OCCUPATIONAL SAFETY AND PESTICIDES HAZARD AMONG AGRO-CHEMICAL INPUT DEALERS IN OYO STATE, NIGERIA

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Received: April 25, 2011; Accepted: September 02, 2011

Abstract

This study evaluates the knowledge base, location and safety provision of agrochemical dealers in Oyo state Nigeria. Survey research technique using 320 questionnaires was employed for the collection of data Univarite analysis involving the use of simple percentage was used to analyze the data and the results were presented in tables. The results showed that most of the dealers (91 %) did not go through any formal training, though they were aware of the hazards associated with their business. Only few had sales office different from where they display and sell the chemicals, which expose them to hazard from the chemical. Technical knowledge was also limited, critical areas that required adequate knowledge was lacking. Most of the dealers needed more training on hazard classification and first aid treatment. It is therefore recommended that specialized training should be organized by pesticides dealers association, agrochemical companies, regulating agencies and other form input related agencies to improve the knowledge base of the dealers so that they can prevent pesticides hazard.

Keywords: Hazards, safety, pesticides, treatment

INTRODUCTION

The wrong use of pesticides is dangerous and can have many negative health effects on humans. During every stage of their manufacturing and transportation, and before, during, and after use, pesticides have the potential to harm plants, animals, and humans in the environment if misused. The growing concern over the negative effects of pesticides has triggered the interest of researchers into studies on the health risks associated with the use of pesticides. Some researchers have linked routine pesticide exposure to some very deadly illnesses such as leukemia and prostate cancer to workers who handle the chemicals during the production of pesticides. Abdominal pain, dizziness, nausea, vomiting, skin and eye problems, respiratory and memory disorders, cancer, depression, and birth defects have all been associated with long-term exposure to pesticides (Anonymous, 2007). The greatest concern for consumers is the fact that many pesticides used in the control of pests on food crops are poisonous to humans and some foods can contain pesticide residue even after washing or peeling. The Environmental Protection Agency (EPA) has banned several chemicals used in producing pesticides for a variety of reasons. Some of these chemicals have high resistance to degradation and can persist in the soil where farmers grow their crops (Fred *et al*, 2001). Pesticide drift is the most dangerous form of pollution to the environment. When the wind blows pesticides to places other than their intended destination, that rea becomes contaminated. Children exposed to pesticides early in life have been found to have higher chances of developing brain cancer and leukemia (Fred *et at.*, 2001). Additionally, pesticides sprayed in schools to eliminate rodents or insects are only temporary and require continual reapplication. Since the poisons in pesticides are not harmful to just pests, children and other inhabitants are also at constant risk of pesticide exposure. Scientists have documented in detail the health effects of pesticides, since they have been in use for nearly a century. Pesticides are particularly harmful to young children and those who have continual or repeat exposure. The use of environmentally friendly or "green" pesticides is most preferable since they do not affect the environment as severely.

Agricultural inputs can be categorized based on their cost implications and manpower requirements. Inputs like seed and fertilizers have lower cost and manpower requirements and are easy to handle while others like liquid chemicals and pesticides have higher requirements particularly in terms of handling and user knowledge in order to avoid environmental and safety hazards (AGI, 2010). The Agro input dealers' associations provide a network of services to farmers; social, education, and skill sharing services to farmers. They act as counselors to many farmers and are involved in training of farmers safe use of the chemicals (Akinmade, 2010). Development of agro dealers' organizations is critical for accelerating small scale farmers'

access to quality agricultural inputs in Nigeria. Distribution and sales of appropriate small packs of agricultural inputs would increase their affordability, safety and quality. In order to improve food security and achieve the millennium goals there is need to improve farmer's access to inputs and also improve agric inputs business owner's skill and technical knowledge of agric input marketing entities at all levels in the marketing chain in selected formal Targeted training program or on-job- training programs (IFDC, 2005).

The issue of occupational and environmental safety conditions must be accorded great priority if agrochemical business is to be sustained for the sake of development. It is obvious that safety in the work place is supposed to be an issue that concerns everyone ;the manufactures, marketing companies, dealers, Government, and the general public(Igboro*et al,* 2007). The health and wellbeing of dealers and knowledge on safe use and handling is very crucial since they are in direct contact with the chemicals and with the end user (Ibrahim *et al.,* 2009). In developing countries the health safety regulations are less stringent or poorly enforced because hazard are commonly not well understood (EJF, 2000).Exposure to hazard can result from either occupational and/or environmental source (Langley & Summer, 2002).

Currently, reported studies on occupational safety in the crop protection industry in Nigeria are scarce. Therefore, this study is aimed at determining the extent to which the dealers understand what they are selling, the safety and health measure; and the extent to which the regulatory body have provided effective and efficient supervision of the dealers to ensure that safety regulations are observed. The study also attempts to ascertain the existence of training programs for the dealers in order to conscientize them about the need to develop positive safety attitudes and / or practices at work. The inculcation of attitude of proper chemical handling amongst applicators and' crop protection products (CPP) practitioner, education of trainers on the need to inculcate a culture of safe chemical handling amongst farmers and proper handling of CPP is the responsibility of all stakeholders

MATERIALS AND METHODS

Field survey was conducted between January 2009 to December 2009 in the four agro ecological zones of Oyo State (Ibadan/Ibarapa, Ogbomosho, Shaki

and Oyo zones) to determine the extent to which the dealers have put in place safety and health measure; and the extent to which the regulating government agencies have provided effective and efficient supervision of the dealers to ensure that safety regulations are observed and to ascertain the existence of training programs for workers in order to conscientize them about the need to develop ^positive safety attitudes and/ or practices at work. To achieve these objectives survey research techniques using questionnaires was employed for the collection of data on the social economic characteristics of the dealers, business size, health and environmental issues that affects the dealers. Census of agrochemical dealers was conducted and *I* compared with Oyo State Agricultural Input j. Dealers Association (OSAIDA) registration list. A j total of 320 dealers in Oyo state equivalent to about 95% of all the dealers were given a questionnaire each on zonal basis. Univarite analysis involving the use of simple percentage was used to analyze the data and the results were presented in tables. Discussion with OSAIDA and West Agric Input dealers Association (W AID A) staff was also helpful in gathering information not captured by the questionnaire or to give further clarification where necessary.

RESULTS AND DISCUSSION

Table 1 shows the social economic characteristic of agrochemical dealers in Oyo State .Among the 320 people selling agricultural inputs in Oyo state were dominated by male (87%) and only (13%) are female. Majority of the dealers are retailers constituting about (90%) who sell directly to end users. Only about 10% can be classified as wholesalers who sell mostly to retailers although they sometimes sell to end users in some rare instances The business size of agricultural inputs in Oyo state through the trade channel according to retail audit conducted is estimated at about 800 million naira (Ibrahim *et al,,* 2009). It is also amazing to know that just very few (9%) have formal agricultural training either at Certificate, Diploma, or Higher Degree level.

Table 2 shows the technical competence of the dealers in handling and distribution of pesticides Majority of them (93%) were able to identify the different classification of pesticides and the brand from each company, while only 75% could explain the different formulation types and 85% clear! understood the active ingredients in each segment of the pesticides. It was also very surprising that despite the fact that they were able to mention the active ingredients, only 12% knew the volume admass of the active ingredient and the toxicological effect of these active ingredients. Some do not even understand the toxicological warning, and various precautions on the pesticides containers. About 52% were able to identify and understand these precautions and warning on the product label, In fact, 92% of the dealers were aware and able to

identify where the National Agency for Food Drug Administration and Control (NAFDAC) number vase written on the products. Pesticides usage and direction was not a major problem as almost all of them knew the function of each segment, for instance, the exact application rate which differs according to weed ecology, mass and density were fully understood by 62%. Similarly, 62% of dealers were able to identify and differentiate the manufacturer logo of each of the different brands against adulterations. But only 13% were aware of the .warranty and the manufacturer and the distributor's details Symptoms of poisoning, first aid instructions and note for physicians were not clearly known to most of the dealers as just 13% can explain them. The compatibility of the different segments with others was well known to 72% of the dealers as they can clearly explain which chemical to mix and which shouldn't be mixed. Almost all the dealers (95%) were fully aware that every pesticide should have batch number, date of manufacturing and expiring date while instruction on storage and staking was understood by almost 63 %.

From the social economic characters of the dealers, the result of the research shows that over 800 million naira worth of pesticides was sold in 2009 in Oyo State alone. It was projected that the annual * business growth of pesticides in Oyo is at 25% (Ibrahim *et al*, 2009) which implies that by the year 2010 the turnover will have been at 1 billion naira. Adoption of pesticides is increasing as farm size increases. Similarly, the volume of pesticides moving down the channel from the manufacturer to the end user is on the increase. The concern however, is that virtually all the dealers are retailers selling to end users and only about 9% of the dealers had formal agricultural training. The retailers are expected to provide a net work of services to farmers: social, education, and skill sharing services to farmers. They are supposed to act as counselors to many farmers and also train farmers on safe use of the chemicals (Akinmade, 2010). Development of agro dealers is critical for accelerating small holder's access to quality agricultural inputs in Nigeria.

TABLE 1: Socio- economic characteristics of agrochemicals dealers In Oyo State

Description	Ibadan/	Oyo	Ogbomosho	Shaki	Total	Percentage of dealers	Ibarapa
No of dealers	172	70	51		27	320	100
Male	151				24	279	87
Female	21	67	38		3	41	13
Retailers	152				25	288	90
Whole sellers	20	4	13		2	32	10
Business Size (million Naira)	300				100	800	
Certificate, Diploma or B,sc in AGRIC	11	63	48			29	
Non agricultural degree/no formal schooling	163	7	3			291	
		200	200				
		7	4		3		9
		63	47		24		91

Technical knowledge	Yes (%)	No(%)	Total (%)
Product name	97	3	100
Formulation	75	25	100
Composition of active ingredients	87	31	100
Volume or mass ofcontent	12	88	100
Registration number	92	8	100
Usage declaration	69	31	100
Manufactural logo	62	38	100
Direction for use	47	53	100
Warnings/precautions	52	48	100
Symptoms of poisoning	13	87	100
First aid Instructions/ note for physicians	13	87	100
Compatibility with other product	72	28	100
Date of manufacturing/expiring date	95	5	100
Batch number	85	15	100
Storage instructions	63	37	100
Toxicological hazard	12	88	100
Warranty and distributors details	17	83	100

CONCLUSION

Due to lack of formal education on pesticide handling and safe use, majority of the dealers lack the technical knowledge required of them. 'Particularly in area that concern volume or mass of content of the pesticides ,direction for use, warning and precaution, symptoms of poising, first aid instruction, lexicological hazard, warranty and distributors details. These aspect are very crucial in handling and safe use of chemical, it is a prerequisite for every dealer to have adequate technical knowledge. From the research, it can be concluded that specialized training is very important in pesticides handling .Only people who have undergone training should be licensed to sell and handle pesticides. Agrochemical Companies, NAFDAC, Crop LIFE, WAIDA, OSAIDA International Fertilizer Development Centre (IFDC) and other inputs related companies are requested to organize periodic training to dealers and should ensure that only certified dealers are allowed to sell and handle pesticides

REFERENCES

AGI (2010).Market Smart Subsidies, Analyzing the Agricultural Input Dealer Sector in Ghana. The Broking Institution, Stein Room, Massachusetts Ave. NW, Washington DC.

AkinmadeOlayinka (2010) Nigeria Tribune Tuesday 6th July, 2010. Available online at www.tribune.comng/ agriculture/ 7794-experts-commend-inputdealers-contribun'on-to-agric-development.

Citizen Guide to Pesticides and Toxic Substances (2007).Pesticide Program for Supervisor and pesticide specialist. South Akaska Sreeet. Suite A Juneau A. k 99645

EJF (2003). What is your poison .Health Threat posed by insecticides in Developing Countries .Environmental Justice Foundation, London, UK.

Fred, W. C, Richard, E., Jonathan, J. N., Andrew, G. M., John, O. & Robert, H. (2001).Pesticides and personal safety.Purde University Cooperative Extension Services Bulltine, p. 20

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