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RESEARCH ARTICLE

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THE USE OF PESTICIDES BY FARMERS IN THE COMMUNITY OF VARJOTA, ARACOIABA – CE

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ABSTRACT

The term pesticide rather than crop protection came to be used in Brazil to denote agricultural poisons. Pesticides are chemicals used in agriculture, in order to combat pests, pathogens and organisms that compromise agricultural production. But the indiscriminate and inappropriate use of these products may cause potential risks not only to the ground as the entire food chain, and especially in Public Health. In this sense, the improper handling of pesticides is a major cause of health problems in the field. Farmers spraying pesticides on crops is exposed to highly toxic products. From the recognition of the negative effects of a potential contamination with pesticide health of the local population and the environment, this study aims to analyze the perception of farmers in relation to biosecurity in the use of pesticides in Varjota community, EC. For that were applied questionnaires to communal farmers, approaching the level of knowledge and level of understanding about biosecurity practices in pesticide handling. The analysis of results showed that most farmers do not read beyond the labeling of pesticides, most also do not understand the information contained therein. Moreover, most do not make the return of empty containers of pesticides. One of the observed positive aspect is that most farmers use the PPE and make triple washing of packaging. It was observed that all respondents wish to have an educational follow-up in relation to handling, application and practice the correct use of agrochemicals by the Agriculture Department.

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INTRODUCTION

The term pesticide instead of "agricultural pesticide" began to be used in Brazil to name agricultural poisons. Brazil dumps more than one million tons of pesticides in crops each year, which would give, on

average, five kilos of agricultural poison per person. Since 2008, Brazil occupies the first place in the world ranking of pesticide consumption, while in the last ten years the world market of this sector grew 93%, in Brazil, this growth was 190% according to data released by ANVISA (National Agency for Sanitary Surveillance).

Those who deal directly with crops are more subject to intoxication, but exposure to pesticide residues in food and the environment, usually at low doses, can affect the entire population. To combat invasive pests are used chemicals, these products are the most used by farmers to increase agricultural productivity. The application of pesticides can contaminate soil, rivers, resulting in environmental degradation and consequently causing damage to our health and animals. The use of pesticides in rural Brazil has brought a number of consequences, both for the environment and for the health of rural workers. For farmers who spray their crops using coastal pumps, exposure to pesticides is direct, dermally and nasally, and even using all protective equipment, routinely suffer acute intoxication, add to this the fact that, in the long run, constant exposure to these products can lead to chronic intoxication. The harmful effects of the use of pesticides on human health can be acute or chronic. Acute effects occur from a single exposure and usually at high doses, since the effects are considered chronic from exposures to low doses over time. One of the problems that has been discussed and researched today regarding the exposure of organisms to the use of pesticides, is contamination by indirect routes, where organisms are exposed to pesticides by ingestion of water and contaminated food. There are some measures to reduce the use of pesticides in food products as the use of natural products that are less aggressive to man, animals and the environment, especially insecticides of plant origin. Plant extracts emerge as a research object and are an alternative in integrated pest management. Plants of regional occurrence and easy availability for farmers will be selected. The consumption of organic foods, which do not carry any type of pesticide in its cultivation, is an alternative to protect itself from pesticides. Consequently, there is a need to minimize the impact of these products on the environment and human health. In this sense, from the recognition of the negative effects of a contamination by the use of pesticides on the health of the local population and the environment, this work aims to evaluate the level of knowledge of users of chemicals in the practice of agriculture.

MATERIALS AND METHODS

The work was carried out with farmers who live in the community of Varjota, in the municipality of Aracoiaba-Ce, and who are associated with the Community Association of Residents of Varjota, today with the number of 30 associates. The community has approximately 200 inhabitants with an area of 20 km². The community is formed by small sites, five of which are larger and which are responsible for the entire plantation of the community. They are sites: Sítio Lima, Sítio Recanto, Sítio Varjota, Sítio Bezerra, Sítio São Francisco. In these sites the predominant crop is the planting of corn, beans, sugarcane and 3 years ago the early seasmith plantation was incorporated. A quantitative and qualitative research was carried out, with documentary research, field research, interviews and questionnaires. In the documentary research of the community, we sought to know their formation, history and situation. This part of the activity was integrated together with interviews with five farmers who are the owners or responsible for the sites, interviews with ten questions. The questionnaire was composed of 10 questions, subdivided into four parts, which were:

- | | |
|--------|--|
| Part 1 | Producer profile, containing three questions; |
| Part 2 | Information aspects on pesticides, containing three questions; |
| Part 3 | Knowledge handling, application and storage of pesticides, with three questions; |
| Part 4 | Safety aspects, with a question. |

The data were tabulated and analyzed through descriptive statistics in Microsoft Excel, version 2010.

RESULTS AND DISCUSSION

Ten farmers in the community of Varjota, aracoiaba, answered a questionnaire. Of these, 5 are owners and 5 are employed. Regarding

education level, only 3% had completed high school, 8% complete Elementary School II, while 89% had studied until the fourth grade or never studied. Socioeconomic factors such as educational level, reading and writing skills and family income are often associated with inadequate use of pesticides. The questionnaire on the meaning of pesticides, farmers answered mostly what this term meant, 85% of farmers answered that it is poison. Peres et al. (2004) reveals that a large part of rural workers recognize the damage to health caused by exposure to pesticides and identifies this practice as the main problem related to agriculture. Most of the interviewees store these products in a closed place and far from the reach of children, food and water source. As shown in Figure 1.

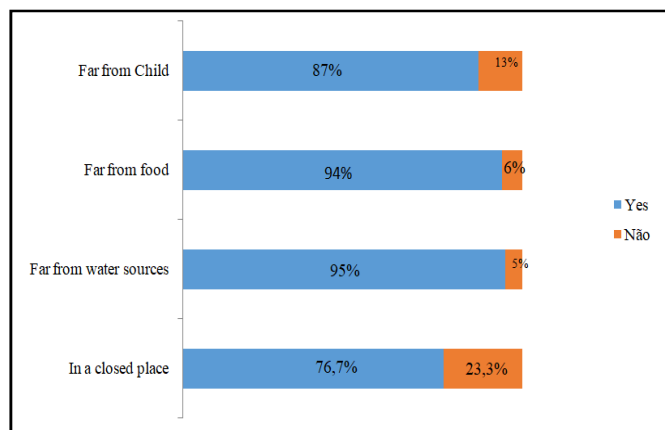


Figure 1. Safety factors considered in the definition of the storage site of pesticides

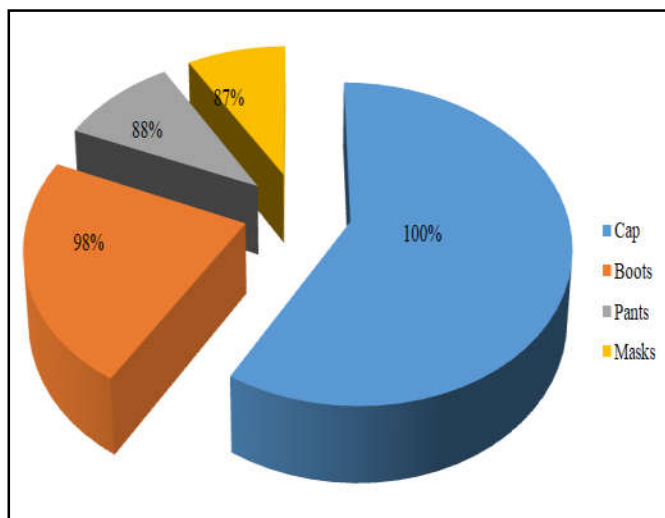


Figure 2. Percentage of Personal Protective Equipment by farmers

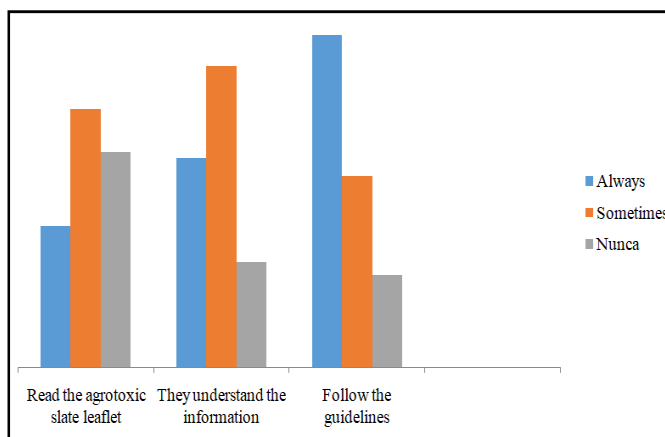


Figure 3. Understanding the leaflet of pesticides by rural workers

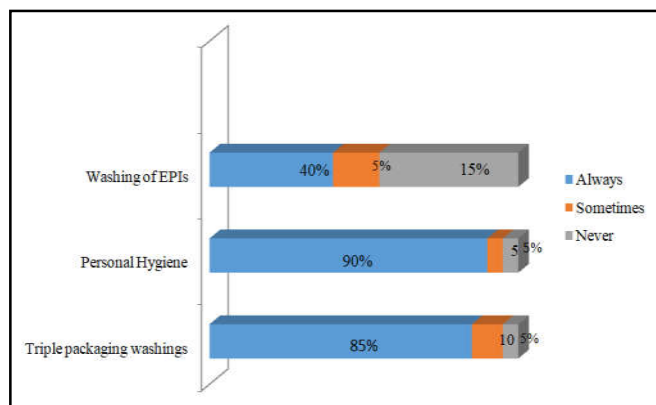


Figure 4. Hygiene practices performed after the application of pesticides

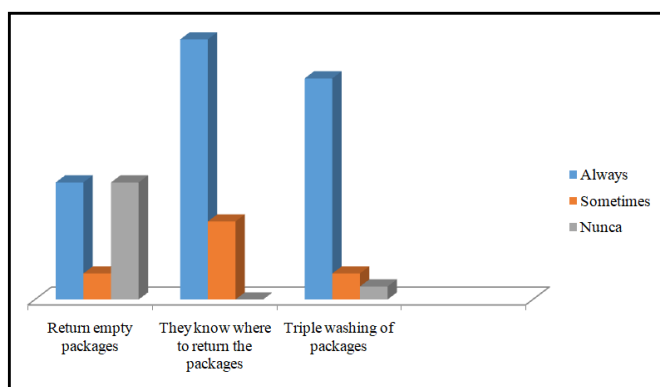


Figure 5. Information and practices related to the washing and disposal of pesticides

Of all respondents, 92% use some type of personal protection (PPE), while 8% do not use anything. Figure 2 shows that, of this total that uses PPE, 98% wear boots; 87% wear masks; 88% wear pants; 100% wear cap. Soares et al. (2003) relates that the unprotected farmer has the chances of intoxication increased by 72%, and those who come into contact with the product in a time interval less than 15 days have 43% more chances of intoxication. Of the interviewees, 65% seek in the technical assistance offered by the companies the information necessary to make the purchase of pesticides. Regarding the agronomic prescription, 97% of the interviewees reported that they never consulted an agronomist for a prescription. Of the interviewees, 77% of farmers read the leaflet of pesticides, plus only 35% understand all the information and 48% follow it, which can be found in Figure 3. After the application of pesticides, most of the interviewees take the necessary care in relation to the washing of personal protective equipment and personal hygiene, shown in Figure 4. In relation to the washing of empty packages, Quintela (2004) relates this practice with the reduction of contamination risks, protection of the environment and also allows the full use of the product. According to Figure 4, 85% of the interviewees perform triple washing. In addition, all the farmers interviewed demonstrated to be aware of the return of the packages, more of these only 45% make the return.

It is known that agriculture is the basis of food, since it is through it that all food is produced and supplied. Agriculture has two axes: traditional agriculture and modern agriculture. Traditional agriculture is one that does not have the use of technologies, large machines, that is, it is the one that uses ancestral techniques, while modern agriculture uses technology, and is based on the greater number of production, leveraged by the "Green Revolution", according to Dias (2009). From 1950, post-war period, with the advent of the "Green Revolution", we observe the changes of traditional agriculture, as well as the impacts caused to the environment and human health. London (2011) states that with the "Green Revolution", modern practices expand, use machines, genetically modified seeds and appear the use

of agricultural pesticides (pesticides). As a result, millenary agricultural practices, of a more complex nature and involving the use of crop rotations and biological pest control, were labeled as technologically old-fashioned. In Brazil, the public policies of several governments demonstrate this trend. That's why the country is now according to several researches, one of the largest producers of pesticides in the world. Faced with these public policies for modern agriculture, small farmers in the interior reach new management techniques and agricultural practices. In the 1960s, Brazilian agriculture underwent rapid and profound transformations. Until then, the technologies derived from the Green Revolution were still little adopted here, which implied a relatively small use of agrochemicals such as fertilizers and pesticides. However, the financing policies recommended by the State and the foundation of research institutions that should create and make available new technologies to interested farmers have led to the substitution of traditional cultivation products by others, considered more dynamic, such as soybeans, in order to insert national agriculture into the world market. As a result, the use of these chemicals increased. According to Giraldo (2014), I answer the public policies of the "Green Revolution" within the agricultural modernization package granted rural credit to the use of pesticides. The concessions of loans focused on agriculture, and the tax incentives for agrochemicals, caused this branch to grow and thus the techniques and practices were modernized.

According to Peres and Moreira (2003), contamination affects not only people, but soil, water, and the entire environment. What is evident is the environmental, social and economic impact of the use of these products. As a result of the contamination of these natural compartments, organisms essential to the maintenance of ecological balance, such as pollinating bees, arthropods, earthworms, fungi and bacteria, are susceptible to a growing contamination, which often ends in the complete elimination of ecosystems, which, in turn, causes the decrease in the productivity of plants that were sought to protect with pesticides. The dispersion of pesticides in the air also causes the death of other species, such as birds. Among the various impacts of this agribusiness production chain, the most relevant for the health of the workforce, the population and the environment are acute and chronic pollutants and intoxications related to pesticides. When making the use of these poisons, where the target are pests, insects, ants, it is not only crops that are hit, plus the whole environment, workers, the population. It is known that there is no non-toxic pesticide and that according to studies, only 10% of them reach the target and the rest goes to the ground, air and water, According to Alves Filho (2002). Scorza Junior et al. (2010) explain that pesticides are applied directly to plants or soil, and even those applied directly to plants have as final destination the soil, being washed from the leaves through the action of rain or even irrigation water. In the conception of Aragon (2002), many rural workers are not able to interpret labels of containers of chemicals, which results in poisoning of the environment, farmers and consumers. Worse than not knowing how to read these labels correctly, most of the time there is no correct collection of these containers and they are reused, even to put liquids such as water and milk inside.

CONCLUSIONS

The knowledge of rural workers regarding aspects related to the understanding of information related to manipulation, storage, disposal is inadequate. Only 23% of workers usually read or ask someone to read the package leaflet and only 34% understand all the information contained in the package leaflet. In addition, most do not have an agronomist to clarify and prescribe the correct form and pesticide for the purposes they want. Another very relevant fact observed in the research was that all interviewees complain about a lack of education policy by the municipal department of agriculture and a better monitoring of these practices of the use of pesticides, through visits by agricultural technicians and even agronomist, another fact reported by all and not having an education to encourage the return of packaging. In view of the above, urgent decisions are needed to clarify and raise awareness among farmers, instructing and

alerting the population about risks of toxicity and informing about the correct use of pesticides.

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