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RISK FACTORS RELATED TO PESTICIDE USE AMONG FARMERS IN THE EBEBDA DISTRICT OF CAMEROON

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ABSTRACT

Pesticides are toxic chemicals that must be used with delicacy. In Cameroon in general and in Ebebdá in particular, these products play an important role in agriculture and thus in the eradication of hunger, food insecurity and in improving farmers' livelihoods. They are used to reduce the impacts of major pests and diseases that threaten crops. However, studies related to this theme in Cameroon focus much more on the harmful effects of agricultural pesticides on health and the environment. Despite the preventive strategies put in place by the manufacturers of these products to deal with these risks, the percentage of exposure of farmers in the District of Ebebdá remains high. Many factors come into play in the lives and practices of farmers in this locality. This article gives the opportunity to read the risk factors related to the use of pesticides.

KEYWORDS: risk factors, pesticide, farmer

INTRODUCTION

The quest for food self-sufficiency has always been one of the major concerns in most emerging countries and in particular in Cameroon. According to the Inter-State Committee of Pesticides of Central Africa abbreviated CPAC (2018), Cameroon is an essentially agricultural country. It provides more than 60% of jobs to the population in this sector, and contributes on average, 20% to the national Gross Domestic Product (GDP) (MINADER, 2014). Beyond the vagaries of the climate, the effect of crop pests and diseases constitute a real threat to the development of this agriculture. Indeed, these pests cause huge yield losses by destroying crops to the tune of 15% of production each year (Mahrh, 2006). To combat these pests, farmers are sometimes forced to use pesticides, but these products not only have the negative effects on these pests but also on the health of the user and the environment. We can note that despite the preventive measures given by the manufacturers of these products and the government, the use of pesticides remains a health problem in our country. It should be emphasized that preventive measures do not contribute to reducing the rate of exposure of farmers to pesticides in the district of Ebebdá. Therefore, to expect real improvements, we must rely on the understanding and approach of farmers who use pesticides in this locality.

1. Methodological approach

This research work was based on a mixed descriptive approach. We have endeavoured to carry out over a period of approximately forty-five days (45) fieldwork, collecting data from one hundred and fifty-four (154) informants. The method used for the interviews was the semi-directive interview method through the administration of a questionnaire with a qualitative component based on open-ended questions. The work was done in a community setting. Included in the study was anyone who had practiced at least one year of agriculture using pesticides in the district of Ebebda. And it was not included, as not all farmers use pesticides. Apart from semi-structured interviews, questionnaires, we also made direct observation with farmers in order to make a triangulation between what is done what is said and what is thought. The data collected quantitatively, were analyzed using SPSS and Microsoft Excel, while those collected qualitatively, also descriptive, were the subject of a content analysis.

2. Socio-demographic factors

This part of this research work allows us to make an analysis of sociodemographic factors related to the theme that is ours.

2.1. Low level of education of farmers

According to our field data, it appears that 88 of the farmers (56%) have a primary level (between 2 and 6 years of schooling with or without a diploma). We have 51 of the 154, or (33%) have stopped their school curriculum at the secondary level; and 11 (7%) on the other hand have no educational level, while 6 of them (4%) surveyed were able to reach the higher level.

An analysis of these data makes it possible to realize that all or better the bulk of the participants have a low level of education. Perhaps this perspective could reflect the perception and habitability of pesticides in this locality.

2.2. Lack of training related to pesticide use

Our field data show that, of the 154 farmers surveyed, 61 or 40% say they have received training on the use and application of plant protection products. As for the other 93, representing 60% of the study population, they have never had any training. Among those who have followed a training, we can note that 10 people representing 16% of the study population, have followed a training in an approved school and the rest of 51 people or 84% have followed a training in the heap through the training seminar.

We can easily see from these field data that this lack of training is what could give rise to a kind of ignorance within this study population (farmers) regarding the use of pesticides. This in our opinion influences the behaviour of the latter with regard to the use of pesticides.

2.3. Farmers' ignorance

In a perspective of protection of humans and health, it is often provided a minimum period of time to be respected after the end of the spraying to be respected before entering the plot to practice other activities. This information is often present on the labels of certain products and on pesticides. Delays are usually between 12 and 48 hours, but they can be longer depending on the toxicity of the product used and the different types of crops. The measure is intended to protect workers from dermal exposure to pesticides, and appears to be poorly known to farmers. According to the field data, we find that the vast majority of farmers, 92% are not aware of the existence of such a deadline and therefore they do not respect it. However, 8% of them admit to following the recommendations concerning this practice. We can therefore recognize that the low level of education of these participants representative of the population of Ebebdá, and the lack of training will induce the factor of the mismanagement of pesticides and the various empty packaging of pesticides.

2.4. Management of empty pesticide packaging

With regard to the management of empty packaging of pesticides after use, it poses a serious problem in the rural world in general. It should be noted that Ebebdá our research area is not on the sidelines of this difficulty. The farmers participating in this research are trying in their own way to solve the problem of packaging after using its contents. It appears that 58% of the informants threw them in the open area in their farms, places where the refill of "porridge" or mixture in the sprayer took place. This type of practice significantly increases the risk of environmental contamination. We can see that 12% bury them off their farms. Another part that is 29% burns them in the open area. The rest of the 1% say they wash and reuse some packaging in cans for the conservation of seeds sometimes palm wine. We can realize that these different practices are harmful to both the environment and humans.

3. Socio-economic factors

This section is dedicated to highlighting all the socio-economic factors that are part of the Risk Factors related to pesticide use among farmers. We can quote:

3.1. High cost of personal protective equipment

The use of personal protective equipment (PPE) serves as a barrier against pesticide exposure. In order to ensure that the different routes of exposure to these products are protected, protective clothing and equipment appropriate to the degree and nature of the risks should always be worn. In our fieldwork, 63% of participants (n=154) report wearing personal protective equipment, while 37% say they do not use PPE. However, it should be noted that when observed, the equipment worn is not complete. We also have a percentage of 27.78% who only put on boots; (4.86%) of the suits and 4.17% put on masks. These farmers will note that they protect themselves but we had not read these suits and masks. Some of our participants gave their reasons for not wearing the complete equipment as prescribed, this is what Leonardo acknowledges when he says "this complete equipment is not given to any planter to buy it" (Leonardo, 40 years old, farmers, 14/11/20). Roger agrees when he says: "complete personal protective equipment is expensive for me because I do not yet have a good

agricultural income" (Roger-42 years old, farmer, 14/11/20). From the above, we can say that the lack of financial means, and high cost of equipment pushes our participants to partial use or not. This exposes them to health problems.

3.2. Negligence of farmers

In addition to this lack of financial resources, we have noted the negligence of these farmers. This neglect could be due to the lack of financial resources, as noted by some participants. This is what Alfred recognizes when he says "this equipment prevents us from working well" (Alfred, 35, Farmer, 13/11/20). In the same logic, Christian will say: "one feels suffocation during the use of these clothes" (Christian 27 years old, farmer, 13/11/20). Martin agrees, adding: "Wearing such equipment makes us uncomfortable during phytosanitary treatment" (Martin, 55, farmer, 01/12/20)." We can realize that beyond the lack of financial means, there is a certain negligence due to the effects on the body of users. This also multiplies the risks of exposure and contamination to phytosanitary products.

3.3. Social representations of pesticides

On the question of the social representations of plant protection products, it appears that our participants initially establish a link between these products, productivity and profit margin. For the vast majority "phytosanitary products are stimulants of good product and economic income". He does not hesitate to acknowledge with Jean when he declares: "I use pesticides on my farms for crop protection to obtain good production and finally to make a profit margin". (Jean, 40, farmer, 14/11/20). Interestingly, for some farmers, when we talk about pesticides, it automatically referred to production and a good profit margin. This is what Roger says when he says "for a good yield these products are essential" (Roger, 47 years old, agriculture, 14/11/20).

In contrast to this first perspective, other participants see danger around pesticides. This is what this participant says when he says that "Pesticides are considered as medicines of plants and therefore they are poisons" (Christine, 37, farmer, 13/11/20). This view is also that of Martin when he acknowledges that: "for me these chemicals are a real dangerous one that we farmers had to pay too much attention to when handling" (Martin, 46, Farmer, 14/11/20).

While it is possible to recognize that these products are necessary for crop productivity, we can say with some participants that this is a necessary evil for some farmers. Lauraine will not hesitate to say that: "pesticides represent a necessary evil since they keep the plant healthy and can cause a danger to human health" (Lauraine, 33, farmer, 13/11/20). Bertrand in the same sense will say: "Phytosanitary products are a real danger for us farmers, but we cannot do without its capital importance for good production" (Bertrand, 44 years old, farmer, 14/11/20).

We can say that for the majority of our informants, when we talk about herbicides, everyone sees in the use of this product, the reduction of the workforce by reducing the expenses related to the maintenance of plantations. It is in this capacity that some of the participants will say: "Herbicides

are skilled and less expensive labor because with 7000 FCFA, I clean my field of one hectare. They are chemicals, but for the poor like us, they are our tools of work" (Alphonse, 48, farmer, 13/11/20); Jean Noël goes in the direction and says: "My son let me tell you that, in previous years I already used fungicides and insecticides in my plantations, but I spent a lot of money to pay the people who would clear my plantations since I did not yet use herbicides, but a few years ago I traded to use them, I realized it was economical. With 42000 Frs I have a carton of herbicides that makes my field clean. For perceptive herbicides are like magic machetes in our fields of which it is a cultural practice" (Jean Noël, 37 years old, farmer, 13/11/20); Jean François will say for his part: "My child nowadays even in your village is that the farmers still clear the plantations, I do not think about it and that is the effect of herbicides that reduce this stain" (Jean François, 55 years old, farmer, 14/11/20)

4. DISCUSSION

4.1. Low level of education of farmers

Our fieldwork shows that the level of education of farmers is low, 56% of participants have a primary level and 7% have no educational level. Individuals with low levels of education have difficulty finding employment in the formal sector, which justifies their strong involvement in agriculture. This field of activity does not require specific skills for them, puts them in front of certain facts. The results obtained in this work are part of the continuum of results obtained by Abdou Kader Congo (2013) who in his study on the health risks associated with the use of pesticides around small water reservoirs: case of the Loumbila dam to report that 57.7% of producers were illiterate against 30.8% having a primary level. A study on the knowledge and behaviour of pesticide users in Benin showed that seven (07) out of ten (10) peasants were illiterate and among those who had been in school, one in three had passed the level of primary education (Fayomi B et al. 1998).

4.2. Lack of training related to pesticide use

From our fieldwork, it appears that out of 144 farmers surveyed by questionnaire, 40% have received training on the use of pesticides and 60% have no training at all. We have noticed the presence of farmers who have reached the top level in the 40% on the other hand the primary level is more representative in the percentage of those who have not followed training. Almost all untrained farmers proceed by reading labels, but with a relatively low level of education. From our observations as to their ways of doing things, we can say that this reading is not mastered by farmers. Our results are almost inversely proportional to those obtained by Ouchebbouk Djamila et al (2015). In their study 59.57% of farmers say they have received training compared to 40.42% who have never received training.

4.3. Non-compliance with the re-entry period into a treated plot

Reducing the risk of exposure to chemicals also requires compliance with the time to re-enter a treated plot in less than 12 hours of time. It appears that from our fieldwork 92% of our respondents do not know what the re-entry time means. It should be noted that the results obtained in Final Report

(2016): use of agricultural pesticides in three regions west of Burkina Faso and assessment of their impact on health and the environment: case of the regions of the mouhoun loop, waterfalls and high basins; More than half of the producers (60.51%) re-enter the field within 24 hours of treatment, if need be. This has the effect of increasing the degree of exposure of producers who re-enter fields newly treated users.

4.4. Management of empty packaging

Due to their low level of education and low pesticide knowledge, the packaging of the pesticides used is either burned in the open area, thrown into the wild, or washed and reused. We have 58% of farmers throwing empty packaging in the fields. This figure exceeds that of Ouchelbouk Djamilia et al. (2015) which shows that in the region of Tizi-Ouzou, Bouire and Boumerdes the rate is of the order of 12.76%. This same author demonstrated in the same study that the hygiene service collects 17.02% of packaging abandoned by farmers next to the fields. In our study, it was shown that when it comes to packaging, 12.7% of farmers burn their packaging, which is almost similar to the results obtained by Sawadogo Victor Relwinde (2016) in the study conducted in the Sourou Valley, with 15.4% of farmers burning their packaging. This same author showed in the same study that 2.9% of farmers wash and reuse bottled packaging for seed saving, this figure differs from the percentage obtained in our study. In our work, the rate is of the order of 1%. It should be noted that in our study 12% of farmers bury packaging, this percentage is different from that obtained by Abdou Kader Congo (2013) in his study at the Loumbila dam which establishes a percentage of 28.86% of farmers.

Based on our observations in the field, regardless of the level of education, the length of time in agricultural practice and the age of our investigations, they do not know the importance of protecting the environment in which they live. We can affirm this and recognize it in view of the way they manage empty packaging.

4.5. Socio-economic factors

Our work shows that 63% of cases (n= 144) protect themselves against 37% who do not adopt any protection. Since PPE serves as a barrier against exposure to pesticides by ensuring different routes of exposure to these products, it is necessary to always wear PPE appropriate to the degree and nature of the risks of the type of pesticides used. In addition, 33.96% of respondents who do not wear PPE say PPE is not available and 24.52% insist that PPE is expensive. This could lead us to understand that many at least have the will to use them, but the cost and availability prevent them from doing so. This could also be a factor favoring their exposure. 26.42% of farmers think PPE is troublesome and 15.10% of farmers find PPE useless. This leads us to believe that these people are the ones who not only have not been to school, but have also not received any training on the use of pesticides. It could also be ignorance and negligence on the part of our respondents who declare through their words (n = 15) "We feel suffocation during the use of these clothes". The other factor of exposure is the lack of income as one of the participants acknowledges: "complete personal protective equipment is expensive for me because I do not yet have a good agricultural income".

Among the farmers who claimed to protect themselves, we find a quarter of women and three quarters are men according to our observations. In this locality women are the ones who take more care of their bodies in terms of health, just as we have noticed that men aged 65 and over are the ones who take more precautions regarding their protections through the wearing of PPE. This could be explained by the fact that farmers in this age group are the ones who are financially well and care about their health, despite the low level of education of some of them.

4.6. Social representation of pesticides

At the heart of this etude, we have noted the façon which farmers are present the pesticides of the processes agricultural. Agriculture is an activity through which farmers expect to obtain good production at the end of the agricultural season. Farmers use phytosanitary products to protect their crops from disease and devastation in order to achieve a good harvest, which is sometimes synonymous with good sales among them. This is the reason why our informants have oriented their representations on two axes: 1) pesticides as a source of production and 2) pesticides as a source of production surrounded by danger. Farmers expecting good agricultural results use the products. It is on this subject that Julien Delon (2015) in his Master's thesis entitled: The use of phytosanitary products in the agricultural environment: the representations and rationalities of farmers, declare "it is a product that makes it possible to produce" these remarks will be supported by the statement of an investigator who participated in the same study. "Anyway, it's either you treat or you have nothing" Julien Delon (2015:34). But some of these farmers have remained convinced that these products are important but dangerous for their health. This is how some farmers who participated in Julien Delon's study (2015), say: "this week we only heard about Roundup which would be bad for health, cancers etc." "It's poison for me" Julien Delon (2015:34).

As far as cultivation practices are concerned, pesticides are considered as economic sources and as a working tool facilitating their rural tasks, just as the results of a survey conducted by IRAD (2021) are similar to ours. One of the respondents claims that "pesticides are chemicals, but for the poor like us, they are our oxen or our hoe." The phytosanitary products through herbicides are compared to a working tool as he notes: " I do the direct sowing with herbicides because I lack the means to afford a pair of draught oxen ".

CONCLUSION

Agrarian practice is experiencing considerable growth in the department of Lekie in general and in Ebebda in particular. But the latter faces different difficulties. Beyond the productivity of this activity, it must be recognized that there is a safety issue, particularly with the use of pesticides in the fight against pests. The intensification and modernisation of agricultural production coupled with the careless use of plant protection products are toxicological and environmental risk factors. As part of this article on the risk factors related to pesticide use among farmers in the District of Ebebda, the overall objective was to determine the risk factors associated with pesticide use in this locality. This objective allowed us to identify the different factors that influence the use of pesticides in the locality

of Ebebda. We can therefore recognize according to the field data that we have the socio-demographic factors that are expressed through the low level of education of farmers, the lack of training related to the use of pesticides, negligence, ignorance, lack of knowledge related to pesticides poor management of empty packaging, misuse of water points. In addition, we have the socio-economic factors that are the lack of financial means, negligence. In the end we have the social representations of pesticides which are the habits and idea made on these products. The results of this research are a contribution alongside the efforts made so far by the Cameroonian government to combat the misuse of agricultural pesticides.

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