

Use of Agrochemicals on Cost of Family Health with reference to Giradurukotte Divisional Secretariat

H. A. T. Hettiarachchi¹ and G. A. T. Nimeshika²

Introduction

Around the globe, chemical-synthetic pesticides have been used increasingly since the 1940s. In recent decades, there has been a steady increase in the amount of pesticides marketed for agricultural use. In developing countries, the effects of acute poisoning due to exposure to dangerous levels of pesticides in food are apparently more severe than in industrialised countries. Their use leads to considerable health hazards for people, due, for example, to direct contact during application, pesticide drift from fields, or contamination of food or drinking water. The use of pesticides in production of rice, banana, and vegetable is high in Sri Lanka. When effectively applied, pesticides can kill or control pests, including weeds, insects, fungi, bacteria and rodents. Chemical pest control has contributed to dramatic increases in yield for most major fruit and vegetable crops. On the negative side many pesticides are harmful to the environment and are known or suspected to be toxic to humans. They can produce a wide range of adverse effects on humans that include acute neurologic toxicity, chronic neurodevelopmental impairment, cancer, reproductive dysfunction and possibly dysfunctions of the immune and endocrine systems. The increase of cancer, chronic kidney disease, diabetes mellitus, heart diseases suppression of the immune system, sterility among males and females, neurological and behavioral disorders, especially among children, have been attributed to chronic arsenic poisoning. (Tchounwou et al., 2003. Tseng et al., 2003; Rahaman et al., 2003; Meliker et al., 2007; Kozul et al., 2009; Vahter, 2009). Arsenic in drinking water, usually in its inorganic form, is known as the silent, slow killer because its presence is not revealed by taste, odour, or colour of the water. Groundwater is the main source of drinking water in many countries around the world. In rural Bangladesh and India (West Bengal), the presence of arsenic in groundwater has endangered tens of millions of people (Chakraborti et al., 2010). The risk of health problems depends not only on how toxic the ingredients are (Pesticide Ingredients), but also on the amount of exposure to the product. In addition, certain people like children, pregnant women and sick or aging populations may be more sensitive to the effects of pesticides than others. Therefore, the Government should take several steps to reduce few chemical applications.

¹ *Temporary Lecturer, Department of Economics, University of Kelaniya. Thusha.hettiarachchi@gmail.com*

² *Temporary Lecturer, Department of Economics, University of Kelaniya. gatnimeshi@gmail.com*

Problem Statement

Pesticides contain active ingredients and inert substances that are potentially dangerous to human health and environment as well as being costly farm inputs. Exposure to some active ingredients can increase the risk of contracting Cancer, respiratory problems and other health problems. The aim of the study is to identify the impact on family health cost due to agrochemical use in rice/paddy farming.

Methodology

The research has used published scientific articles, conference papers on sustainable agriculture and food safety, reports and books on agriculture, and on the use of pesticides. The study also conducted an excessive review of Government documentation, newspaper/internet articles that were relevant to the objective. This study was descriptive in nature. The study was a combination of quantitative research (survey) and qualitative research (interview) method. In the survey, 100 farmers who are living and working in Giradurukotte Divisional Secretariat were selected randomly. They cultivated rice twice yearly. Each season is called a *kanna*. There are two such seasons each year: the *Yala* and the *Maha*. The data of this research is based on the *Yala* season. After the survey was completed, data was processed in SPSS for statistical results. Line graphs, percentages, tables and correlation have been used to present collection data. Correlation between the usage of pesticides and expenses of family health was measured. The significance of correlation was examined under the 95% confidence level, and two hypotheses were created.

H0: There is no correlation between use of agrochemicals and cost of family health.

H1: There is a correlation between use of agrochemicals and cost of family health.

Findings

According to the study, farmers used agrochemicals such as Paracott, urea, Nomini, and Round up. In the study we have tested the correlation between two variables: the use of agrochemicals and cost of family health. The value of the correlation was +0.66. According to research the people who were living in this area had to spend a high percentage of income on health. The reason for this was the high number of family members, a majority of whom suffered from kidney disease. The survey identified that 70% of farmers in this area suffered from kidney disease. The monthly health cost of the selected sample was therefore increased from Rs. 2 000 to Rs. 20 000. The doctors have said that long term pesticide usage was the main reason for kidney disease. Moreover they say that long term pesticide use could

contaminate soil and water, and result in arsenic over time. Thus, water resources have been polluted with arsenic. This is the reason for the increased incidence of kidney disease, and also the cause of increased health cost. Farmers have not taken precautions by sustainably handling their empty pesticide bottles, as they were not aware of environment-friendly pesticides. They were not cultivating crops in a sustainable manner and preferred to purchase fast-acting pesticides. They also do not comply with dosages recommended on the pesticide bottle, because they want to see immediate results on the crops. They cultivate according to their own experiences, irrespective of sustainability and even the safety of food production, because they don't get incentives from the Government. They feel that incentives and good policy are the key to successful agriculture, and that they need support from the Government.

Conclusion and Recommendations

In this study we examined the correlation between two variables. They are, the use of agrochemicals and cost of family health. It had a positive relationship. The value of the correlation was a +0.66. A majority of the people who were living in this area have suffered from kidney diseases, and also have low educational levels. Thus it is an urgent need to divert more resources to consolidate these findings and to plan and implement strategies to contain environmental pollution, particularly of ground water, soil, and plants with arsenic derived from agrochemicals. Rainwater harvesting for drinking purposes, promoting natural and traditional methods for pest control, public awareness over chronic toxicity of arsenic and potential risks in agrochemical-based agriculture to remove arsenic in groundwater and soil may be prudent immediate measures in addressing this issue. According to this, the following recommendations are proposed;

- the surveyed farmers in Giradurukotte are made aware of the fact that it is important to handle pesticides in a responsible manner,
- that information can be spread further about pesticides, pests and diseases, and that
- the government should introduce quality pesticide for the farmers.

Thus, it is the prime duty of relevant authorities to take immediate measures to implement those laws and regulations and protect Sri Lanka and Sri Lankans from this accumulative non-threshold carcinogen.

Key words: Agrochemical, Cost of Family Health

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