



# COLORADO ENVIRONMENTAL PESTICIDE EDUCATION PROGRAM

Pesticide Fact Sheet #111  
CEPEP 5/00  
Updated 6/06

## RECOGNIZING PESTICIDE POISONING

L.G. Skoglund  
S.K. McDonald

This fact sheet covers how pesticides enter the body, and how to recognize signs and symptoms of pesticide poisoning.

<http://www.cepep.colostate.edu>

## Recognizing Pesticide Poisoning

The various types of pesticides formulated to control pests can be harmful to people and animals. While most of the pesticides pose little risk when label directions are followed, some are extremely toxic and require special precautions.

A wide range of toxicities exist among pesticides. **Toxicity** is the potential a substance has to poison humans, animals, or plants. Small amounts of certain pesticides can cause damage to the body. Accidental exposure or over-exposure to pesticides can have serious implications on the health of applicators. The potential for pesticide accidents is real!

### How Pesticides Enter the Body

**Oral ingestion** – The mouth and alimentary tract provide a route for pesticides to be absorbed. Such poisonings may occur because of an accident, but more frequently due to inexcusable carelessness.

**Dermal contact** – Absorption of pesticides through the skin is the most common route of exposure when handling and applying pesticides. Arms and hands are likely to come in contact with concentrated or diluted pesticides. The danger of skin absorption is greatest when the temperature is high and the skin is wet with perspiration. Skin abrasions and cuts also increase the risk of absorption. Absorption of pesticides can also occur through pesticide soaked clothes and from pesticides splashed into the eyes.

**Inhalation** – Aerosols, fog, smoke, and very fine dusts commonly contain particles easily breathed in. They can be absorbed by lung tissue and enter the bloodstream. Check the label to determine if you need to wear a respirator.

### Recognizing Signs and Symptoms of Poisoning

The most significant health hazardous pesticides are organophosphates, carbamates, bipyridyls, and fumigants. All pesticides within each group have similar effects on the human body.

#### ***Organophosphates and Carbamates***

Most pesticide poisoning cases involve either organophosphate or carbamates. These groups of pesticides are comprised primarily of insecticides. Effects of

poisoning are rapid, beginning shortly after exposure. With acute poisoning, symptoms may begin during exposure. When exposure is mild, onset may occur anytime up to 12 hours later, but usually within four hours.

### **Signs and symptoms of mild exposure**

- Headache, fatigue, dizziness, loss of appetite with nausea, stomach cramps, and diarrhea
- Blurred vision associated with excessive tearing
- Contracted pupils of the eye
- Slowed heartbeat, often less than 50 beats per minute
- Rippling of surface muscles just under the skin



In addition, the victim of **moderately severe exposure**

- Is unable to walk
- Often complains of chest discomfort and tightness
- Exhibits marked constriction of the pupils
- Exhibits muscle twitching
- Has involuntary urination and bowel movement

Incontinence, unconsciousness, and seizures suggest **severe poisoning**.

### ***Pyrethroids***

Systemic toxicity by inhalation or dermal contact is low. Dermal contact may cause skin irritation such as stinging, burning, itching, or tingling progressing to numbness. Ingestion poses little risk. Very large doses may cause lack of coordination, salivation, vomiting, diarrhea, and irritability to sound and touch.

### ***Bipyridyls*** (diquat and paraquat)

Paraquat causes permanent or even fatal lung damage. Contact with hands causes them to become dry and cracked, sometimes resulting in loss of fingernails. Inhalation causes nosebleeds. Eyes become inflamed and the cornea opaque. Other early signs and symptoms include:

- burning in the mouth, throat, chest and upper abdomen
- giddiness
- headache
- fever
- muscle pain
- diarrhea

Diquat does less damage to the skin, but it will cause irritations. Skin absorption is greater if skin is cut or has open sores. It has severe toxic effects on the central nervous system and causes kidney damage. Early symptoms include:

- burning pain in the mouth, throat, chest and abdomen
- intense vomiting and diarrhea

**Fumigants** (chloropicrin, methyl bromide, hydrogen cyanide)  
Headache, dizziness, nausea and vomiting are common early signs of excessive exposure. Some liquid fumigants cause skin injuries such as areas of redness or blisters that rupture, leaving raw skin and deep ulcers.

If you have been poisoned, call the [Rocky Mountain Poison and Drug Center](#) at 1-800-332-3073.

### **References and Resources**

*Recognition and Management of Pesticide Poisonings*, 5th edition.  
1999. U.S. Environmental Protection Agency, Washington, D.C.

[CEPEP Home Page](#)