

# Preliminary Survey on the Health Effects of Pesticide Exposure among Farmers in Nueva Ecija and the Cordillera Administrative Region

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## **Abstract**

The Occupational Safety and Health Center, in line with its research agenda, conducted a survey on the health effects of pesticide exposure among vegetable and rice farmers on May 30-June 3, 1999. The survey included ocular inspection of selected farm areas in the Cordillera Administrative Area (CAR) and Nueva Ecija and pilot testing of structured questionnaire.

A total of 39 rice farmers from Quezon, Nueva Ecija and 85 vegetable farmers from the Cordillera Administrative Area (CAR) responded to the questionnaire. The research team also did physical and laboratory examinations. Adult and some child farmers were examined.

The questionnaire was developed to elicit information relating to the farmers sociodemographic profile; work activities; knowledge; attitudes and practices regarding the use, handling and storage of pesticides and personal protective equipment (PPEs). The questionnaire also extracted information on the effects or manifestations felt by farmers while handling/after using pesticides.

Preliminary results showed that farming in the Cordilleras involved all family members. The farmers in both areas have low awareness on the hazards and effects of pesticide use. Training and education relevant to chemical exposure and control were noted to be deficient. Information on the chemical properties of pesticides being used were hardly given by pesticide distributors.

Most farmers were not aware of the three possible routes of exposure such as: oral ingestion, inhalation and most commonly skin absorption. Appropriate personal protective equipment were not used due to financial constraints and lack of information on their importance. Improvised PPEs (rubber boots, head caps, long pants) were commonly used by the farmers not for protection against pesticides but for avoiding too much sun exposure. Proper storage and disposal of pesticides were not considered a necessity.

The interview likewise showed that the workers experienced symptoms such as headache, dizziness, cramps, numbness of fingers and toes and lumbar pains, palpitations and chest discomfort. Most of the farmers related discomfort to chemical exposure and work activities in the farms.

To assess pesticide exposure, adult and some child farmers underwent biologic monitoring. Pesticides such as organophosphates and carbamates, most commonly used by vegetable farmers are capable of acting as irreversible inhibitors of the enzyme cholinesterase. The decreased level of cholinesterase activity in the plasma or the red blood cells is a reliable indicator for pesticide pre and post-exposure. Plasma cholinesterase level were determined, test for significance of mean differences revealed statistically non-significant mean differences ( $p=0.97$ ). Liver and renal function tests were also determined since pesticides are known to compromise the functions of several organ systems.

Pilot testing the questionnaire revealed the following issues: the questionnaire was lengthy, nonetheless, the language used was simple. Some

queries were redundant, some items regarding chronic effects of pesticide exposure need to be modified. The questionnaire cannot be self-administered but will be conducted as questionnaire-guided interview. Some portions are to be translated to the local dialect, for it to be well understood by the subjects. Queries regarding reproductive health and childhood diseases be expanded to allow inclusion of women and children participation in the study.

With the preliminary survey, the OSHC, aims for a more comprehensive study on pesticide toxicity and its effects on the safety and health of farmers including their spouses and children. To create nationwide awareness on safety and health in the agricultural sector and to contribute to the formulation of timely, relevant and appropriate policies and legislation for workers in the agricultural industry.

The research proposal and questionnaire have been drafted to include all those who work in the farms (adult men and women and children). Two agricultural towns in the Cordillera Administrative Region have been identified for the continuation of this study.