



## PERCEPTION OF CASSAVA FARMERS ON THE USE OF AGROCHEMICALS IN ODIGBO LOCAL GOVERNMENT AREA OF ONDO STATE, NIGERIA

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### ABSTRACT

*This study was carried out to determine the perceptions of Cassava farmers on the use of Agrochemicals in odigbo local government area of Ondo State. Multistage sampling technique was used to select 140 registered cassava farmers. Well structured questionnaires were used to obtain information on farmers' perception to the use of agrochemicals. Collected data were analyzed using descriptive statistics such as frequency and percentages. The findings from the study showed that, majority (62.9%) of the respondents were male, married (78.0%) and had at least primary school education (78.7%). Also, majority (61.4%) of the respondents had high level of knowledge of agrochemicals usage and patronized most agrochemicals based on "trade name" and not the active ingredient contained in the product. However, agrochemicals were highly in use by the respondents in this study, some of the pesticides encountered includes: Karate, Sevin, Thiodan, Dursban48EC, Proteus 170 O-TEQ, Fusillade, Actara 25WG, Cypermetrin, Roundup, Touchdown, Atrazine, Gramozone, Urea, NPK etc. . The respondents' strong agreement to the perceptual statements on the use of Agrochemicals include: improvement in crop appearance and marketability (52.3%), stress free (47.7%). 42.4% were of the opinion that agrochemical usage leads to several health problem.*

**Keywords:** Agrochemical, Perception, Hazards, Pesticide, Contraction and Agriculture

### INTRODUCTION

Agrochemicals are important agricultural inputs used to protect crops from diseases, pests and weeds. They are a contraction of agricultural and chemicals and in most cases include fertilizers and pesticides such as insecticides, herbicides, fungicides and nematicides. The use of agrochemicals contributes not only to healthy growth of crops and animals but also improve farm work efficiency and stable supply of tasty agricultural produce (Kughur 2012). The usage of Agrochemicals dates as far back as 2000BC, in the 1940s however, agrochemicals manufacturers began to produce large amounts of synthetic herbicides and their usage became widespread (Daly *et. al*, 1998; Kughur, 2012). Over reliance on these synthetic chemicals to control pests, weeds and diseases has given rise to a number of problems, which affects the food chain and impacting negatively on biological diversity. Also the wrong use of agrochemicals leads to secondary outbreaks of pests, weeds and diseases

that are normally under natural control resulting in their rapid proliferation. There have been cases of pests and weeds becoming tolerant or resistant to agrochemicals, resulting in the use of double and triple application rates (Stoll, 2000). Furthermore, agrochemicals used on crop like cassava has over the years become more dangerous to both human health and the environment (Jaga and Dharmani, 2003).

Most of the imported agrochemicals in Nigeria have labels written in a language not understood by the users who may not be literate. This has hindered some of the farmers from applying these agrochemicals appropriately thereby giving rise to a number of agricultural challenges. Pesticides and other foreign substances in food products and drinking water along with toxic pollutants in the air pose an immediate threat to human health, whereas other contaminants gradually build up in the environment and in the human body, causing disease long after first exposure (Gavrilescu *et al.*,

2015). Some of the havocs wrecked by these agrochemicals include; the killing of beneficial insects, secondary pest outbreak, the development of pesticides resistance pests, health problem for farmers that handle the chemicals such as abdominal pain, dizziness, headache, nausea, catarrh, vomiting as well as skin and eye problems, depletion of some soil nutrients; increased soil acidity etc. From the foregoing, it has become quintessential to carry out a survey which captures the perception of farmers on the use of agrochemicals. It is expected that this study will not only make available, data on perception of farmers to the use of agrochemicals in the area but also help in formulating policies directed at adequate utilization of these agrochemicals for better agricultural yield and optimum reduction in the health hazards associated with their use. Thus, this study assessed the level of perception of farmers to the use of agrochemicals in Odigbo Local Government Area of Ondo state. The following are the objectives of the study were to ascertain the level of knowledge of farmers towards the use of agrochemicals; assess farmers' level of use of agrochemicals and determine the perception of farmers towards the use of agrochemicals;

**MATERIAL AND METHODS**

**Study Area**

This study was carried out in Odigbo Local Government Area of Ondo State, Nigeria. Being a rainforest zone, the vegetation of the area supports the growth of notable food and cash crops such as

plantain, banana, cassava, maize, yam, cocoa, oil palm and kola.

**Experimental Design**

Multistage sampling procedure was employed in selecting respondents for this study. In the first stage, three wards out of the eleven wards in the local government were randomly selected due to the prevalence of agricultural activities in these areas, they include; Odigbo, Ore and Oniparaga wards. The second stage involved the random sampling of two communities out of each selected ward. In the final stage, the list of registered cassava farmers was obtained from their association and 23 farmers were selected and interviewed from each community, arriving at a total of 140 respondents. Only 132 questionnaires were however retrieved from the study location.

**Data Collection**

Primary data were employed in the study, data were obtained from respondents via the use of well structured questionnaires. A total of 140 copies were administered in the area.

**Data Analysis**

Relevant data obtained were subjected to both descriptive and inferential statistics.

**RESULTS**

**Respondents' Level of Knowledge on the use of Agrochemicals**

Table 1 reveals that majority (61.4%) of the respondents had high level knowledge while only 38.6% had low level of knowledge on the use of Agrochemicals in the study

**Table 1: Respondents' Level of Knowledge on the use of Agrochemicals**

Level of knowledge	Frequency	Percentage
Low	51	38.6
High	81	61.4
<b>Total</b>	<b>132</b>	<b>100.0</b>

**Respondents' Level of use of Agrochemicals**

The result from table 2 did not only reveal the agrochemicals which were in use by the respondents but also, those that had been used in the past as well as those that were never used. Karate was the most frequently used Pesticide with 68.2% response while Sevin was never used by most (84.8%) respondents. Likewise, Round up

(69.7%), Ridomil (39.4%) and Urea (66.7%) were the most applied herbicide, fungicide and fertilizer respectively. It is worth to note that, most of the users of agrochemicals used "trade name" and not the active ingredient contained in the product to select the agrochemicals used by them. A few of the respondents equally preferred new products that have just entered the market.

**Table 2: Respondents' Level of use of Agrochemicals**

S/N	Agrochemicals	Response			Mean
		Still using	Used before	Never	
<b>Pesticides</b>					
i.	Apron plus	34.8	45.5	19.7	1.849
ii.	Karate	68.2	21.2	10.6	1.424
iii.	Cypermethrin	19.7	25.8	54.5	2.349
iv.	Sevin	3.0	12.1	84.8	2.818
v.	Thiodan	6.8	9.1	84.1	2.772
vi.	Fusillade	9.1	15.2	75.8	2.667
vii.	Dursban48EC	5.3	11.4	83.3	2.708
viii.	Actara25 WG	11.4	18.9	69.7	2.583
ix.	Proteus 170 O-TEQ	12.9	9.9	77.3	2.788
<b>Herbicides</b>					
i.	Atrazine	56.1	28.8	15.2	1.591
ii.	Clopyralid	19.7	28.0	52.3	2.326
iii.	Round up	69.7	16.7	13.6	1.439
iv.	Dicamba	16.7	21.2	62.1	2.455
v.	Gramoxone	54.5	21.2	24.2	1.697
vi.	2,4-D	50.0	25.8	24.2	1.742
vii.	Touch down	59.8	26.5	13.6	1.538
viii.	Simazine	9.8	28.0	62.1	2.523
ix.	Primetra	28.8	34.1	37.1	2.083
<b>Fungicides</b>					
i.	Ridomil	39.4	25.0	35.6	1.962
ii.	Milraz WP 76	6.1	25.8	68.2	2.621
iii.	Dithane M 45	12.9	20.5	66.7	2.538
iv.	Athracol	15.2	22.7	62.1	2.469
v.	Funguran <sup>-OH</sup>	9.1	12.1	78.8	2.697
vi.	Champ WG	9.8	23.5	66.7	2.568
vii.	Ridomil gold 66WP	34.8	24.2	40.9	2.061
<b>Fertilizers</b>					
i.	Diammonium Phosphate(DAP)	22.0	21.2	56.9	2.364
ii.	Nitrogen, Phosphorus Potassium (e.g. 15:15:15, 10:20:10)	65.9	14.4	19.7	1.538
iii.	Urea	66.7	19.7	13.6	1.470
iv.	Single super phosphate	31.1	28.8	40.2	2.091
v.	Calcium Ammonium Nitrate	12.1	34.8	53.0	2.409

### Respondents Perceptions towards the use of Agrochemicals

The respondents' strong agreement to the perceptual statements on Table 3 include, improvement in crop appearance and marketability (52.3%), stress free (47.7%). Also, 42.4% were of the opinion that agrochemical

usage leads to several health problems and suicide. While some of the respondents agreed that agrochemicals were effective in rapid control of weeds, pest and diseases, other respondents opined that these chemicals' presence in the environment bring various harms with them.

**Table 3: Respondents Perceptions towards the use of Agrochemicals**

S/No.	Perceptual statement	Response					Mean
		SA	A	U	D	SD	
i.	The use of agrochemicals could lead to several ill health problems	42.4	37.9	12.9	4.5	2.3	1.864
ii.	Agrochemicals increase yields, control, weeds, pests and diseases on the farm	40.2	57.6	1.5	0.8	0.0	1.629
iii.	In the process of using agrochemicals one can have skin irritation	23.5	43.2	14.4	11.4	7.6	2.439
iv.	The chemicals causes eye irritation e.g. eye redness	25.8	37.9	17.4	12.1	6.8	2.364
v.	The application of agrochemicals could improve appearance and marketability of the crops	52.3	35.6	9.1	3.0	0.0	1.629
i.	High usage of agrochemicals can cause stomach irritation e.g. nausea	13.6	33.3	36.4	12.1	4.5	2.606
vii.	The use of agrochemical is the fastest means of controlling weeds, pests and diseases	39.4	53.0	3.0	3.8	0.8	1.745
viii.	The use of agrochemicals leads to other irritation like cough, chest pain, etc	13.6	28.8	37.1	16.7	3.8	2.682
ix.	Farmers' exposure to pesticides can cause dizziness, reduce coordination and ability to think.	11.4	25.0	43.9	17.4	2.3	2.742
x.	Agrochemicals usage is stress free	47.7	27.3	6.8	15.2	3.0	1.985
xi.	Continuous use of agrochemicals destroy soil by reducing its quality	24.2	38.6	25.8	6.1	5.3	2.296
xii.	Agrochemicals can kill beneficial insects (bees)	28.0	53.0	12.9	3.8	2.3	1.992
xiii.	The use of agricultural chemicals could decrease biodiversity	18.9	36.4	37.1	7.6	0.0	2.333
xiv.	Agrochemicals contributes to air pollution	26.5	46.2	18.9	8.3	0.0	2.091
xv.	Application of agrochemicals could pollute streams, rivers & wells	28.8	53.0	13.6	4.5	0.0	1.939
xvi.	When applying agrochemicals, farmer could notice some combination of ailments	12.1	42.4	32.6	11.4	1.5	2.477
xvii.	The use of agrochemicals has some harmful side effects on non-target organisms like birds, and earthworms.	25.0	54.5	17.4	3.0	0.0	1.985

Note: SA = Strongly Agreed, A = Agreed, U = Uncertain, D = Disagreed, SD = Strongly Disagreed

## DISCUSSION

### Respondents' Level of Knowledge on the use of Agrochemicals

The high level of knowledge of the respondents (61.4%) on the use of Agrochemicals recorded on Table 1 agrees with the assertion made by Hong Zhang and Yonglong Lu (2007), that high level of knowledge on pesticides usage by the users is important for the prevention of several acute and chronic poisons. This knowledge is likely to make

them more responsive to training on proper management regarding public health risks and environmental hazards.

### Respondents' Level of use of Agrochemicals

Among the pesticides listed on table 2, the only one that majority (68.2%) of the respondents were still using is Karate, about 45.5% have used Apron plus before, while majority of them have never used pesticides like Sevin (84.8%), Thiodan

(84.1%), Dursban48EC (83.3%), Proteus 170 O-TEQ (77.3%), Fusillade (75.8%), Actara 25WG (69.7%), Cypermetrin (54.5%) and Karate (37.1%). This result agrees with Tekwa *et al.*, (2010), who reported Karate as the currently used pesticides in Nigeria.

As regard herbicides, Roundup (69.7%), Touchdown (59.8%), Atrazine (56.1%) Gramozone (54.5%) and 2,4-D (50.0%) were still in use by the respondents in the study area. Nevertheless, herbicides like Dicamba (62.1%), Simazine (62.1%) and Clopyralid (52.3%) have never been used by the respondents. This is consistent with the findings of (Ntow *et al.*, 2006) as herbicides were the class of agrochemicals most used in arable crop farming with a perception by farmers that herbicides used were able to suppress weeds for a longer time and over a wider area than manual weeding with a hoe. Among the fungicides listed below, Ridomil was the only one that was still in use as indicated by 39.4% of the respondents while the rest have never been used. This implies that fungi attack was not prevalence in the study area. Amara and Abate (2008) and Tekwa *et al.*, (2010) found similar results.

Urea and NPK were the two types of fertilizers that were still in use as indicated by 66.7% and 65.9% of respondent respectively. This is probably because they have been in the market for a long time and farmers had some experience in using them. The farmers cited high cost of fertilizers as a constraint to use of other types of fertilizer at planting. This result is in line with (Njuguna *et al.*, 2002).

### Respondents' Perception on the use of Agrochemicals

The strong agreement to the perceptual statements on Table 3 that the usage of agrochemicals lead to several health problems and suicide is supported by WHO (1990) that

estimated that one million unintentional acute agrochemicals poisonings occur worldwide annually. Likewise, Gunnell *et al.*, (2007), put the number of suicidal deaths through agrochemicals at 370,000. Increase in yield and control of pest and diseases was strongly agreed with, by 40.2% of the respondents which agrees with the findings of Tekwa *et al.*, (2010) where the use of agrochemicals accounts for sustainable yield (increase income). Most often the impact of these agrochemicals are not felt or seen either due to wrong application or farmers bought the adulterated commodity in the open market as claimed by the respondents. Majority (39.4%) supported agrochemicals as the fastest means of controlling weeds, pests and diseases. About 28.8% of the farmers strongly agreed to the fact that pesticides pollute streams, rivers and wells while some (25.0%) perceived that there is an harmful side effects of pesticides on non-target animals, birds and earthworms. It was evident that the farmers were neither aware nor sensitized on other production systems such as Integrated Pest Management (IPM) where various approaches are used including combinations of chemical, cultural, and biological methods to mitigate on disease and pests while reducing hazardous impact on environment and human health.

### CONCLUSION

The study revealed that the usage of agrochemicals was substantial in the study area. As much as various benefits abound from the use of these chemicals, there are equally numerous negative side effects attributed with excessive use or wrong application. This may be detrimental to the farm yield or even pose health hazards to farmers and their households. Therefore, it is expedient to educate and familiarize farmers with the proper ways of utilizing these agrochemicals so as to forestall the impending dangers that could be encountered by wrong usage.

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