

SAFETY AND RISK ASSESSMENT OF AGROCHEMICAL USAGE BY FARMERS IN AKKO LOCAL GOVERNMENT AREA OF GOMBE STATE, NIGERIA

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INTRODUCTION

❖ Although pesticides are important, their effects on non-target organisms are of great concern because this poses, risk to the entire ecological system (Kalia and Gupta, 2004).

❖ In spite of their usefulness, agrochemicals have side effects on the soil and the health hazards/risks they pose to the rural farmers especially in the developing countries are quite alarming. This ranges from those associated with operational habits and illiteracy. (Bassi and Ogundeko, 2016).

❖ Some other unhealthy and unprofessional habits associated with the use of pesticides by some rural farmers in Nigeria include non-usage of, or inappropriate use of Personal protective Equipment (PPE), during mixing or application and unhygienic attitude of not washing their contaminated cloths after use of chemicals, stored their chemicals in the living room together with foodstuff including bedrooms.



PROBLEM STATEMENT

All synthetic pesticides contains a compound called, dichlorodiphenyltrichloroethane (DDT), this compounds are bio-non-degradable, which cannot be digested by living organism but rather accumulate in the animal's tissues. (Ntow, 2001) Herbicides used in the control of weeds have detrimental effects on both the soil and the herbs grown on them by rendering the soil to be unproductive; acting on non-target plants, inappropriate usage or application methods by famers exposes them to greater health hazards. It is against this background that a survey on the Safety and Risk Assessment on Agrochemical usage in Akko Local Government Area of Gombe State, Nigeria, was carried out.



JUSTIFICATION OF RESEARCH PROBLEM

Today, both commercial and resource poor farmers employ the use of Agrochemicals either as pesticides or fertilizers to control pests or boost agricultural production. These Agrochemicals have shown detrimental effects on the food quality, the environment (soil and water) and on human health, it also contains some chemicals that are bio-non-degradable, hence carcinogenic, it is against this backdrop that this research work will be carried out to establish the level of risk or how safe the farmers in Akko LGA in Gombe State are exposed to agrochemicals.



AIMS AND OBJECTIVES

Studies have showed that there are several onward effects associated with the use of these agricultural chemicals. Therefore, the objectives of this study are to;

1. Establish farmer's knowledge of the hazards attendant with the use agro chemicals (pesticides and fertilizers)
2. Determine the level of risk of farmers in Akko Local Government Area in relation to agrochemical usage.
3. Suggest or proffer solutions to farmers in Akko Local Government Area on safer methods of agrochemical usage.



MATERIALS AND METHODS

STUDY AREA

The survey was conducted in Akko local government area of Gombe state, Nigeria. Akko is the largest Local Government Area in Gombe state, Nigeria.



METHODOLOGY

Study Design

A cross-sectional descriptive survey was conducted. The three Districts were chosen for total coverage of the study area. Three villages were randomly chosen out of the other villages in addition to Kashere the university host community, making the number of villages to ten (10) in the selected districts. The calculated sample size was two hundred (200) using a 'P value of 82%. An estimated population of each village was gotten from which the sum total of the ten villages sampled. A proportion of the questionnaire was administered to each village based on the ratio of the population of the village to the sum total as against the sampled size.

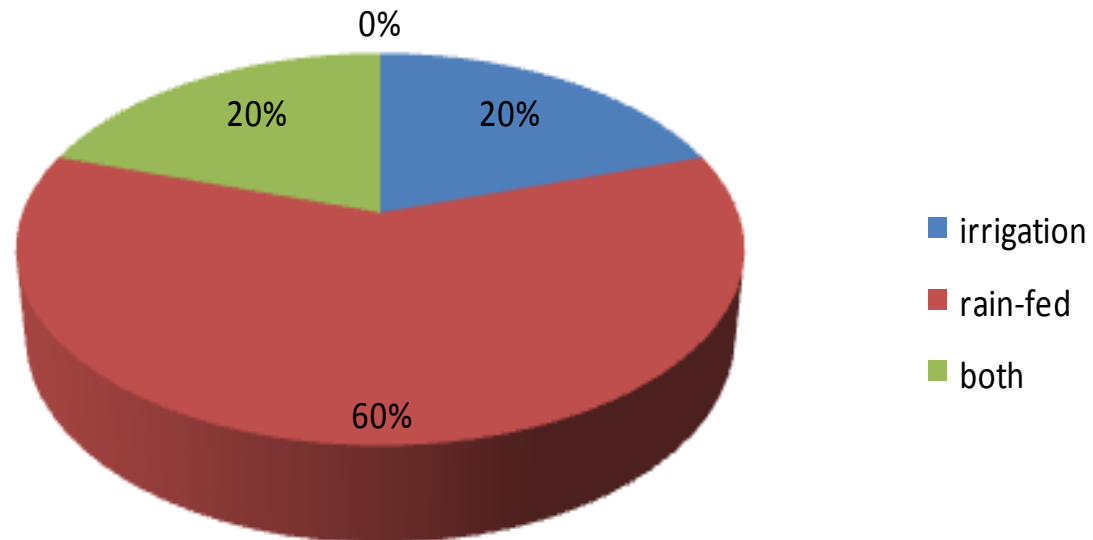
RESULTS

The structured questionnaire and interview was administered to 200 farmers in the study area. Both male and female farmers were interviewed. Some had formal education while few did not. Few belonged to a Farmers' Cooperative Society while others were not and almost all the correspondents used fertilizers and pesticides.

Table 1: Socio – economic characteristics of the respondents

Socio – economic characteristics		Frequency	Percentage (%)	
Gender	Male	148	74	26
	Female	52		
Age	15 – 20 years	10	5	
	21 – 30 years	40	20	
	31 – 40 years	80	40	
	41 – 50 years	30	15	
	51 – 60 years	20	10	
	61 and above	20	10	
Educational qualification	No formal education	60	30	
	Adult education	40	20	
	Primary education	10	5	
	Secondary education	40	20	
	Tertiary education	45	22.5	
	Others	5	2.5	
Years of farming experience	1 – 10 years	80	40	
	11 – 20 years	60	30	
	21 – 30 years	54	27	
	31 and above	6	3	
Years of using agro – chemicals	1 – 5 years	102	51	
	6 – 10 years	98	49	

Type of farming system practiced



level of aware of the effect of Agrochemicals

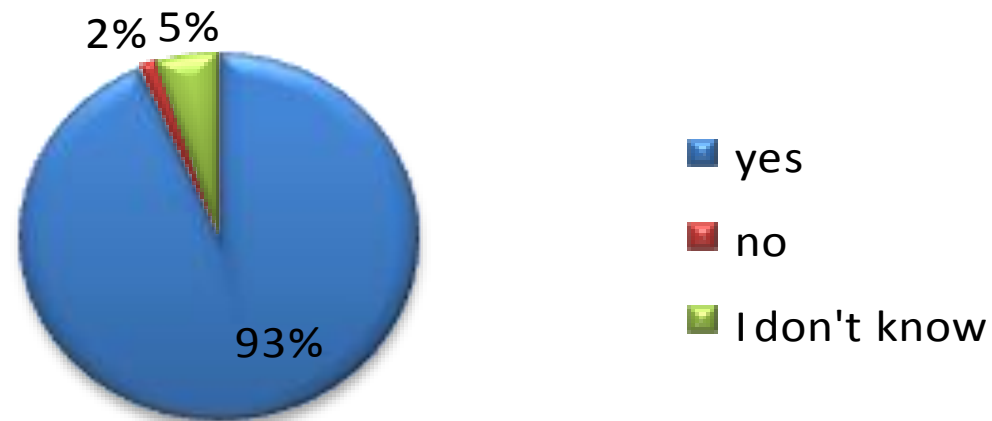


Table 4: Distribution of respondents based on the constraints faced in the use of Agrochemicals

Constraints faced	Frequency	Percentage
They are too expensive	43	21.5
Not convenient while working	24	12
Not easily available	56	28
I was not trained	22	11
Not aware of its importance	20	10
Our culture did not support it	2	1
Indifferent	2	1.5

Disposal of Agrochemical Containers

Table 10: After use of empty agrochemical containers

Use	Fertilizer		Pesticides	
	Frequency	Percentage	Frequency	Percentage
Openly Disposed	34	17	104	52
Farm utensil	87	43.5	19	9.5
Domestic utensil	54	27	12	6
Sold	24	12	18	9
Burn	1	0.5	47	23.5

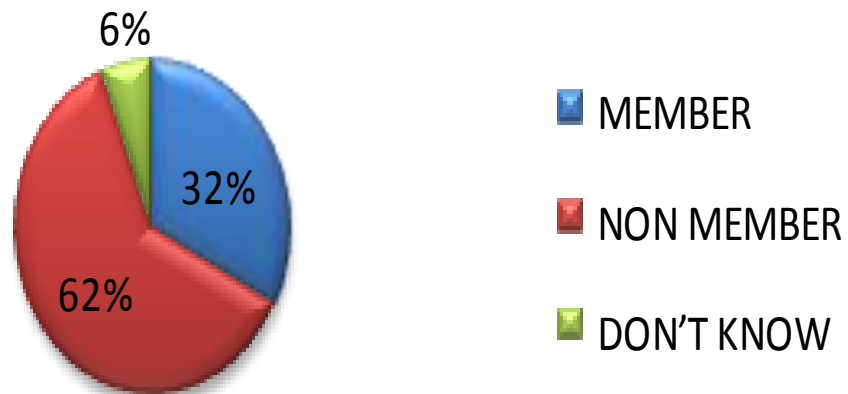
Table 12: Side effects experienced

Side effects experienced	Frequency	Percentage (%)
Cough	25	12.5
Dizziness	14	7
Eye reddening	43	21.5
Sneezing	75	37.5
Rheum	9	3.5
Chest pain	13	6.5
Skin itching	62	31
Eye itching	74	37
Headache	22	11
Body pain	26	13
Vomiting	13	6.5
Others	0	0

Table 13: Intervention sort after experiencing side effect

Response to side effects of chemicals	Frequency	Percentage (%)
Self-medication	79	45.5
Ingested milk	127	63.5
Did nothing	20	10
Visited health facility	0	0

PARTICIPATION IN COOPERATIVES



CONCLUSION

Findings in this study revealed that the root problem faced by farmers in the study area are similar to the challenges of what average farmers of the developing world face; lack of relevant education in terms of ethical use and disposal of agrochemicals. For instance, farmers tend to apply pesticides excessively and irrationally because they do not understand the risks of pesticide residues, the guidelines on how much pesticide to use or the standardized regulations in pesticide application.

RECOMMENDATIONS

- ❖ Improvement on educating farmers on the use of agrochemicals in appropriate, less risk-related methods, side effects associated with the use of agrochemicals, dangerous habits associated with health risks and the importance of protective measures of agrochemicals especially Personal Protection Equipment
- ❖ Proper record keeping of all cases of acute and toxic effects of agrochemical exposure in order to enable proper health planning should be put in place
- ❖ There is a need for this work to be extended to the whole of Gombe state and North-East region of Nigeria.
- ❖ There should be an aggressive awareness campaign to farmers, Agro-dealers, and Grain marketers on the safety, risk of inappropriate usage.