Original Research Article

PERCEPTION OF INSECTICIDES USAGE AND HAZARD IN SOME SELECTED COMMUNITIES IN ZURU LOCAL GOVERNMENT AREA OF KEBBI STATE, NIGERIA

ABSTRACT

This study assesses the farmer's perception of insecticides usage and hazard of some communities in Zuru Local Government Area. The specific objectives were to describe socio-economic characteristics of respondents such as age and gender, determine the awareness of the insecticides usage, problems of insecticide, and to determine present and safety of insecticides application in the study area. Simple random sampling technique was used in selecting sampled areas. Data were collected with the aid of a structured questionnaire with open and ended questions. Data collected were analyzed using descriptive statistics. Result revealed that 99 percent respondents were men, high proportion of (48 percent) respondents were within the age range of 20–39 years, 40 percent of the respondents had family size of 6-10 persons, 65 percent of the respondents earned ₦401, 000 - ₦800, 000, 64 percent had <1ha of farm size, high proportion of them 36 percent inherited their farm lands. Results further revealed that 100 percent of the respondents are aware about insecticides; about 67 percent use insecticides in their farm to control insects, 52 percent get their information from friends. Results also revealed that 99 percent of the respondents used insecticides before and 73 percent used insecticides only to control insects, about 56 percent used systemic insecticides and 75 percent used sprayers to apply. Result shows that 75 percent of respondents are aware of insecticides hazard, a high proportion of 45 percent got their information from Extension Agents, 62 percent are aware of the health implication of insecticides, while 62 percent are aware of the negative effect of insecticides on health. It was concluded that Majority of the farmers are aware about insecticides usage and health hazards. It is recommended that farmers should be more sensitized about the danger of insecticides usage without proper handling and they should always use protective cloth during spray to avoid body contact.

KEYWORDS: Perception, Insecticides, Usage, Hazard and Zuru Local Government Area

1. INTRODUCTION

Insecticides are chemical substances used to boost agricultural production [1]. They are used to control insect pests and diseases caused by bacteria, fungi, pests and viruses thereby enhancing agricultural production. Used optimum dose, correct application method and time,

ensure agricultural productivity [2]. Use of agrochemicals led to an increase in food production [3]. Their use has significantly increased the concentration of toxic materials in food and the environment, with negative effects on plant and animal health [4]. The world health organization (WHO) has estimated that more than three million farmers in developing countries are poisoned by agrochemicals each year [5].

In Nigeria the agricultural sector is the major supplier of food, raw materials and largely depends on exchange and 70 percent of Nigeria's population largely depends on this sector for survival [6]. Due to the country's drive to increase agricultural production and the upsurge of different species of pest that damage and ravage agricultural products in field and storage, farmers have resorted to the use of agrochemicals as an important control strategy [7]. Insecticides are widely used in most agricultural production and reduce losses by pest attacks and improve crop production [8].

According to Stewart [9], insecticides are specifically used to destroy insect pests and infected plants. They are applied on plants like rice and yam. The application of these insecticides is often imprecise, with unintended worker exposures. [10] Stated insecticides application increases yield of crops, prevents food spoilage and diseases on farm animals. [11] said that problems associated with pesticide usage and application in cocoa production in southern Nigeria has generated public health problems and environmental pollution. Exposure to insecticides is one of the most important occupational risks among farmers in developing countries. In some situations exposure to insecticides can occur from accidental spills of chemical leakages of faulty spraying equipment [12]. The exposure of farmers increases as the result of not paying attention to the instructions on how to use insecticides and ignoring basic safety equipment [13]. In view of the adverse environmental effects from the usage of

insecticide, lack of awareness of health consequences by some farmers, it therefore becomes imperative to identify farmers and pest management practices in their farming activities by investigating farmer's awareness and perception about the effect of insecticides used in the environment.

2. MATERIALS AND METHODS

Zuru Local Government Area is one of the twenty one (21) Local Government Areas of Kebbi state. The area lies between latitudes 11^0 35"- 11^0 55" North and longitudes 4^0 45"-5^0 25" East. The area covers approximately an area of 32,626 Km^2. It is bordered northwest by Fakai Local Government, south east by Sakaba Local Government, East by Danko/Wasagu Local Government Area [14]. The area has six administrative districts namely; Rafin Zuru, Rikoto, Dabai, Senchi, Manga and Ushe. The estimated population of the study area is one hundred and sixty five thousand five hundred and forty seven (165,547) people [15]. The Area is blessed with favourable climatic conditions for vast Agricultural productions, the vegetation of the Area is a tropical Savanna with scattered trees, and the vegetation is characterized by continuous grasses which are greenish in the rainy season and dumped and dried in the dried season. Raining season is from April - October and lasts for about six months and the average temperature is 37^0C while, November to February is harmattan [16]. Purposive sampling technique was used to select five (5) villages namely; Rafin Zuru, Rikoto, Dabai, Senchi and Manga for the study. The work was carried out between June-September, 2021 Structured questionnaire was used to collect data from the respondents with the help of an interpreter for those that can read and write and one hundred questionnaires were used to collect data. The data collected from the administered questionnaires was analyzed using descriptive statistics such as frequency counts, means and percentages.

3. RESULTS

Results obtained from that in table 1 shows that 99 percent of the respondents are males and 1 percent of the respondents are females. This could be as the result that men dominate farming activities in the study area, and women are more involved in indoor activities than farming. The age of the respondents shows that most active groups are between the ages of 20-39 years and 40-59 years, which constituted 48 and 35 percent respectively compared to other age groups. Respondents are found to have different family sizes as shown in the same table. 37 percent of them had family size between 1-5 persons, 40 percent 6 -10 persons, and 23 percent 11 persons and above respectively. This implied that those with small family size have limited supply of family labour compared with larger household size. Results on the educational levels reveal that a high proportion of 28 percent had one form of formal education or the other. Many of the respondents have farming experience of about 1-5years, 6-10years, and 11years and above; with the following percentages 42, 44 and 14 percent respectively. Results obtained on the farm size shows that 64 percent respondents have <1ha, 21 percent 1.1-2ha, 10 percent 2.1-3ha and the least is 5 percent above. Source of farmland is mostly by inheritance about 36 percent of the respondents and the least is 5 percent which is through leased. Results on the income revealed that 8 percent of the respondents earned within ₦100,000 and below, 65 percent earned ₦101,000-₦400,000, 24 percent earned ₦401,000 - ₦800,000, 1 percent earned ₦801,000-₦1,000,000 while, 2 percent ₦1, 000,000 and above. Meaning there is gain in the venture and the higher the income the more the investment.

Results on table 2 shows that 100 percent respondents are aware about insecticides, and 13 percent used insecticides to spray their homes, 67 percent spray their farms, while 20 percent spray their environments. The same table shows that 52 percent of the respondents get

their information about insecticides from friends, 15, 23, and 10 percent from media, schools, and Extension staff respectively. The same table revealed that 99 percent respondents used insecticides before in one or the other, while 1 percent respondents don't use any insecticides. More so, results shows that 73 percent respondents used insecticides only to control insect pests, 18 percent used them to control diseases on crops or farm animals and 9 percent used them to induce flowering on plants. Results on the type of insecticides used revealed that 56 percent respondents used systemic insecticides and 44 percent used contact type. It is also revealed that 75 percent respondents used knapsack sprayer as application equipment and 25 percent dusters. On the effectiveness of insecticides in insect pests control it is revealed that 37 percent respondents reported that insecticides are very effective, 37 percent also says that they are effective, 19 percent respondents agreed that they are moderately effective and 7 percent opined that they are low effective.

Results obtained in table 3 shows that 75 percent respondents are aware of hazards caused by insecticides, only 25 percent were not aware. Results obtained on insecticides hazard shows that 62 percent are aware that insecticides cause hazard related to human health, 12 percent are aware it affect soil by destroying some soil organisms, 10 percent know that they affect the environment (pollution), 5 percent are aware of biodiversity of living organisms as result of insecticides application and 11 percent know that they cause water pollution. Results obtained on the negative effects of insecticides shows that 62 percent know that they have negative effect. The results on perception on the negative effect of insecticides revealed that 33 percent strongly agreed, 18 percent agreed, 19 percent slightly agreed, 15 percent were undecided and 15 percent didn't agree.

Table 4 revealed that 100 percent respondents are aware about safety and precaution measures in handling insecticides. It further revealed that, 37 percent opined that wearing of protective clothes is one of the safety and precautionary measures when handling insecticides, 22 percent agreed with the use of recommended insecticides dosage for application, 11 percent opined proper disposal of insecticide containers after use, 14 percent opined the avoidance of leaking appliances (sprayers), while 16 percent respondents opined appropriate time of insecticides application.

Table 1: Socio-Economic Characteristics of the Respondents

Variable	Frequency	Percentage	Mean	SD

Gender				
Male	99	99		
Female	1	1		
Total	100	100		
Age				
20-39	48	48		
40-59	35	35		
60- and Above	17	17		
Total	100	100	42.81	14.84
Household Size				
1 - 5	37	37		
6 - 10	40	40		
11 and Above	23	23		
Total	100	100	7.62	4.63
Educational Level				
Adult Education	22	22		
Primary education	28	28		
Secondary	23	23		
Tertiary education	27	27		
Total	100	100		
Years of Farming Experience				
1 – 5	42	42		
6 – 10	44	44		
11and above	14	14		
Total	100	100	7.08	3.735
Annual Income (₦)				
<100, 000	8	8		
101,000 - 400,000	65	65		
401,000 - 800,000	24	24		
801,000 - 1,000 000	1	1		
>1, 000, 0000	2	2		
Total	100	100	38.2480451249.8	
Farm Size (ha)				
< 1ha	64	64		
1.1 – 2ha	21	21		
2.1 3ha	10	10		
3.1 and above	5	5		
Total	100	100	1.56	0.868
Land Acquisition				
Rent/Hired	36	36		
Gift	11	11		
Purchased	23	23		
Leased	5	5		
Borrowed	11	11		
Total	100	100		

Source: Field Survey Data, 2021

Table 2: Distribution of Respondents According to Insecticide Awareness

Variables	Frequency	Percentage
Awareness about Insecticide		
Yes	100	100
No	0	0
Purpose of Insecticide Usage		
Household Use	13	13
Farm Use	67	67
Environmental Usage	20	20
Source of Information about Insecticide		
Friends	52	52
Media	15	15
School	23	23
Extension Agent	10	10
Involvement in Insecticide Usage		
Yes	99	99
No	1	1
Usage of Insecticide		
Insect Control	73	73
Disease Control	18	18
Induce Flowering	9	9
Types of Insecticide Used		
System	56	56
Contact	44	44
Equipment Used for Insecticide Application		
Sprayer	75	75
Dusters	25	25
Effectiveness of Insecticide on Insect Control		
Very Effective	37	37
Effective	37	37
Moderately Effective	19	19
Low Effective	7	7

Source: Field Survey Data, 2021

Table 3: Distribution of Respondents According to Awareness about Insecticides Hazard

Variables	Frequency	Percentage
Awareness about Insecticide Hazard		
Yes	75	75
No	25	25
Source of Information about Insecticide		
Friends/Relatives	17	17
Extension Agent	45	45
School	20	20
Media	18	18
Kinds of Hazard		
Health	62	62
Soil	12	12
Environmental	10	10
Biodiversity	5	5
Water Pollution	11	11
Negative Effects of Insecticides		
Health	62	62
Soil	12	12
Environmental	10	10
Biodiversity	5	5
Water Pollution	11	11
Perceived Negative Effect of Insecticide		
Strongly Agreed	33	33
Agreed	18	18
Slightly Agreed	19	19
Undecided	15	15
Not Agreed	15	15

Source: Field Survey Data, 2021

Table 4: Distribution of Respondents According to Awareness about Safety and Precaution Measure

Variables	Frequency	Percentage
Awareness about safety and precaution measure		
Yes	100	100
No	0	0
Source of Information about Safety and Precaution Measure		
Friends/Relatives	62	62
Extension Agent	12	12
School	10	10
Media	5	5
Others	11	11
Perceived Safety and Precautionary Measures		
Wearing protective cloth	62	62
Using Recommended insecticide	12	12
Disposal of containers	10	10
Avoid using leaking sprayer	5	5
Using appropriate time of application	11	11

Source: Field Survey Data, 2021

4. Discussions

In this study it was find out that 99 percent of the farming activities were done by males compared to females, and 48 percent are youths within ages of 20-39 years. Family size of 1-6 members per/household forms 40 percent of the respondents as reported by [6] hat in Nigeria the agricultural sector is the major supplier of food, raw materials and largely depends on exchange and 70 percent of its population largely depends on this sector for survival and [17] also reported that farmers produce safe and quality food and also help farmers to have abundant and affordable food all year round. It was find out that many are aware of insecticides and used them in controlling insect pests in their homes, farms and environment, about 67 per cent used them in their farms, this was similar with [2] [1] [3] who opined that insecticides application boost agricultural production and are also used to control pests and diseases as well enhance agricultural production. Most of the people in the study area, about 75 percent are aware that

insecticides cause hazard to man, farm animals and environmental pollution, water both for drinking and domestic activities. This finding was in conjunction with [18] [4] [12] who said that insecticides are highly hazardous and can cause acute and chronic effects on man and the environment. They equally know that they have negative effect, about 33 percent strongly agreed on the negative effect of insecticides. This was agreement with [19] [20] [21] findings who said that, insecticides cause acute toxicity and they are lethal when inhaled or ingested. [22] reported that insecticides cause cancer. They are also aware of the safety precautions in handling insecticides; many of them used protective clothes when working with insecticides. This finding was in conjunction with to [19] [11] who reported that insecticides are poisonous and must be handled with care and also generates public health problems and environmental pollution. They should be kept in original containers and stored in a label cabinet or fenced area to avoid accessibility to unauthorized persons. This report was similar to [23] [13] who said that farmers ignore basic safety instructions and equipment. In respect of educational level, most of them have one form of education or the other at least secondary education. This helps them to plan well in respect of farming activities. This was in line with the findings of [17] [24] who reported that education is an important source of empowerment in increasing agricultural productivity.

5. Conclusion

The study on perception of insecticides usage and health hazard in some selected communities in Zuru Local Government Area was carried out to find out the awareness of the people about the use of insecticides. This was done by sampling five (5) villages in six administrative districts each in the study area. Structured questionnaires were used to collect data from respondents. Based on the findings, most respondents used insecticides, either in the farm or at home to control insect pests. Good percentage of them is men compared to females and

most of them are youth and middle age, they are aware of insecticide usage and hazard. Some of the respondents agreed that insecticides have a negative effect and most be handled properly. It is suggested that safety precautionary measures should be followed when handling and applying insecticides and should be done carefully. These insecticides help in increasing crop yield production in the area despite their harmful effect.

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