

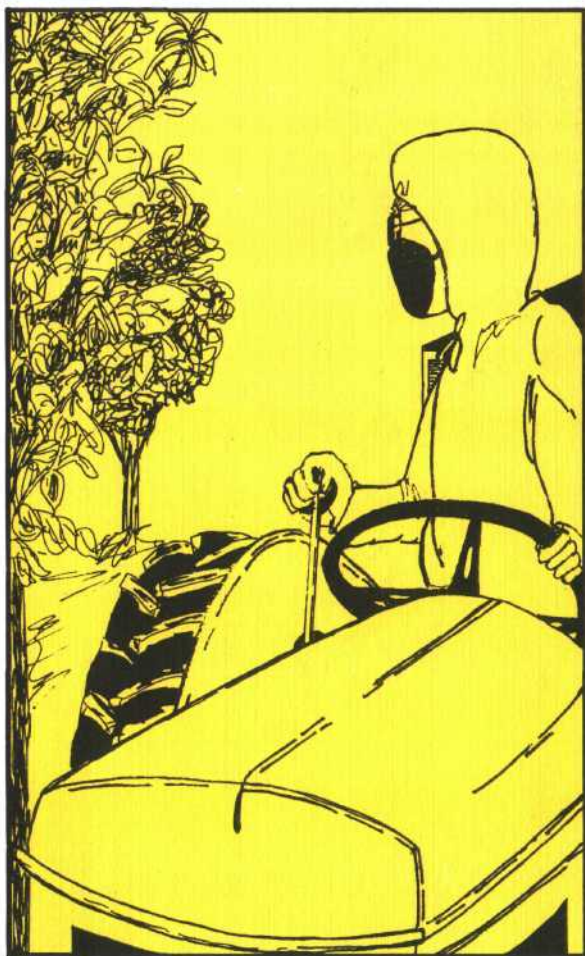
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Take Cover!

for pesticide spray protection



Cooperative Extension Service
Michigan State University

Take Cover!

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A hot day; hard work; bare-chested or thin-clad workers applying pesticides; chemical spray drifting near . . . Is this your farm or orchard? If so, you had better take cover!

Take cover while mixing and applying pesticides to protect your body from the often hidden and potentially dangerous effects of pesticide poisoning. Some pesticides are highly toxic, others much less so. However, wise and prudent handling of any chemical dictates precaution to minimize exposure.

Poisoning most often results from pesticides entering the body through the skin rather than through the lungs or digestive tract. Symptoms of pesticide poisoning range from headaches to vomiting and even death. You can minimize the dangers of pesticide exposure by wearing clothing that covers and protects your body.

Pesticide residues are absorbed through the skin at different rates on different parts of the body. Figures in the table below, obtained from a study of volunteers, show that you should take special care to protect the scalp, ear canal and forehead. A hat with a wide brim would serve to protect these three areas.

Anatomy	% Absorption*
Scalp	32.1
Ear Canal	46.5
Forehead	36.3
Forearm	8.6
Palm of Hand	11.8
Abdomen	18.4
Scrotum	100.0
Ball of Feet	13.5

*Parathion was used in this study

The abdominal area and waistline should be protected to prevent chemical access to the scrotum. Heavy denim such as jeans or coveralls is probably one of the best means of protecting this area at the present time.

If jeans are worn, the upper body should be protected with a heavy denim shirt or jacket. Scotch-guarding these items adds further protection from the penetration of pesticides.

In cool weather, a waterproof suit or raincoat is an

even more effective protective covering as long as the head is protected with a hat or hood.

Lightweight, natural rubber or neoprene gloves and boots should be worn inside shirt sleeves and pant legs to prevent spilled pesticide from running down onto the hands and feet. **DO NOT** wear leather gloves, boots or hats with leather hatbands, as leather is a very absorbent material.

Although you may not feel that you receive much pesticide exposure during normal operations, look closely at the drawings (page 2). They show the amount of residues found on workers' clothing after an air blast spraying operation at regular volume. All areas of the body received spray, with the heaviest deposition on the head, upper torso and arm areas, as well as the forearms and front lower legs. If you are guilty of being "bare" in any of these areas while applying pesticides in hot weather, you had better "take cover" next time. A wide brimmed hat, long-sleeved shirt and pants, boots and gloves are a must!

Laundering

Clothes worn while applying pesticides should be cleaned after every use. If you wear a waterproof suit or rain gear, hose off the outside of the garment with water. All other work clothing worn during pesticide use such as denim jeans, coveralls, shirts and jackets should be kept separate from other family laundry. Follow normal heavily soiled laundry procedures to remove the pesticide from these items. An extra rinse is also a good idea to be sure all residues are removed.

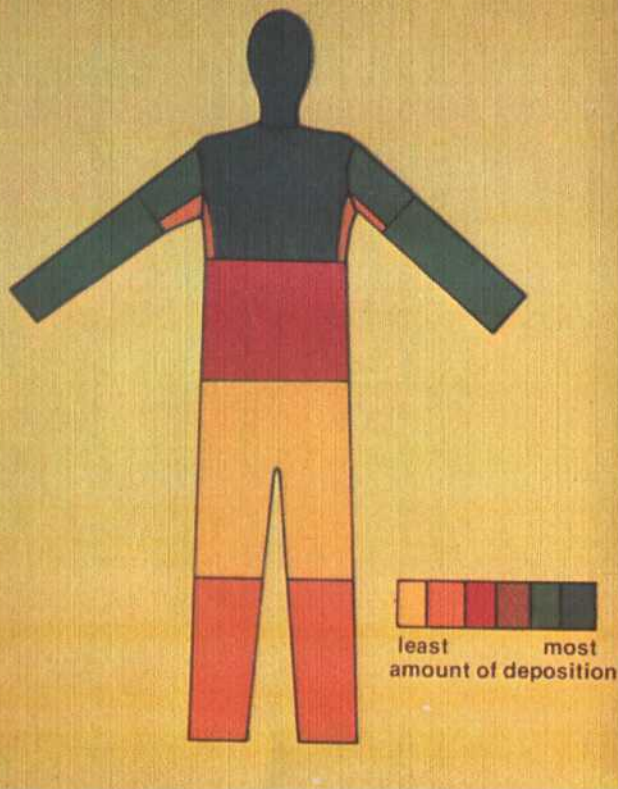
For the Future

MSU researchers are now working on a design for protective clothing that will keep wearers safe from exposure to pesticide residues and sprays and be comfortable to wear as well. Various fabrics and designs are being studied to determine where and in what amounts pesticides are deposited on clothing during spraying, as well as how much of the pesticide may penetrate through different fabrics to the skin. Although the final design of protective clothing is not yet complete, the results so far confirm the necessity of covering as much of the body as possible to protect against the absorption of pesticides through the skin.

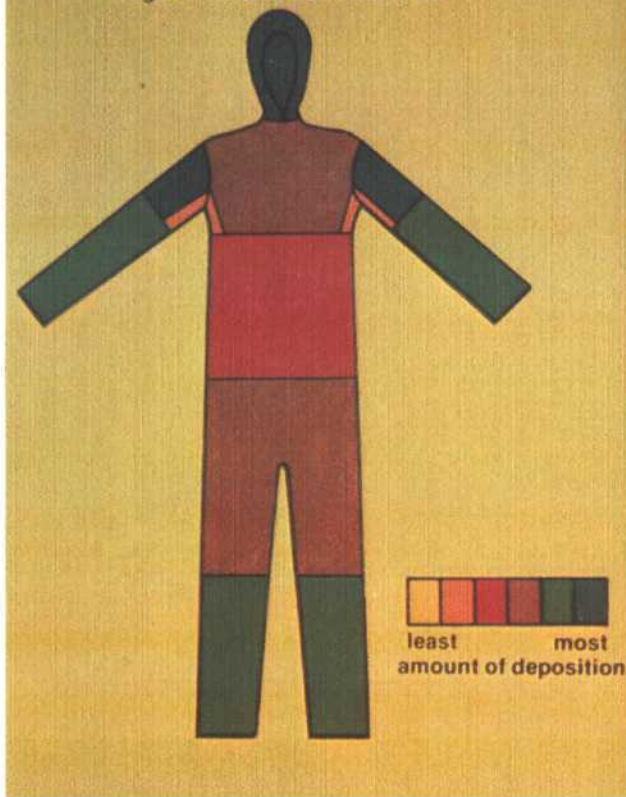
The next time you prepare to apply pesticides, remember . . .

TAKE COVER!

Regular Volume Garment Back



Regular Volume Garment Front



Distribution pattern of pesticide spray residues on workers clothing after air blast spraying at regular volume.

MICHIGAN STATE UNIVERSITY



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