

252

PESTICIDE POISONING

Recognition – Treatment – Prevention

A Reference Guide for Farmworker Outreach Personnel



Resource ID#: 4729

Pesticide Poisoning: Recognition-Treatment-Prevention: A Reference Guide for Farmworker Outreach Personnel



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Clearinghouse
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March 1976

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INTRODUCTION

Farm work is the third most dangerous profession in the United States, only construction and mining accounting for more work-related deaths (1970). Of the many hazards associated with agricultural employment, one of the most serious, yet least recognized, is exposure to agricultural chemicals.

Considering the whole range of chemical substances used in agriculture, the greatest risk to most farmworkers involves pesticides (chemical insect killers) and herbicides (chemical weed killers). Exposure occurs primarily among farmworkers mixing, diluting, or mechanically applying these chemicals to the fields and crops, and farmworkers making skin contact and/or breathing residual fumes of such chemicals as they perform hand weeding, thinning or harvest operations on the crops.

This guidebook is designed for persons assisting farmworkers, whether independently or in connection with a social service program or agency. Its purpose is to acquaint the outreach worker with the major symptoms of pesticide poisoning, some emergency treatment in pesticide accident situations, and precautionary measures to help farmworkers avoid injury from agricultural poisons.

RECOGNITION OF PESTICIDE POISONING

It can be said with reasonable certainty that each year many farmworkers in the United States suffer the adverse effects, sometimes temporary, sometimes permanent, of poisoning by pesticides because either they themselves or someone around them failed to recognize the signs of overexposure to these chemicals. This section will describe the physical effects of poisoning by three common classes of pesticides, followed by a brief discussion of herbicides.

Pesticides

A great variety of pesticides are used in agriculture. However, the majority of commonly used pesticides belong to one of three groups: Organophosphates, Carbamates and Chlorinated Hydrocarbons. On the following pages are listed some common trade names, general characteristics and typical symptoms associated with each category of insecticide.

ORGANOPHOSPHATES

I. *Common Trade Names*

- | | |
|----------------|------------------|
| *1. Bidrin | *12. Guthion |
| 2. Ciodrin | 13. Malathion |
| *3. Demeton | 14. Mevinphos |
| 4. Diazinon | *15. Parathion |
| 5. Dicapthon | 16. Phorate |
| 6. Diomethoate | *17. Phosalone |
| 7. Dioxathion | 18. Phosphamidon |
| 8. Disulfoton | 19. Pyrethrins |
| *9. EPN | 20. TEPP |
| *10. Ethion | 21. Toxaphene |
| 11. Fenthion | 22. Trichlorfon |

*These pesticides are especially toxic.

GENERAL SYMPTOMS ASSOCIATED WITH PESTICIDE POISONING



HEADACHE



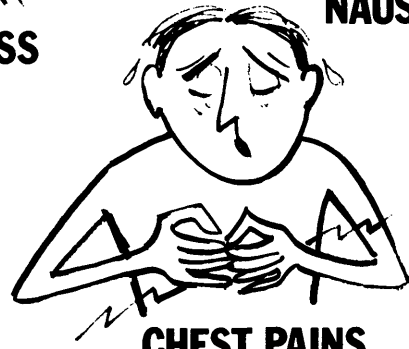
GIDDINESS



NAUSEA



BLURRED VISION



CHEST PAINS

ADVANCED SURE SIGNS OF POISONING



SWEATING



PINPOINT PUPILS



DROOLING



VOMITING

Photo: U.S. Department of Agriculture

- II. *General Characteristics*
 - 1. Many are highly toxic to humans.
 - 2. Readily absorbed through the skin; poisoning can occur without the chemical having been breathed in or eaten.
 - 3. Degenerate relatively rapidly; little accumulation in soil and streams; most of this pesticide has decomposed by time of harvest.
- III. *Typical Symptoms of Poisoning*
 - 1. Weakness—Victim feels weak and unable to perform usual activities.
 - 2. Headache
 - 3. Sweating—Persists after physical exertion ceases and appears abnormal under the circumstances
 - 4. Nausea and vomiting
 - 5. Salivation—abnormal or increased watering of mouth
 - 6. Pinpoint pupils-pupils of the eye appear very small, even when victim is out of direct sunshine.
 - 7. Shortness of breath—After exertion has ceased
 - 8. Difficulty in walking
 - 9. Diarrhea
 - 10. Twitching of muscles
 - 11. Speech difficulties
 - 12. Semi-consciousness
 - 13. Stomach pain
 - 14. Fever

CARBAMATES

- I. *Common Trade Names*
 - 1. Baygon
 - 2. Bux
 - 3. Carbaryl
 - 4. Carbofuran
 - 5. Methomyl
 - 6. Zectran
- II. *General Characteristics*
Work very much like organophosphates
- III. *Typical Symptoms of Poisoning*
 - 1. Light-headedness
 - 2. Nausea and vomiting
 - 3. Blurred vision
 - 4. Salivation—Abnormal or increased

CHLORINATED HYDROCARBONS

- I. *Common Trade Names*
 - 1. Chlordane
 - 2. Chlorobenzilate
 - 3. Dichloro-diphenyl dichloroethane
 - 4. Dieldrin
 - 5. Endosulfan
 - *7. Kepone
 - 6. Endrin
 - 8. Methoxychlor

* This pesticide is particularly toxic



Photo: U.S. Department of Agriculture

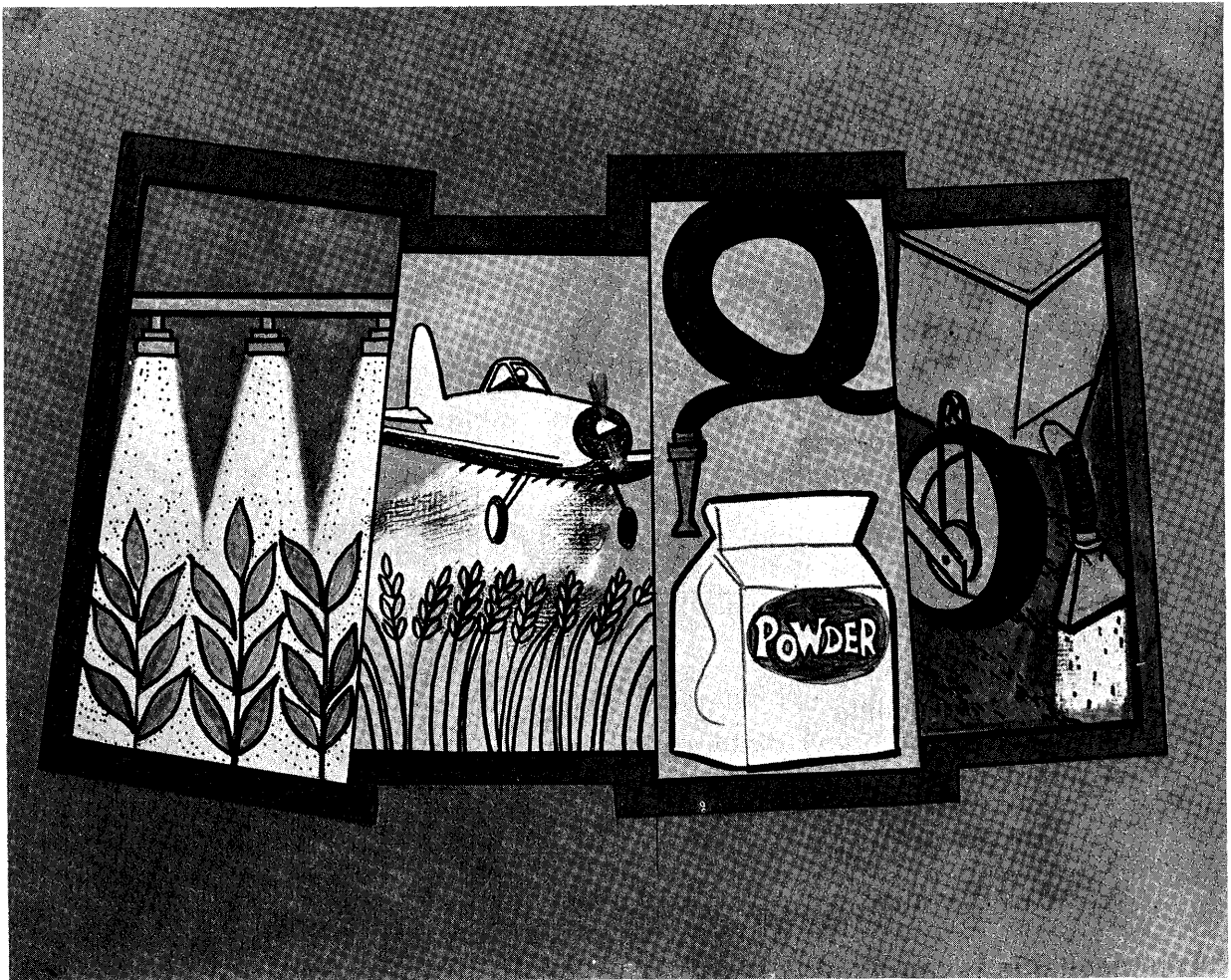


Photo: U.S. Department of Agriculture

II. *General Characteristics*

Very persistent; these chemicals gradually accumulate in the soil and water over a period of time

III. *Typical Symptoms of Poisoning*

1. Nausea
2. Mental confusion or semi-consciousness
3. Twitching of muscles
4. Weakness
5. Loss of appetite

As a final note, it is essential to understand that the symptoms of pesticide poisoning can easily be mistaken for those of a number of other health problems. By the very nature of their strenuous, outdoor work, coupled with often severe financial and environmental hardships, farmworkers are particularly susceptible to heat stroke and exhaustion (collapse and weakness due to exposure to heat), low blood sugar, stomach inflammation, respiratory infection, asthma and brain hemorrhage.

Many of these ailments have symptoms closely resembling those of pesticide poisoning. But, in addition to common bodily symptoms, *poisoning is likely if one or more of the following factors is present:*

1. It is known that the victim has been exposed to pesticides.
2. The known exposure occurred less than 12 hours before the symptoms developed
3. Other persons were similarly exposed and have developed the same symptoms
4. The victim is simultaneously experiencing several of the symptoms typical of pesticide poisoning.

Herbicides

With some exceptions, herbicides tend to be less toxic than pesticides to humans. Also, since weed killers are usually applied to the soil and not to the stalk and leaf surfaces of crops, there is less likelihood of exposure to herbicides by direct skin contact.

However, when workers are exposed by direct contact, most herbicides can cause skin rash and other skin problems, sometimes severe. Consequently, chemical weed killers should be considered potentially hazardous, especially to persons with a history of skin problems and to workers who might be exposed to these substances in an undiluted form.

TREATMENT

When a farmworker exhibits any one or a combination of the symptoms described above and any of the factors listed on page 8 is confirmed, he should be strongly encouraged to see a doctor as soon as possible. If the particular chemical to which the worker has been exposed can be identified, *always make an effort to obtain the label from the pesticide container and take it with the victim to the physician.* As with any other illness, the earlier the medical diagnosis of such poisoning occurs, the better the chances of successful treatment.

In cases of more serious pesticide accidents, rapid emergency treatment can save the victim's life. Get the person to a doctor and take the pesticide label with you. If it is impossible to get medical aid immediately, you may be able to help the victim as follows:

1. Remove him from the contaminated area.
2. If he has been poisoned by eating contaminated food and is conscious, get him to vomit (fingers down the throat).

3. Take off all his clothing; wash him completely with soap and water, including hair.
4. If he is unconscious make sure that nothing is blocking his breathing.
5. Give artificial respiration if he is unconscious and has trouble breathing.

PREVENTION OF PESTICIDE POISONING

Outreach workers should become aware of common causes of accidents to farmworkers by agricultural chemicals and try to help familiarize the workers with suitable preventive measures.

Probably the best sources of information on accident prevention in using pesticides is the label on the container itself. This information has been carefully developed by the manufacturer, in compliance with federal law. Some of the kinds of label information useful to the handler of pesticides and to medical personnel treating accident cases are:

1. *Common Name*

Many manufacturers use a brand name, but the common name will also appear on the label. The common name is the one that should be given to the doctor if someone is injured.

2. *Precautionary Statement*

This section of the label lists the hazards to man and to animals. Required protective clothing will also be described here.

3. *Statement of Practical Treatment*

Here will be found first-aid information for that particular pesticide. This information is especially important for the doctor treating an accident victim.

4. *Directions for Use*

This section explains when and how to apply the pesticide. It will also state how much to apply. If the product requires a waiting period before it is safe for workers to return to the field, that information will appear in this section. Instructions for the safe disposal of the container will also be found here.

The label will also tell how toxic the pesticide is, as follows:

1. Highly toxic—Skull and crossbones and the wording, "Danger—Poison"
2. Moderately toxic—"Warning"
3. Low-order toxicity—"Caution"
4. Comparatively free of danger—no warning

The following are some of the circumstances frequently associated with accidents among *individual hand field workers and crews*:

1. *Protective Clothing*

Failure to wear protective clothing because it is uncomfortable has led to cases of exposure to pesticides. Such clothing is especially useful in preventing poisoning by skin contact.

2. *Contamination of Food*

Food carried into a field treated by pesticides and herbicides can become contaminated and poison the worker. At the same time, workers and their children should be cautioned against eating the fruit and vegetable crops on which they are working without thoroughly washing the produce first.

3. *Smoking*

Cigarettes carried into a treated field can become contaminated. Since the fumes of some pesticides become more toxic when burned, these fumes can be particularly dangerous to the smoker when inhaled.

4. *Personal Hygiene*

The farmworker should bathe after working in a treated field. Since pesticides picked up on clothing may be absorbed through the skin, the worker

should not wear the same clothes for more than one day if he is working in fields where chemicals have been applied.

5. *Drift*

One of the most frequent causes of accidents for farmworkers in pesticide application is drift. Pesticides should not be applied to a crop when there is a high wind.

6. *Re-Entry into Treated Fields*

Because agricultural chemicals are much more easily absorbed on the skin and through the lungs when freshly applied to a field or crop, most manufacturers of insect killers are by law required to state on their products' labels a "minimum re-entry time." This is the minimum length of time a worker should wait before going into a field after it has been sprayed or otherwise treated with a pesticide.

Next are listed some of the common factors in pesticide accidents involving workers directly mixing and applying chemicals to the soil and crops:

1. *Transfer*

Many deaths occur when pesticides are transferred to unmarked containers such as soft drink bottles. Unaware of the true contents, children or adults can easily become poisoned by drinking from such make-shift containers.

2. *Storage*

Pesticides and/or equipment should not be left in unlocked sheds.

3. *Chemical Mix-up*

Pesticides and herbicides should only be stored in the original container, with the label intact. Otherwise, it may be mistaken by a worker for a less concentrated or less toxic product.

4. *Compatibility*

Some agricultural chemicals may be highly dangerous when mixed together. Label instructions should be followed carefully.

5. *Siphoning*

Workers should never attempt to transfer a liquid pesticide or herbicide by starting a siphon by mouth.

6. *Disposal*

Unrinsed pesticide containers have residues of the chemicals in their most concentrated form. In disposing of containers, the worker should follow the instructions on the label.

As an additional precaution, any person who works frequently with pesticides should talk with a doctor about the advisability of having periodic tests for exposure to these poisons. There are medical tests which can analyze the presence of agricultural poisons in the body and determine if their level is excessive. There are also prescribed medicines which are useful in treating certain types of chemical buildups, and a doctor may suggest use of such drugs in some cases.

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