International Journal of Sustainable Agriculture 3 (2): 49-53, 2011
ISSN 2079-2107

Assessment of Pests and Diseases Management Practices among Cashew Farmers in Kogi State, Nigeria

S. Adebiyi, E.O. Uwagboe, E.A. Agbongiarhuoyi, N. Idris and E.O. Aigbekaen

Cocoa Research Institute of Nigeria, Ibadan, Nigeria

Abstract: Cashew is faced with some pests and diseases problems despite the fact that it is tolerant of poor soil and can perform better in savanna parts of Nigeria. Scientists have recommended various methods of controlling pest and disease of Cashew. However, there is dearth of information on the efficient and economical methods of handling pests and diseases problems facing Cashew in Nigeria. The study was purposively carried out in Kogi State due to the fact that the state in high in Cashew production. Eighty Cashew farmers were randomly selected in two Local Government Area of the State and structured questionnaire were used to obtain data on personal characteristics of respondents, pest and diseases management practices and their perception to the practices. Data were analyzed using descriptive statistics and chi-square. The results revealed that the farmers were already old with the mean age of 58 years, 75.9 percent were male, while 98.7 percent were married. Also, 51.9 percent had no formal education, 64.6 percent took farming as primary occupation, 70.9 percent had above 15 years Cashew farming experience, 97.5 percent had at least 4ha of Cashew farm land. Respondents were not fortnightly visited as 59.5 percent were not visited at all. Cashew stem girdlers and Cashew stem borer were the two major pests while inflorescent die back was the major disease. There was poor pest management as only 31.6 percent of the respondents used cultural practices to control pests and diseases on their farms. Also chi-square analyses showed that information sources ($\chi 2=0.54$, $p=0.05$) significantly relate to pest and disease management practices. Farmers still left their Cashew farms unmanaged they were not aware of various methods of insect pest and disease control. Efforts to increase Cashew production through training of Cashew farmers on various management practices should be intensified.

Key words: Pests and diseases · Cashew farmers · Information sources

INTRODUCTION

Cashew (*Anacadium occidentale)* is a native of central and south America, cashew has its main centre of variation in eastern Brazil [1]. The crop was introduced into Nigeria in the 15th and 16th century by the Portuguese traders [2]. Presently, cashew is grown in many parts of the world and the world production is about 400,000 tonnes. More than 50% of this production comes from south Asia and South Africa, especially India and Tanzania [3]. According to Igwe [4], cashew is good for rehabilitation of areas degraded by poor managed pastures, slash and burn farming in which fallow periods have become too short. Cashew is a hardy crop that can grow virtually in all ecological zones of Nigeria, according to Ezeagu [5] cashew are grown in the following state of Nigeria, these are, Kogi, Oyo, Kwara, Abia, Osun, Imo, Ekiti, Enugu, Benue, Ogun, Anambra, Taraba, Eboyi, Niger, Cross-River, Imo, Sokoto, FCT, Nassarawa and Kebbi State.

Cashew is tolerant of poor soils and can perform better in savanna part of Nigeria. Cashew invariably perform very poorly in areas with excessive winds. In areas with tropical storms, cashew trees suffer considerable damage from wind by mutilation of the canopy. Though, study revealed that Harmattan winds are injurious to good production in cashew. However, cashew will grow well from sea level up to an attitude of 1200m. Cashew plants are relatively free of diseases, but young seedlings are generally susceptible to pests and diseases.

Pests and diseases constitute limiting factors in production of cashew in cashew producing regions of Nigeria because the environment is conducive to the growth and multiplication of diseases pathogens.

Corresponding Author: S. Adebiyi, Cocoa Research Institute of Nigeria, Ibadan, Nigeria.
E-mail: solomonbiyi@ymail.com & eghecrin_2003@yahoo.co.uk.

As a result, there are many pests and diseases attacking the different tree crop species in the country, the recommended methods of controlling them is by both cultural and chemical methods. Olunloyo [6] opined that cashew inflorescence is susceptible to diseases because of its irregular and prolonged flowering which will necessitate multiple chemical spraying of the flowers. The need for cashew farmers to address pests and diseases management problems becomes essential in order to improve productivity of cashew in Nigeria.

Objectives of the Study: The general objective of the study was to ascertain the pests and diseases management practices by cashew farmers in the study areas.

The Specific Objectives Are To:

- ascertain the socio-economic characteristics of the respondents.
- examine the insect pests and diseases affecting cashew in the study areas.
- determine methods used by the farmers to control pests in the study areas

The Hypotheses of the Study

HO1: There is no significant relationship between source of information and pests and diseases management practices by cashew farmers in the study areas.

Methodology: The study was carried out in Kogi State. Two local government Areas were purposely selected due to the facts that they are known for cashew production. The two local government areas selected were Ankpa and Dekina LGAs of Kogi State. Forty farmers were selected in each of the Local government Area to make a total of eighty cashew farmers for the study.

With structured questionnaire, data were collected and anlayzed by using descriptive statistics and chi-square analysis.

RESULTS AND DISCUSSION

Table 1 showed that 75.9 percent of the respondents were between the age group 56 years and above while, few (24.1 percent) were between the group of 26 years and 55 years. It could be seen that middle aged and old farmers are involved in cashew production in the area.

Table 1: Socio-Economic Characteristics of Respondents

Variable Categories	Frequency	Percentage
Age		
26-35	3	3.8
36-45	6	7.6
46-55	10	12.7
56-65	37	46.8
Above 65	23	29.1
Mean age = 58 years		
Gender		
Male	60	75.9
Female	19	24.1
Religion		
Christianity	63	79.8
Muslim	16	20.2
Marital Status		
Single	-	-
Married	78	98.2
Widowed	1	1.3
Educational Status		
No Formal Education	41	51.9
Adult Education	5	6.3
Primary Education	13	16.5
Secondary Education	18	22.8
Tertiary Education	2	2.5
Primary Education	51	64.6
Farming	12	15.2
Trading	11	13.9
Artisan	5	6.3
Civil Servant		
Cashew Farming Experience		
1-5 years	9	11.4
6-10 years	5	6.3
11-15 years	9	11.4
Above 15 years	56	70.9
	79	100

The relative long period in cashew to get to productive age coupled with apparent dearth in infrastructural facilities in the rural areas might have encouraged the movement of the young people from the villages to the cities for greener pastures.

The distribution based on gender classification revealed that 75.9 percent were males while, 24.1 percent were females. The dominance of the male over the females maybe attributed to the fact that females are involved in off-farm activities such as buying and selling of farm produce, while their males counterparts were highly involved in tree crops production most especially cashew which is the major tree crop in the study area. This is in consonance with Adamu *et al.* [7] who stated that majority of rural women engaged in off-farm activities such as packing of farm produce, buying and selling of farm produce, storage of crops among others.

Table 2: Distribution based on Farm Size of Cashew

Farm Size (ha)	Frequency	Percentage
=-1 ha	2	2.5
2-3 ha	24	30.4
4-5 ha	32	40.5
Above 5 ha	21	26.5
	79	100

Source: *Field Survey, 2008.*

Table 3: Respondents Distribution Based on Source of Farm Labour

Farm Size (ha)	Frequency	Percentage
Family labour only	1	1.3
Family + hired labour	72	91.3
Hired labour only	1	1.3
Communal labour only	4	5.0
Hired + Communal labour	1	1.3
	79.0	100.0

Source: *Field Survey 2008*

Table 4: Distribution Based on Source of Finance of Respondents

Source of Finance	Frequency	Percentage
Personal Saving	76	96.2
Bank Loan	-	-
Cooperative Society	-	-
Friend and Neighbours	3	3.8
	79	100

Source: *Field Survey 2008*

The table also showed that majority of the respondents were married while, only 1.3 percent were widowed; which connote that marriage is highly cherished by the people in the study area and could lead to increase in household size. The table also revealed that 51.9 percent did not attend school, while 48.1 percent of the respondents attended one form of education or the other. This distribution did not favour pests and diseases management practices since more than the half of the respondents were illiterate. This is in consonance with Okankola [8] who stated that education influences various management practices among farmers. The table also revealed that 64.6 percent of the respondents took farming as their primary occupation while 35.4 percent took trading, Artisan and civil servant as their secondary occupation. It was also revealed that 70.9 percent have spent above 15 years in cashew production, 11.4 percent had spent between 11 and 15 years in cashew production, while just 17.7 percent had just spent between 1 and 10 years in cashew production. This implies that majority of the farmers had long time experience in cashew production.

Table 5: Distribution Based on Extension Agent Visit

Extension Agent	Frequency	Percentage
Forthnightly	-	-
Quarterly	-	-
Occasionally	32	43.2
Never	42	56.7

Source: Field Survey 2008

Table 6: Distribution Based on Source of Information

Source of Information	Frequency	Percentage
CRIN Scientists	32	40.5
Cashew Farmers ASS	22	27.8
Radio/Television	6	7.6
Friends and Neighbours	19	24.1
	79.0	100.0

Source: *Field Survey 2008*

Table 2 showed the respondents' distribution based on farm size of respondents, it was revealed that 2.5 percent of the respondents had less or 1 ha of cashew farms. 30.4 percent had between 2 and 3 ha of cashew farms while 40.5 percent had between 4 and 5 ha of cashew farms. About 26.6 percent of the respondents had above 5 ha of cashew farms. The implication is that the size of cashew farms cultivated in the study areas were relatively large.

Table 3 showed that 91.3 percent used both family and hired labour while 7.6 percent used other source of labour such as hired labour and communal labour to carry out their farm activities. The results showed that, there were abundant sources of farm labour which could assist the farmers to maintain their farms to enhance productivity.

Table 4 showed that majority of the respondents (96.2 percent) depended on personal savings, only 3.8 percent depended on friends and neighbours, while none of the respondents had assess to bank loan and cooperative society credit facility. This could affect various management practices required for optimum production in cashew farms. It could also hinder adoption of various pests and diseases management practices because farmers may reject technologies beyond their financial capability.

The results in tables 5 showed the poor extension visit to the farmers in the study areas. The findings showed that farmers were not visited forthnightly which is the efficient visit of the extension agents. However, 56.7 percent of the respondents were not visited at all while only 43.2 percent were visited occasionally.

Table 6 showed that 40.5 percent of the respondents received information from CRIN scientists, 27.8 percent receive information from farmers' organization, 7.6 percent

Table 7: Distribution Based on Pests and Diseases Affecting Cashew in the Study Area

Pests	Frequency	Percentage	Diseases	Frequency	Percentage
Cashew Stem Girdlers	79				
Cashew Stem Borer	62	78.00	Immature Fruit Drop	25	31.6
Fruit Piercing	6	4.7	Leaf Scab	6	2.6
Flower Beetle	5	4.0			

Multiple Responses

Source: *Field Survey, 2008*

Table 8: Distribution based on the Methods used in Pests and Diseases Control

Methods Used	Frequency	Percentage
Chemical	3	3.8
Biological	2	2.5
Cultural	25	31.6
None	49	62.0
Total	79	100.0

Source: *Field Survey 2008*

Table 9: Chi-Square analysis showing relationship between the information source and pests and diseases management practices

Information Source	Probability	χ^2	Contingency Coefficient	Decision
Pests control Practices	0.01	0.54	0.08	S

Source: Field Survey, 2008

Significant Level P(= 0.05)

received information from radio and Television, while 24.1 percent received information through friends and neighbours.

Table 7 showed various pests and diseases affecting cashew in the study areas. It was revealed that cashew stem girdlers and cashew stem borers were the common pests of cashew in the study areas as all the respondents (100 percent) complained of it and 78.5 percent of them complained of cashew stem borers. Fruit Piercing and flower beetles were not common in the study area. Also, inflorescent die back and immature fruit drop were the major diseases affecting cashew in the study areas.

About 62.0 percent complained of inflorescent die back while 31.6 percent complained of immature fruit drop.

Table 8 showed various methods used in pests and diseases control in the study area. The table revealed that majority of the respondents 62.0 percent did not control pests and diseases in their cashew farms. This may be attributed to non awareness of various methods of pests and diseases control. The poor pests and diseases control in the study area will consequently affect cashew production. However, 31.6 percent used cultural methods such as hand picking, burning and cutting off the affected parts. Only 6.3 percent used chemical and biological methods to control pests and diseases.

Test of Hypotheses: Table 9 showed the significant relationship between respondents source of information and management practices ($\chi 2=0.54$, $p<0.05$) of pests and diseases in the study areas. The Contingency Coefficient value of 0.08 showed a very weak relationship between the two variables. This implies that frequency of information received has a strong effect on the pests and management practices.

CONCLUSION

The study ascertained the pests and diseases management practices carried out by the farmers in Kogi State. Eighty cashew farmers were randomly selected from two cashew major producing local government areas of the State. The study revealed that majority of the cashew farmers were between 46 and 65 years of age with high cashew farming experience. The study also revealed that cashew stem girdlers, cashew stem borer, inflorescent die back and immature fruit drop are the major pests and diseases of cashew in the study area.

The study concludes that pests and diseases management practices were low in the study area while the common control practice is by cultural method.

Finally, it was revealed that significant association exists between information sources and pests and diseases management in the study area.

Recommendations:

- Youth in the study areas should be encouraged to engage in agriculture through provision of social amenities in the area.
- Various organizations such as Cashew Farmers Association of Nigeria should establish proper linkages and increase the frequency of information to create awareness on the need to manage insect pests and diseases in their cashew farms.
- Training should be organized for cashew farmers on the use of various methods to control insect pests and diseases affecting cashew in the study area.

REFERENCES

1. Opeke, L.K., 1987. Tropical Tree Crops. Spectrum Book Ltd. Ibadan, pp: 145.
2. Ohler, J.G., 1979. Cashew Department of Agricultural Research, Royal Tropical, Institute Amsterdam, pp: 26.
3. Opeke, L.K., 2005. Tropical Commodity Tree Crops Spectrum Book Ltd. Ibadan, pp: 94.
4. Igwe, I., 2001. Cashew growers demand help-Nigeria. Cashew New. OT Africa Line. August, pp: 1, 2, 3, www.otal.com/cashew.
5. Ezeagu, W., 2003. Nigeria assessment of the situation and development prospects for the cashew nut sector. Draft Report. NO.INT/W3/96. International Trade Center UNCTAD/INTO(ITC), Abuja, Nigeria, pp: 1-36.
6. Olunloyo, D.A., 1987. Effect of single spray application of dimethoatebenomyl mixture on cashew flower infection of cashew, CRIN Annual Report, pp: 40.
7. Adamu, C.O., C.I. Sodiya and J.M. Awotunde, 2006. Agricultural Income-Generating Activities of Rural Women in Ijebu North-East Local Government Area of Ogun State. In proceedings of the Fifteen Annual Congress of the Nigerian Rural Sociological Association, pp: 75-76.
8. Okunlola, J.O., 2006. Factors Associated with Adoption of Food Crops Production Technologies by Small Scale Farmers in Niger Republic. Ogun Journal of Agricultural Production (in press).