

MANAGEMENT OF PESTICIDE CAUSED CRISIS IN SERICULTURE

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In the process of implementing modern agricultural practices for higher yields, one has to avoid loss of yield due to pests and predators. In the process, usage of chemical pesticides has become a part of modern day farming and sericulture is no exception.

Silkworms get affected by a number of diseases caused by various protozoan, bacterial, viral and fungal agents. Farmer is bound

In the process of using pesticides in mulberry garden or silkworm rearing house, the farmers may get exposed to them inadvertently. The author suggests a few first aid tips that could help reduce the intensity of poisoning and save the life.

to use one or the other chemical formulations to control such diseases. Besides, he also use chemicals for disinfecting the rearing room/appliances, to clean the floor after every feeding, to wash hands/feet before entering rearing room and to maintain hygiene. Most commonly used chemical formulations in sericulture are Zineb,

Maneb, Captan, Blitox, Bavistan, Dithane M-45, Dithane Z-78, Plantavax, Triforine, Karathane, Moreistan and Quintozene.

In the process of using, there is every chance that the farmers may get exposed to these pesticides inadvertently. It may be at times, fatal. Hence, it would be worthwhile for the persons handling the pesticides to have some basic knowledge about them an idea of first aid measures, to avert the situation.

Pesticide poisoning

Though the mode and mechanism of pesticide action on human body differs with various pesticides, there are some general symptoms like:

Mild poisoning: Headache, feeling of nausea, dizziness, fatigue, irritation of skin, nose, eyes and throat, perspiration, loss of appetite.

Moderate Poisoning: Vomiting, blurred vision, stomach cramps, difficulty in breathing constricted pupil of the eyes, excessive perspiration, trembling, twitching of muscles, fatigue and nervous distress.

Severe poisoning: Convulsions, respiratory failure, loss of consciousness and pulse.

Depending upon the symptoms, one can also suspect the causative agent. For example,

the symptoms of organophosphorus and carbamate poisoning are generally headache, giddiness, nervousness, blurred vision, dizziness, weakness, nausea, cramps, diarrhoea, chest discomfort, sweating, pinpoint eye pupil, watering of eyes, excess salivation, rapid heart beating and vomiting. While the advanced stages could result in loss of bowel control, loss of reflexes, unconsciousness etc., it may be noted that not all symptoms may appear at all times.

Organochlorine pesticide poisoning shows nervousness, nausea and diarrhoea. The nitrophenol pesticide poisoning shows fever, sweating and rapid heart beat. The arsenic poisoning is generally identified by stomach pain, vomiting and drop in blood pressure. Mercury poisoning generally shows delayed effects. First as tingling of fingers, tongue, lips, shakiness etc. Bipyridylum items such as paraquat, diquat etc., also show delayed effects.

As anticoagulants are used in most of the rodenticides, if such type of chemicals enter the human body, they reduce blood clotting ability, which will result in damaging capillary blood movement and lead to nose bleeding, massive bruises etc. Permethrin or pyrethroid's entry into the human body results in skin allergy, sneezing, runny nose and stiffness of the nose.

Stychnine poisoning leads to nervousness, stiff muscles of face and legs, cold, sweat, fits etc. Nicotine poisoning causes local skin burning, irritation, depression etc. Direct contact with rodenticide like rotenone causes irritation of skin, nose etc. Similarly when the fumes of fumigants used in the rearing room enters human body, it causes various bronchial problems.

First aid

As most of the mulberry gardens and silkworm rearing houses are away from clinics/hospitals or even an access to medical help, it is advisable for the farmers to have some basic knowledge of first aid before actual medical aid is availed.

Speed is the essence in the treatment of any pesticide related incidence. A quick and efficient first aid will avoid pesticide exposure from becoming a pesticide poisoning. Though a layman can provide first aid to the patient, medical aid should be sought at the earliest. Further, it is important to leave the treatment to a qualified doctor only.

General first aid measures for pesticide exposure are:

- Remove the patient from source of contamination
- Remove contaminated clothing and wash/bathe the patient with plenty of soap and water.
- Keep the patient calm, comfortable and warm.
- Identify, as accurately as possible the product(s) associated with the exposure. If possible, ask the patient. Save the

container, its label, leaflet etc., to be shown to the doctor.

- If breathing is stopped, provide artificial respiration.

Depending upon specific poisoning, one has to undertake specific action. For example, oral exposure, when the pesticide enters the body through mouth, it poses considerable danger to the person. Under such circumstances, if patient is conscious, induction of vomiting is advisable, which can be done by making the patient to drink one to two litres of salt water and tickling the throat. Such kind of induced vomiting should be preceded by administration of suitable demulcent such as beaten egg, milk of magnesia, which helps to release the throat irritation caused due to vomiting.

If the pesticide has entered the human body through skin, first thing one should do is to remove the contaminated clothes, wash the exposed surface of the skin with plenty of water and soap. In case of entry of the pesticides into eyes wash the eyes thoroughly with clean fresh water. Pesticide exposure through inhalation which happens most of the time, while working in closed and poorly ventilated areas, first step is to remove the patient from the place of exposure and take to open place to get fresh air. Clothes surrounding throat, chest, abdomen and head should be loosened or removed. If needed, artificial breathing may be provided.

If the patient is unconscious, the respiratory passage must be kept clean by turning the patient to one side with head extended and lower than the stomach. Remove any vomit or food from his mouth

by using your finger, if necessary and ensure that the patient breaths properly. When convulsions are occurring as a result of pesticide exposure, see that patient does not hurt himself, by keeping him away from walls and other sharp objects. To avoid patient biting his tongue, place a tightly folded, clean handkerchief/cloth between his teeth. Do not hold the patient tightly during convulsions.

Antidotes

Many antidotes are generally used for pesticide poisoning. For example, Atropine, Pralidoxime (2-PAM) are used as antidotes for organophosphate or carbamate poisoning. Barbiturates are used to control the convulsions. Vitamair (Phytonadione) is preferred antidote for anti-coagulants. Similarly, Calcium gluconate is given intravenously which is effective against organochlorine insecticides. Dimercaprol (BAL) is recommended for arsenic poisoning, which is generally given intravenously. Amyl nitrite inhalation is useful against poisoning of hydrogen cyanide, calcium cyanide and sodium methylthouracil as antidote to reduce basic metabolic rate of the body in case of dinitrophenol pesticides such as DNOC or Dinoseb.

Caution

It is very important to note that, though one can give first aid to the patient, calling of qualified doctor immediately and providing him all the necessary information will help to take necessary steps for early recovery of the patient. Further, all medication should be done by qualified personnel only.

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