HEALTH HAZARDS OF PESTICIDES USAGE IN GHANA:
THE CASE OF VEGETABLE GROWERS IN THE AKUMADAN DISTRICT

J.O. FENING

Soil Research Institute, Kwadaso-Kumasi, Ghana

Summary
A survey of pesticide usage by vegetable growers in the Akumadan district of Ghana was conducted through field observations and the use of standard questionnaires. Results revealed that pesticide application is regarded as a matter of mixing something out of a container with water and squirting it onto a target in the firm belief that the more you put on, the more likely it is to remove the offending problem. Consequently, the type of pesticide used, concentration applied, frequency of application, handling etc. did not matter. The result is that pesticide poisoning accidents are common. Sixty-seven percent (67%) of the farmers interviewed frequently experienced mild poisoning with symptoms such as headaches, dizziness, fatigue etc. Ignorance of the potential side effects of pesticides and the desire for increased returns from investment were the main causes of these health problems. Possible recommendations are suggested.

Introduction
Pesticide usage in Ghana continue to increases as agricultural production intensifies. Parallel to these trends however, the dangers caused by pesticides continue to receive much less attention than they deserve. The result is that procedures recommended for the safe handling of pesticides are no more followed conscientiously. It is estimated that about one million cases of unintentional pesticide poisoning occur every year in developing countries, with about twenty thousand deaths (Martin, 1991). Most of these are due to occupational exposure, particularly of farm labourers.

Aside occupational poisoning, studies of many environmental mutagens have led to the conclusion that pesticides can introduce considerable damage into the human gene-pool. The majority of mutations induced may be recessive and of little significance to the individual carrying them, but when brought together at the time of conception, they may produce harmful effects to the developing embryo (Barnes, 1969).

No segment of the general population is therefore completely protected against exposure to pesticides and its potential serious health effects. This paper gives a report of the health hazards of pesticide usage among vegetable growers in the Akumadan district of Ghana.

The Akumadan district falls within the Forest Savanna Transition zone of the country and is noted for the cultivation of various vegetables: tomatoes, pepper, garden eggs, onions, etc. (Amankwata, 1990), which require the use of pesticides for the control of insect pests and diseases. Besides, pesticide distribution companies (Chemico, Reiss & Co. etc.) revealed that sale and uses of pesticide in the district is high (Fening, 1991). The district was therefore thought to be most appropriate for the study.

Methodology
Two basic levels of data collection were followed:

i. Interviews with standard questionnaires.
Twenty farmers randomly selected were interviewed in each selected village. Usually, at every village covered, the village head summoned the farmers together and a cross section of them were selected to answer the questionnaires. Ten villages in the district were covered.

In the questionnaire, respondents were asked to provide information on type of
The pesticides used, knowledge on pesticide application procedures, concentration applied, handling, spraying regimes, use of protective devices, disposal, poisoning, etc.

ii. Group interviews and farms visits were carried out alongside the sample survey to obtain additional information on issues difficult to address in standard questionnaire.

Results and Discussion

Farmer's Background

Most of the farmers interviewed (77.8%) were between the ages of 18 and 38. This indicated that the greater proportion of the youth were engaged in vegetable production. Unfortunately however, the majority (64.2%) of these young and healthy farmers were illiterates.

Probably, either the work was so lucrative that they find no need to go to school or the work needed no skills which ought to be learned at school.

Seventy-eight percent (78%) of the farmers were males, while twenty-two percent (22%) were females. Thus, females were also actively involved in the vegetable production. The greater percentage of the farmers (62.4%) cultivated not more than 0.4 ha of plot. The reason given was that the cost of production was high (chemicals labour and fertilizer). Almost 78% of the farmers cultivated tomatoes, 8% pepper, 4% onions and 10% a mixture of the three. Tomatoes was therefore the major vegetable cultivated.

All the farmers interviewed used pesticides and fertilizers. The most widely used pesticides were insecticides and fungicides. Weedicides were hardly used. The common insecticides were; Karate, Roxion, Cymbush, Uden, Arkotine, Perfekthione and Thioldine. The fungicides were mainly Diathane M.45, Champion and Kocide.

Handling

Improper handling was observed to be the primary source of health hazard. Handling of the pesticides was generally poor, partly because the farmers were less informed about the toxicity of the chemicals or otherwise. All the farmers interviewed obtained their chemicals from the open market.

Due to high cost of the chemicals, (as claimed by the farmers) the majority of them (74.2%) bought the chemicals in small quantities. Any household container (empty bottles, plastic containers etc.) were used to purchase the chemicals, some of these containers had no proper stoppers. The powdered products (such as Diathane and Champion) were observed to be handed with bare hands during mixing of the chemicals. Empty pesticide containers were not thrown away but re-used in buying other chemicals.

Application Practices

Another source of health hazard was the application procedures. About 80% of the farmers used mist blowers which they claimed could spray better and faster. While using these machines however, no protective devices were worn, (Wellington boots, gloves, respirators, etc.). Surprisingly, some (38.9%) of them were ignorant of the use of protective devices. Most of them (68.6%) saw no need to use protective clothing. Any casual clothing was also worn during spraying. No wonder it became known while interviewing them that 67.5% of them frequently experienced mild poisoning with symptoms such as headaches, dizziness, itching and fatigue. These could result from pesticides getting into them through the skin, respiratory organs, and mucous membranes. The majority (62.4%) of the farmers attached no importance to washing of the hands and face with soap before eating, whilst spraying.

The use of household containers (buckets and barrels) for mixing chemicals at the farms and the subsequent using of bare hands in fetching chemicals into spraying machines were also sources of health hazards. Again, the concentration and frequency at which the chemicals were applied was also a health hazard. The farmers believed that action of the chemicals
depended upon the strong smell. Consequently, majority (89.5%) of them applied their products at higher concentrations (when the smell could be well appreciated). The farmers also believed that the more one sprayed the better the yield. Hence, spraying was done as frequently as possible, even when the fruits were mature.

It was not surprising therefore, that some harvested tomato fruits were seen with taints of Diathane. With such practices, pesticide residue in harvested fruits cannot be ruled out, and this is also a health hazard.

**Conclusion and Recommendation**

The prevention of poisoning by pesticides is determined to a large extend by the strict observance of instructions and personal hygiene. Work with pesticides must therefore be performed with great care, attention and precision. The results of the survey indicated that farmers knowledge about pesticides and hazards related to their usage is poor. To increase farmers knowledge on such subjects as pesticide toxicity and hazards, application procedure etc, it is suggested that educational programmes should be mounted and encouraged.

The toxicity of pesticides to humans, and their ability to remain in the environment and accumulate in the products obtained require the establishment of strict scientifically substantiated recommendations, norms restrictions and regulations for each pesticide in order to ensure their effective and safe application. The recommended rates of pesticides must be strictly enforced. Crops should be treated with pesticides only if there is a real danger of yield depression. Special attention must be given to strict observance of the harvest time. The results of the survey also reveal the need for surveillance of pesticide residue in food crops and water bodies to evaluate the extent of pesticide pollution.

**References**


