

PESTICIDE HANDLING -- ITS DANGERS AND THE SAFETY MEASURES THAT NEED TO BE ADOPTED

K. Thirugnanasuntheran

(Research Officer, Entomology Division, Tea Research Institute of Sri Lanka, Talawakele)

Why do you use pesticides in tea estates? The tea plant is affected by various types of insects, nematodes, diseases and is also subject to competition by weeds. Unless these are kept in check it could lead to great economic losses. One of the many measures adopted to prevent this loss is the usage of pesticides.

Pesticides are of four kinds. They are:

- (a) Insecticides
- (b) Nematicides
- (c) Fungicides
- (d) Herbicides

They come in different forms, namely:

- Solids - grains, powder
- Liquids - concentrated, dilute
- Gases - smoke, fumigant

The pesticides generally used in tea estates are:

(a) Insecticides

Lebaycid
Furadan
Lannate
Dipterex
Kelthane
Morestan
Tedion

(b) Nematicides

Nemacur
Currater
Basamid
Methyl bromide
Terracur

(c) Fungicides

Peronox
Copper sandoz
Cobox
Cocide
Baycor
Calixin
Tilt
Benlate

(d) Herbicides

Grammoxone
Diuron
Simazine
Dalapon
MCPA
2,4-D
Glyphosate

Pesticides are used on tea plants in various ways. Spraying of pesticides is carried out to control insects attacking the tender shoots of tea, to prevent diseases and to eliminate weeds. For these purposes, the knapsack sprayers and mist-blowers are used. To control nematodes and the white grubs (cockchafers) which mainly attack the tea roots, soil treatment with pesticides is carried out. To prevent the spread of diseases like *Poria* and to sterilise the nursery soil, soil fumigation is adopted. All the pesticides used are poisonous. Since pesticides are used on a large scale in the plantations, the workers and the estate environment face many health hazards. The workers who handle these pesticides do not have an adequate knowledge of the pesticides they handle. Therefore, they are ignorant of the many dangers which they and their environment face. When they handle certain pesticides, either in the form of vapour or gases these enter the respiratory system of the workers and as a side effect, this may lead to many respiratory diseases in workers. Some of the pesticides when handled carelessly are liable to be absorbed by the skin, hands and legs. The poisonous substances absorbed into the system are cumulative and retained in the body of the workers. This may lead to diseases of the heart, kidneys and skin. Some of these vapours and gases when exposed to the eyes, may drastically affect the eye sight of workers.

Many of these health hazards could be prevented by educating the workers before hand on the proper handling of pesticides. The workers should be made aware of the dangers that may arise on the careless handling of pesticides. It is important that the authorities should instruct the workers handling pesticides on how to use them carefully and safely, by means of lectures, films, television shows and pamphlets. Through these means, an awareness of health hazards to which the workers would be subjected to by the careless handling of pesticides could be instilled in them.

The most important environmental pollution caused by pesticides is the pollution caused to water resources. Generally, the workers wash all equipments used for the spray of pesticides in common drains and water reserves and empty the remaining contents of pesticides into the water. The people and animals who may use this water are exposed to various health hazards. Generally some estate workers use water from streams, spouts, lakes and channels for their daily chores like cooking and washing. These water reserves when they are polluted by pesticides cause a slow poisoning of the community which uses such water. On many estates fresh water fish rearing is carried out in water reserves found in the estates. If such waters are polluted by the careless washing of spray equipment or by spillage of pesticides it could lead to the death of a large number of fresh water fish. The birds and animals which drink this water too could face serious hazards. Therefore it is very important to see that water reserves are not poisoned by the careless handling of pesticides.

The dangers and accidents caused by pesticides are mainly due to carelessness and ignorance. A knowledge of the different ways of handling these pesticides will prevent most of the above said health hazards. Some of the measures to be observed in the use and handling of pesticides are listed below:

- (1) Pesticides should be used only when it is absolutely necessary. The use of pesticides should be advocated only when there is severe outbreak of pests or diseases.
- (2) The workers who handle pesticides should strictly follow instructions given on the labels of the containers of pesticides.
- (3) Small children have a tendency to use empty pesticide cans as their toys. They little realise the dangers they face in using such containers. As such, pesticides should be kept out of reach of children.
- (4) Pesticides should be kept far away from animal sheds and their food stores.
- (5) Some workers have a habit of selling the pesticide containers for a small consideration and those who buy them use these containers to buy cooking oil and to carry water for their household purposes. The poisonous substances in these containers remain and as such the use of pesticide containers for any purpose should be totally abolished. The best way to do this would be to completely destroy and bury all pesticide containers immediately after their use. If the workers would only realize the dangers to which they expose their brethren they would never resort to such irresponsible practices.
- (6) When handling concentrated pesticides workers should be careful not to spill them. Many of these concentrated pesticides are very volatile and are easily diffused into the air, as fumes.
- (7) Those handling pesticides should wear protective clothes such as gloves, masks, coats and boots. In this way, they can prevent the absorption of pesticides into their bodies to a great extent.

- (8) The estate workers are always in the habit of chewing betel and smoking while working. When they smoke or chew betel while handling pesticides the poisonous particles on them have a greater chance of being absorbed into their system. As such, smoking and chewing betel should be totally prohibited while handling pesticides.
- (9) Pesticides should not be sprayed when there is heavy blowing. When pesticides are sprayed during a strong blowing they will not reach the target but instead will drift by the wind to non-target areas and would contaminate the body of the workers. Therefore it is advisable not to spray pesticides when there is strong wind.
- (10) Once the workers finish their task of spraying they should wash their body and clothes using soap.
- (11) It is preferable to employ a larger gang of workers for handling pesticides from among whom teams of workers could be changed at regular intervals on a roster basis. This practice will prevent to a great extent the same group of workers being exposed to the hazards of pesticides.
- (12) After the use of pesticides, if there is any pesticide remaining, the content and the container should be buried in deep trenches or the excess, if any, may be diluted and sprayed.
- (13) The equipments used should be washed far away from human habitation with water taken in a vessel.
- (14) Unexpectedly these workers may consume the poison and may vomit or faint. In such instances, the workers should know basic first aid to give his fellow worker. If they are taught first aid techniques it would prevent many untimely deaths or at least give some respite to the victims till medical attention could be obtained. A course in first aid instructions to workers will prove very valuable under such conditions.

- (15) If an unconscious worker cannot be brought back to consciousness by first aid, he should be taken for medical attention immediately. Delay in such instances could be fatal.
- (16) Many workers have home gardens in their backyards where they use many of the above pesticides and consequently they could face dangers due to improper usage. In such instances also, the workers should follow the above preventive and protective measures in handling pesticides. The period between pesticide spray and harvest should be strictly adhered to with at least a safe interval of two weeks elapsing after spraying and before harvesting. If they are careless the poor consumers of such harvests would be faced with various dangers to their health.

In conclusion, everyone should be aware of the dangers in the use of pesticides. This awareness will help to avoid many of the health hazards caused by pesticide handling.