

## THE ROLE OF PLANT QUARANTINE SERVICE IN THE CONTROL OF PLANT PESTS AND DISEASES IN NIGERIA

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### ABSTRACT

The study examined the role of Plant Quarantine Service in the control of pests and diseases in south-west zone of Nigeria. Data used for the study were collected from a total of 120 respondents through the use of well structured questionnaire and interview schedule. Simple descriptive statistics was used to analyze the data. The result revealed that the plant quarantine activities in Nigeria are divided into two sections; the pre-entry stations and the post-entry stations. The study revealed that 75% of the respondents were males while 25% were females. All the respondents had one level of educational qualification or the other. Most of the respondents (68%) were between the ages of 30-49 years. Results also showed that laboratory analysis was the most important procedure (60%) for post entry inspections. Plants such as mango, apple, plantain and avocado were prohibited from entering the country because they were infected with serious diseases or pests that are difficult to control. Lack of funds (30.92%) was the most important problem encountered by the respondents. Apart from the plant quarantine services, other services performed include the issuance of phytosanitary certificates, training of personnel, field inspection as well as breeding and conservation of germ plasm. The study further revealed that a fine of ₦150,000 or imprisonment for six months and payment for pesticides and other chemicals used to eradicate pest would be levied on client found guilty of importing infested materials. It is recommended that adequate funds be made available for the purchase of needed equipment and materials.

**Keywords:** Quarantine, Plant, Pests, Diseases, Inspection

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### INTRODUCTION

Plant quarantine can be defined as a legal restriction on the movement of agricultural (plant) commodities for the purpose of exclusion or prevention of the establishment of plant pests and diseases in areas where they are not known to occur (Cardwell, 1994). It can also mean the use of legislation and technical expertise to control the spread of plant pests and diseases from one country to another (Aluko, 1976). The service is significant because many dangerous diseases and pest exist in other countries which are not yet present in Nigeria and which if introduced could jeopardize the agricultural sector of the Nation's economy as well as other countries around us. For instance, a lot of cocoa plantations were destroyed by imported disease in the decade preceding Independence. Government had to distribute disease resistant varieties to farmers at great cost (Awolusi, 2011).

The plant quarantine Service of Nigeria was established under the Agriculture (control of importation) act of 1959. The act, among other things, empowers the Federal ministry of

agriculture to make regulations from time to time for the control of the importation of plants, plant products, soil etc. by manning all the points of entry – airports, seaports, and land border stations all over Nigeria. The regulation became effective since 1964 and has been reviewed several times. The regulation defines the category of officers that can enforce the law, and give them the power to search travelers, ships, aircrafts, vehicles, shops, warehouses, as well as private premises, and stipulate the penalty for contravention. Certification schemes and control measures geared towards eradication of pests and diseases are supported by legislations.

The benefits a nation derives from plant introduction are enormous. Most of the early plants introduced to Nigeria were made with minimum precaution. The Nigerian plant quarantine service measures are aimed at providing protection to the agricultural sector of the country against introduction of exotic pests, weeds and diseases and at eliminating, preventing or reducing the spread of these organisms within the country should they get introduced.

In recent years, the government has made a lot of efforts in increasing the productivity of farmers through supply of inputs, credit facilities, and improved varieties of seeds and exotic breeds of livestock coupled with introduction of a number of agricultural programmes which are aimed at achieving higher productivity. However, scant attention has been given to plant protection (Awolusi, 2011). Even farmers in their quest for higher productivity are known to move to neighboring countries to acquire seeds, seed cuttings and parent stock for propagation with the potential risk of importing pests and diseases.

This study was therefore conducted to access the role of quarantine Service in the control of plant pests and diseases in Nigeria and also identify the problems encountered by the personnel of the Service in performing their duties.

## METHODOLOGY

The study was carried out in southwest zone of Nigeria which consists of Lagos, Oyo, Ondo, Edo, Osun, Ogun and Kwara state. The target population for the study was staff of the Nigerian plant quarantine service. A two stage sampling technique was used for the study. The first stage involved a purposive selection of Lagos, oyo, and ogun states because of the presence of seaport and airport, land border and post-entry stations respectively in the three states. The second stage consisted of random selection of forty (40) respondents at each point of entry bringing the sample size to one hundred and twenty ((120) respondents. Simple descriptive statistics were used for data analysis.

## RESULTS AND DISCUSSION

### Respondents (staff) personal characteristics

Majority of the respondents were male (75%) as presented in table 1. This suggests that quarantine Service is dominated by male. This may be due to round the clock surveillance of the plant quarantine inspectors which may be tedious for the female or recruitment into the service may be skewed in favour of males or there may not have been conscious efforts on the part of Management to be gender sensitive. All the respondents (100%) had one level of educational qualification or the other. This indicates that the organization is professionalized and hence capable of judicious discharge of services. Most of the respondents (60%) are between the ages

of 30 and 49 years which suggests that the staff are in their middle ages and are still very active and capable of performing their duties effectively.

Table 1: Respondents' Personal Characteristics (n-120)

Variables	Frequency	Percentage
<b>Gender</b>		
Male	90	75
Female	30	25
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Educational Qualification</b>		
HND/B.sc and above	78	65
OND	30	25
WASC/GCE	12	10
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Age</b>		
20-29	18	15.0
30-39	40	33.33
40-49	42	35.00
50-59	14	11.66
60-69	6	5.00
70 and above	-	-
<b>Total</b>	<b>120</b>	<b>100</b>

### Inspection Procedures

Table 2: Distribution of Respondents According to Procedure used for Pre-entry and Post-entry Inspections.

Inspection procedure	Frequency	Percentage (%)
<b>Pre-entry Inspection</b>		
Ship inspection	53	25.0
Cargo inspection	47	22.17
Plane inspection/Passanger baggage	25	11.79
Vehicle	72	33.96
Mail	15	7.08
<b>Total multiple Response</b>	<b>212*</b>	<b>100.0</b>

*Post-entry inspection*

Laboratory	72	60.0
Hand lense	3	2.5
Glass house	30	25.0
Direct washing of seed and	15	12.5
Incubation		
TOTAL	120	100

Result in table 2 shows that there are a number of procedures used in the control of pests and diseases. These are vehicle inspection, cargo inspection, ship inspection, plane inspection/passenger baggage inspection and mail inspection. While ship inspection (25%) constitutes the most frequent pre-entry inspection method, laboratory procedure (60%) was the most important post-entry inspection identified in the study. Ship inspection attribute may be due to the fact that major cargo entrance into Nigeria is through the seaports; hence ships are inspected before cargo discharge. On the other hand, the more frequent use of laboratory analysis for post-entry inspection might not be unconnected with major improvements in personnel training and diagnostic equipment, which agrees with Awolusi (2011)

**Prohibited crops**

Results on prohibited crops/ pests and diseases associated with them are shown in table 3. This revealed a number of crops prohibited from entering the country. The result further show that apple (36.36%) and plantain (34.09%) are the major fruits checked and rejected from entering the country. Fruit fly is a pest whose management poses serious challenge to international fruit trade. Therefore having apple whose major pest is fruit fly topping the list of rejected crops in this study confirms earlier reports in Indonesia (ACIAR, 2011).

Table 3: Prohibited Crops

Fruit/Crops/Pest And diseases	Frequency	Percentage(%)
Mango (mango mealy bug)	25	11.36
Apple (fruit flies)	80	36.36
Plantain sucker (siga toka)	75	34.09
Avocado pear (avocado sun block)	30	13.64
Vegetables	10	4.55
TOTAL	220*	100

\*Multiple Response.

**Activities carried out by the Organization**

Results from table 4 revealed that apart from plant quarantine services, the organization performs other functions which include issuance of phytosanitary certificates, field inspection, training of personnel, breeding and conservation of germ plasm. These are statutory activities for the

Service and performing them is indicative of compliance with statutes as reported by Adejare and Agboade (2006).

Table 4: Activities Carried out by the Organization.

Activities	Frequency	Percentage (%)
Issuance of phytosanitary certificate	80	32.5
Field inspection	78	31.7
Training of personnel	73	29.7
Breeding and conversation of germplasm	15	6.1
<b>TOTAL</b>	<b>*246</b>	<b>100</b>

\*Multiple response

#### Penalty

Table 5 shows that those found guilty of contravening the regulations would either pay a fine of one hundred and fifty thousand naira (₦150,000) or be imprisoned for six months or both and pay for the pesticides and other chemicals used to control pests or diseases so brought in. This suggests that there is a punishment for anyone who fails to comply with the rules and regulations of quarantine Service.

Table 5: Penalty Against Defaulters.

Punishment	Frequency	Percentage (%)
Payment for pesticides and chemicals	39	12.40
₦150,000 fine	60	24.80
Imprisonment for six months	72	29.70
Fine and imprisonment	80	33.05
<b>TOTAL</b>	<b>*242</b>	<b>100</b>

\*Multiple response

#### Problems encountered by respondents

Results from table 6 shows that the respondents are faced with one problem or the other in performing their duties within the organization. The problems range from inadequate provision of funds to disturbance by the port authorities. Results further revealed that inadequate funding (30.92%) is the most important problem confronting the Service while disturbance by port authorities (5.15%) is the least important. Inadequate funding may be responsible for the low number of inspection stations along Nigeria's border. Even though there is paucity of information on the number of entry posts along our borders for plant quarantine, Ogun-dipe,

(2003) reported that only forty four (44) functional entry stations for animal inspection exist along Nigeria's 4,857km border length.

Table 6: Problems Facing the Service

Problems	Frequency	Percentage (%)	Rank
inadequate provision of funds	120	30.92	1
Disturbance by other security agents	48	12.37	5
Lack of arms and ammunitions	50	12.88	4
Slow promotion of staff	70	18.04	3
Inadequate public awareness	80	20.61	2
Disturbance by port authority	20	5.15	6
<b>TOTAL</b>	<b>*388</b>	<b>100</b>	

\*Multiple response

## CONCLUSION

The study showed that the Nigerian Plant Quarantine Service is an organization performing a lot of activities to prevent the importation of plant pests and diseases. Any failure on its part to effectively carry out such duties might lead to great economic losses due to crop devastation as it may even lead to national disaster through complete crop failure. The organization has been able to discharge its statutory responsibilities in the face of daunting challenges like inadequate funding, shortage of personnel and poor motivation of staff.

## RECOMMENDATIONS

Plant quarantine services can be improved upon in the following ways; equipment needed for efficiency should be supplied. Sophisticated machines should be installed at every entry point and trained personnel employed to operate and monitor them. Government should improve on the funding of the organization. Training centers should be expanded and made functional to accommodate more staff. The Service should establish a public enlightenment unit to educate people on their activities thus making the service more client-friendly. Staff promotion should also be given more priority in the organization so that staff could be more motivated to perform their duties.

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