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Correlate between Intensity of Training on Usage of Herbicide and Socio-economic Characteristics of Farmers in Ogbomoso Agricultural Zone

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ABSTRACT

This study evaluated correlate between intensity of training on usage of herbicide and socio-economic characteristics of farmers in Ogbomoso agricultural zone. Multistage sampling procedure was employed for this study. The first stage involved random selection of two Local Government Areas from Ogbomoso agricultural zone. The next stage was random selection of two villages from each Local Government Areas. The next stage involved random selection of 30 respondents from each village. A total of 120 respondents were interviewed in this study. Data collected were analyzed using descriptive statistics.

The mean age of the farmers was 34.33 years. The respondents whose monthly income were within ₦30,000.01 to ₦ 40, 000.00 and >₦50, 000 were 8.34% and 8.33% respectively. The mean farm size was 3.06 acres. The mean farming experience of the respondents was 10.15 years. The farmers who attended training on usage of herbicides of the respondents once were 67.50%. years of farming experience was positive and significant at 10% level of significance.

It was concluded that there was poor intensity of training on usage of herbicides of the respondents and high farming experience as the likelihood to increase their training intensity on herbicide usage. Therefore, better incentives should be given to highly experienced farmers than the non-experienced ones. This is because highly experienced farmers will likely have better output than their inexperienced counterparts.

Keywords: Herbicide usage, intensity of training, number of participations, farming experience and farm size.

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INTRODUCTION

Pesticides are chemical substances that derive their name from the French word "Peste", which means pest or plague and the Latin word "caedere", to kill (Akunyili and Ivbijaro, 2006). Pesticide are Any chemical substance or mixture of substances which are made for the purpose of preventing, destroying, repelling, or mitigating the effect of any pest of plants and animals. They include herbicides, insecticides, rodenticides, fungicides, molluscides, nematicides, avicides, acaricides, repellents and attractants used in agriculture, public health, horticulture, food storage or achemical substance used for a similar purpose (NAFDAC: National Agency for Food and Drug Administration and Control, 1996). In the modern era, farming relies on many chemicals such as herbicides, fertilizers, pesticides and crop preservatives to produce and preserve an abundance of high-quality food.

The exposure to agrochemicals resulting from inadequate education, training and safety systems put Agricultural farm workers are at a very high risk of occupational diseases. In Nigeria and other developing countries, less than 20 percent of the world production of agrochemicals are consume, which are responsible for as much as 1.1 million (70 percent) of the total cases of acute poisoning in the working population (United States Environmental Protection Agency: US EPA, 2005).

In Nigeria, herbicides have proven to be indispensable tools in combating weeds and ensuring sustainable food production with improved yield and greater availability of food throughout the year. It was estimated that the non-use of herbicides and the likely substitution of alternatives (i.e., cultivation, hand-weeding) would result in a loss of $13.3 billion in food and fiber production (Swearingen *et al*., 2002). The total impact of herbicide nonuse would be an income loss of $21 billion, which includes $7.7 billion in increased costs for weed control and $13.3 billion in yield losses (Swearingen *et al*., 2002).

Objectives of the study:

1. identify the personal characteristics of respondents in the study area;

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2. analyze intensity of training on herbicide usage in the study area.

Hypothesis of the study

H_{01}: There is no significant relationship between intensity of training on herbicide usage and farmers characteristics in the study area.

METHODOLOGY

The study was conducted in Ogbomoso agricultural zone. This comprises of five (5) local government areas. These are Ogbomoso North, Ogbomoso South, Ogo-Oluwa, Orire and Surulere local government areas. The estimated population of Ogbomoso Zone was 657,412 (NPC, 2006). Ogbomoso lies on 80 10' North of the Equator and 40 10' East, of the Greenwich meridian. The town lies within the derived savannah region and has a fairly high uniform temperature, moderate to heavy seasonal rainfall, and high humidity. The mean annual temperature is 26.2^{0}C. The highest degree of temperature is experience in March with a mean of 28.7^{0}C while the lowest degree of temperature is experienced in August with a mean of 24.30C.The mean annual rainfall is 1,247mm. The population of this study comprised of all maize farmers in Ogbomoso agricultural zone.

Multistage sampling procedure was employed for this study. The first stage involved random selection of two Local Government Areas from Ogbomoso agricultural zone. The next stage was random selection of two villages from each Local Government Areas. The next stage involved random selection of 30 respondents from each village. A total of 120 respondents were interviewed in this study. Descriptive statistics and Ordinary Least Square (OLS) were employed in the analysis of the data.

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RESULTS AND DISCUSSION

Results of descriptive analysis for the socio-economic characteristics of farmers are presented on Table 1.

Age: The farmers which were less than or equal to 30 years of age were 33.33%.Thus, a good number of the respondents were in their youthful age. The respondents that were within ages 30.01 to 40.00 years and 40.01 to 50.00 years were 50% and 8.34% respectively. Also, the respondents that were greater than 50 years of age were 8.33%. Therefore, the aged respondents were less than the younger ones. Moreover, the mean age of the farmers was 34.33 years. This was an indication that the farmers were in their productive years.

Monthly Income: The farmers' whose monthly income were less than ₦30,000 were 58.33%.Thus, some of the respondents were low income earners. The respondents whose monthly income were within ₦30,000.01 to ₦ 40, 000.00 and >₦50, 000 were 8.34% and 8.33% respectively. Therefore, the respondents were high income earners. The mean monthly income was ₦ 38, 250. This amount indicated that the respondents were poor income earners. Therefore, they may not afford to participate in training on herbicide usage.

Farm Size: The mean farm size was 3.06 acres. This was an indication that the farmers were small scale farmers. Agriculture needs to be commercialized on large scale for it to be able to bring about significant improvement to the farmers food security, national economic growth and export earnings.

Farming Experience: The mean farming experience of the respondents was 10.15 years. This was an indication that the respondents were not highly experienced individuals.

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Farming experience could be useful in improving participation of farmers in the proper usage of herbicides and also improve farmers' adoption of the interventional training.

Table 1: Socio-economic characteristics of the respondents

Characteristics	Frequency	Percentage
Age (years)		
≤30	70	33.33
30.01–40.00	60	50.00
40.01–50.00	10	8.34
>50	10	8.33
Total	120	100.00
Mean = 34.33		
Monthly Income (₦)		
≤30000	70	58.33
30000.01–40000.00	30	25.00
40000.01–50000.00	10	8.34
>50000	10	8.33
Mean = 38, 250		
Farm size (Acres)		
≤ 3	44	45.00
3.01 – 4.00	30	25.00
> 4.00	46	40.00
Mean = 3.06		
Farming experience (Years)		
≤ 10	42	33.33
10.01 – 20.00	61	54.17
> 20.00	17	12.50
Mean = 10.15		

Source: Field Survey, 2018.

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Intensity of Training on Usage of Herbicides of the respondents

Table 2 presented the intensity of training on usage of herbicides of the respondents. The farmers who attended training on usage of herbicides of the respondents once were 67.50%. Moreover, the farmers who attended training on usage of herbicides of the respondents twice were 12.50%. Therefore, there was poor intensity of training on usage of herbicides of the respondents because most of the farmers attended the training once. This could lead to poor adoption of the intervention that focused on usage of herbicides of the respondents.

Table 2: Intensity of Training on Usage of Herbicides of the respondents

Number of participation in training (Intensity)	Frequency	Percentage
1	81	67.50
2	15	12.50
3	9	7.50
4	9	7.50
5	4	3.33
6	2	1.67
Total	120	100.00

Source: Field Survey, 2018.

Test of Hypotheses

The null hypothesis stated that, there is no significant relationship between intensity of training on herbicide usage and farmers characteristics in the study area. In table 3, years of farming experience was positive and significant at 10% level of significance. Therefore, respondents with high farming experience as the likelihood to increase their training intensity on herbicide usage. However, income and farm size were

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negative and statistically significant at 5 percentage and 10 percentage levels respectively. Therefore, the null hypothesis was rejected.

Table 3: Relationship between Intensity of Training on Usage of Herbicide and Socio-economic Characteristics of Farmers

Characteristics	Coefficient	P > | t |
Age	0.015	0.346
Income	-0.000**	0.042
Farm size	-0.182*	0.072
Farming experience	0.044*	0.087
Constant	1.694**	0.015

** 5 percent level and * 10 percent level.

Source: Field Survey, 2018.

CONCLUSION AND RECOMMENDATIONS

There was poor intensity of training on usage of herbicides of the respondents and high farming experience as the likelihood to increase their training intensity on herbicide usage. Therefore, training on usage of herbicides should be done in every farming community in order to encourage farmers' participation in the training. Better incentives should be given to highly experienced farmers than the non-experienced ones. This is because highly experienced farmers will likely have better output than their inexperienced counterparts.

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