International Scholars Journals

International Journal of Nematology and Entomology ISSN 2756-3839 Vol. 8 (3), pp. 001-004, March, 2021. Available online at www.internationalscholarsjournals.org © International Scholars Journals

Full Length Research Paper

Farmers' knowledge and perception of horticultural insect pest problems in southwestern Nigeria

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Accepted 23 February, 2021

This survey was carried out in three states of southwestern Nigeria (Ogun, Oyo and Lagos states) on farmer's perception of horticultural insect pest problems. The survey was conducted between August 2002 and January 2003. A large number of the farmers were above 25 years old (91%). They were predominantly male (73%) and about 76% were married. Some farmers cultivate both tree and vegetables (36.5%) while a few of them plant trees, vegetable and ornamentals together (5.4%). Whilst 89% were aware of insect pest problems, only 35% used chemical treatment even though about 79% thought that pest damage ranged from mild to severe. Majority of the farmers adopt diverse number of traditional methods in pest control.

Key words: Farmers, pests, horticultural crops, vegetable, control.

INTRODUCTION

Horticulture is described as the branch of agriculture, which deals with garden crops, generally fruits, vegetables and ornamentals (Janick, 1972). The field of horticulture is traditionally divided into food crops (pomology and olericulture) and ornamentals (landscape horticulture and floriculture); pomology deals with fruits and nuts, while olericulture deals with herbaceous plants including carrots (edible roots), asparagus (edible stem), lettuce (edible leaf), cauliflower (edible flower) and pea (edible seed); floriculture deals with the production of flowers and ornamental plants, generally cutflowers, potted plants and greenery, while landscape horticulture is a broad category that includes plants for the landscape, but particularly nursery crops such as shrubs, trees and vines (Hartmann and Kester, 1972). There is no doubt that insect pests affect horticultural crops both physically (e.g. causing damage to their leaves leaving them with ragged edges) and economically (because damage to the crops effectively reduces their yield).

Insect pests create a myriad of problems for the horticultural industry. The tomato fruit worm, *Heliothis zea* (Lepidoptera: Noctuidae), for instance, is a pest of maize, beans, tomato, okra, cabbage and other legumes; the

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Table 1. Socioeconomic characteristics of farmers interviewed.

Characteristics	Ogun State	Oyo State	Lagos State	Frequency N= 148	%
AGE (YRS)					
15- 25	3	9	1	13	8.8
26- 35	10	17	5	32	21.6
36- 45	16	26	3	45	30.4
46- 55	16	21	1	38	25.7
56 and above	15	5	-	20	13.5
MARITAL STATUS					
Single	4	10	4	18	12.2
Married	42	66	5	113	76.4
Separated	6	-	-	6	4.1
Divorced	-	1	-	1	0.7
Widowed	8	1	1	10	6.8
SEX					
Male	40	62	6	108	72.9
Female	20	16	4	40	27
RELIGION					
Christianity	43	42	10	95	64.2
Islam	15	30	-	45	30.4
Traditionalist	2	6	-	8	5.4
EDUCATION					
No formal education	12	25	-	37	25
Primary education	21	30	4	55	37.2
Secondary education	19	21	6	46	31.1
Tertiary education	8	2	-	10	6.8
ETHNIC GROUP					
Yoruba	54	76	4	134	90.5
Ibo	4	1	5	10	6.8
Hausa	2	1	-	3	2
Other	-	-	1	1	0.7

caterpillars generally feed on the fruiting points of the host (they eat the tassels and soft grains at the top of maize cobs), and often secondary rots develop in the insect's feeding sites.

An insect pest from an agriculturist's point of view is an insect causing sufficient damage to necessitate control measures (Kumar, 1984). On the other hand, from a human point of view, an insect pest may be defined as any insect in the wrong place – just as a rose bush is a weed when it is growing on a cabbage patch (Williams, 1977).

There are various insect pests of horticultural crops. They include stem and leaf eaters like the caterpillars of certain moths and butterflies; cabbageworm, tomato worm, certain beetles and their larvae such as the blister beetle, common bean beetle and the Colorado potato beetle; the nymphs and adults of grasshoppers; stem-borers like the corn-borers; feeders on fleshy fruits, seed and storage organs like the bean weevil, tomato fruit worm etc (Edmond and Bottrell, 1985).

Farmers are a diverse group of people with most of them having no particular formal education because there are no spectacular qualifications needed to become a farmer. Therefore the question arises, what exactly do they know about the insect pests of horticultural crops, pest control, pest identification, pesticide application, composition and frequency of use (since a modicum of education is needed to understand all these in the first place)?

The feeding habit of the citrus thrips makes it a serious pest at low altitudes where an attempt to produce unblemished fruits is being made. It damages the fruit by producing a ring of scaly brown tissue around the stem end of the fruit and irregular areas of scarred tissue on

Table 2. Farmer's knowledge on pests and pesticides.

Characteristics	Ogun State	Oyo State	Lagos State	Frequency N= 148	%
METHOD OF FARMING					
Manual	58	57	10	125	84.5
Mechanized	2	21	-	23	15.5
USE OF CHEMICALS					
Chemical treatment	23	27	2	52	35.1
No chemical treatment	37	51	8	96	64.9
KNOWLEDGE OF PESTS					
Pest awareness	54	72	6	132	89.2
No pest awareness	6	6	4	16	10.8
EXTENT OF DAMAGE					
No pests noticed	8	-	3	11	7.4
Mild	28	50	2	80	54.1
Severe	17	16	4	37	25
Neither mild nor severe	5	-	-	5	3.4
Either mild or severe	2	12	1	15	10.1

the other parts of the fruit. The young leaves may also be damaged; aphids affect citrus as well as a variety of other crops such as banana and maize (Hill, 1987).

METHODS

Structured Questionnaires were distributed to farmers in Lagos, Ogun and Oyo states in southwestern Nigeria To elicit information from them about their perception of insects pest problem in horticulture. Local interpretation of the questionnaire in Yoruba was made where the farmers had no grasp of English as their first or primary language.

RESULTS

The socio economic characteristics of the farmers interviewed on the knowledge and perception of the horticultural insects pest problem is depicted in Table 1. Majority of them fell between the age bracket of 36 and 45 years old (30.4%). Most of them were married (74.2%) . They were Christian mostly (64.2%), quite a number of them had primary education (31.1%). Table 2 shows the farmer's knowledge on pests and pesticides. Manual farming was the most common and major method of farming (84.5%). Chemical treatment was not used extensively by the farmers (64.9%). Majority of them were aware of the pest (89.2%). A large number of them analyzed the extent of damage caused by the pests as mild (54.1%). Most of the crops planted by the farmers were trees (66.8%) followed by vegetables (60.8%). In Lagos State not as many trees were planted (Table 3). Table 4 shows the traditional methods of pest controls applied by the farmers on the pest that attack the crops planted. They claimed the traditional methods are effective, cheap and readily available, more so the application is very simple.

DISCUSSION

The farmers interviewed show to an extent that they had some type of formal education and not all of them were illiterate. Majority of the farmers were Yoruba. A variety of crop both ornamental and horticultural were planted by the farmers interviewed. The plant includes yellow bush, cactus queen of the right pear and almond trees. Horticultural crops cultivated include some tree crop like kola, cocoa and oil palm, while other crops such as citrus, plantain and cashew were planted in orchard as well. More crops include cassava, maize, yam and cowpea while vegetables planted were okra, pepper, tomato and a variety of spinach type crops such as cabbage, lettuce and *Amaranthus* species (Thompson, 1977).

The survey revealed that some of the farmers interviewed planted trees or vegetable only, while some combined the planting of both trees and vegetable crops. A fewer number of farmers planted ornamentals, probably owing to the fact that that this is an infant industry in nigeria and the role of ornamental plants in the environment has just began to be appreciated. In Lagos state trees were not planted as compared to other considered states, probably due to a lack of interest, or lack of space. Some farmers cultivate both the trees and vegetables (36.5%), while a few of them plant trees, vegetable and ornamentals together (5.4%). The amount of income given by the farmers was highly unreliable

Table 3. Kind of crops planted.

Crops Planted	Ogun State	Oyo State	Lagos State	Total	%
Trees only	29	16	-	45	30.4
Vegetables only	11	24	1	36	24.3
Ornamentals only	4	-	9	13	8.8
Vegetables	27	62	1	90	60.8
Trees & vegetables	16	38	-	54	36.5
Trees, vegetables & ornamentals	-	8	-	8	5.4
Trees	45	54	-	99	66.8
Ornamentals	4	8	9	21	14.2

because most of them were reluctant or plainly refused to give an average claiming it was unpredictable.

Most of the farmers showed a degree of awareness about the insect pests that are attacking their planted crops. However in most cases they come across the common insect pest like grasshoppers, termites, larvae of the rhinoceros beetle, palm weevil and aphids. The extent of damage caused by the insect pest was quite varied according to the opinions of the farmers. Some of them claimed that the pests causes only minor damages to their crops, simply because of the types of control measures they applied or adopted.

A diverse number of traditional methods were used by the farmers to control pests including the use of wood ashes sprinkled around the base of cocoa and kola trees as well as on the vegetables. Wood ash was also sprinkled on vegetables to keep away caterpillars. The pest of *Corchorus olitorius* (Ewedu) were controlled by sparing a combination of detergent and kerosene mixed with water. Water extracts of the seeds and the leaves of neem tree were used as pest control by the farmers, as have been previously reported by schmulterer et al. (1984). Early harvesting of crops is also a traditional method of pest control. Crops like tomato were harvested while they were still green to minimize the effects of rot and fruit cracking. This method also preserved damage by fruit worms which attack tomatoes when they begin to ripe. Some farmers clamed that goat and cow dung has proved useful in plant protection, when sprayed on all green plants of vegetable and fruits. Even in the coconut nursery where termites (*Macrotermes bellicosus*) are major pests, goats and cow dung proved effective as pest control. Cow urine has been effective in the plant protection and adequate facilities for it's collection must be provided. Sand, kaolin, husk ash, woodash and clays constitute a group of materials which are commonly used by small scale farmers in the developing world as grains protectants (Golob and Webley, 1980).

It is an obvious fact that insect pests are dangerous to horticultural crops, and the majority of farmers are still involved in traditional ways pest control, without knowing the pesticide composition, time of application or frequency of usage. The onus is therefore on well-educated extension officers or agents to provide adequate and quality information and know-how for the farmers. A lot of the farmers still think that the use of pesticides is too expensive an input to farming. They should be helped to understand that the use of pesticides could lead to higher yields and better quality for consumers. The farmers should be educated on the correct use of pesticides because some of them are highly toxic.

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