22.22
41-60	2	3.18
Total	63	100.00
Farm size (Ha)		
≤5	55	87.30
6-10	7	11.11
>10	1	1.59
Total	63	100.00

Source: Field survey, 2014

2.0 Existing pest in farmers' farms

In Nigeria, the production of cashew is impaired mostly by problems associated with its insect and disease pest complex. The result on Table 2 revealed that 20.50% of the respondents indicated cashew stem girdler (Fig. 2) 14.80%, grasshopper 11.10%, fruit borer 9.30%, Termite (Fig. 3) 27.80% while 29.60% of the respondents indicated Inflorescence and twig dieback disease as some of the pests attacking their crop. These insect pests and diseases could be controlled using common cultural practices such as timely harvesting, removal of alternate host, pruning and

weeding (Mokwunye, 2014). As opposed to previous assumptions that cashew farmers hardly apply pesticides, this survey showed that up to 28.90% of the interviewed farmers apply chemicals to control pests on their farms. At the time of survey, we observed symptoms of various pest infestations which the farmers were oblivious about and as such were not entirely captured in their responses. This scenario requires effective linkage between research and extension to promote information flow and technology adoption.



Fig. 1: A cashew plant girdled by Analeptestri-fasciata in Nigeria



Fig.2: The insect Analeptestri-fasciata



Fig. 3: Termite (*Macrotermes bellicosus*) Isoptera: Termitidae

Table.2: Distribution of respondents based on existing pests and diseases in farmers' farms.

Source: Field survey, 2014

Existing pest	Frequency	Percentage
Insects		
Grasshopper	6	11.10
Stem borer	4	7.40
Stem girdler	8	14.80
Fruit borer	5	9.30
Termite	15	27.80
Diseases		
Twig/Inflorescence dieback	11	20.30
Premature dropping of flowers	5	9.30
Total	54	100.00

3.0 Sources of information

Various sources of information were used by the farmers; of these, 49.22% used information from other farmers and 20.63% got information from extension agents which tallies with the findings of Opara (2008) who noted that interpersonal communication is more robust with built-in feedback mechanism. Their sources from other farmers could be related to training of trainers by extension agents who had helped in dissemination of information to other farmers.

The result also shows that 22.22% used radio, 3.17% from CRIN and Newspaper respectively while 1.59% from bulletins. According to Uwagboe (2010) the low use of bulletins and newspaper does not suggest a lack of agricultural information in the print media. Newspapers are probably not popular with farmers, since a high percentage of the farmers are not literate enough to utilize them. Hammed *et al.* (2008) opined that promotion of jingles on radio and television including the print media will further promote the awareness on the health benefits of cashew, thus strengthening the domestic economy of the crop.

Table.3: Distribution of respondents based on sources of information

Sources of information	Frequency	Percentages
Extension agents	13	20.63
Radio	14	22.22
CRIN	2	3.17

Newspaper	2	3.17
Bulletin	1	1.59
Other farmers	31	49.22
Total	63	100.00

Source: Field survey, 2014

IV. CONCLUSION

Most of the farmers were males with long years of farming experience, low educational background and small scale farmers. Existing insects and diseases such as termites, grasshopper, stem borer and fruit borer attacked their cashew farms and information access was mostly from other farmers. There is need for improvement in farmers' education and provision of insects and diseases management for adoption.

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