Learn about pesticides and clothes

Few Iowans suffer acute poisoning from pesticide use today. This good safety record is possible because people are learning more about ways to minimize exposure to harmful chemicals.

Pesticides can enter the body through inhalation or accidental ingestion. However, the most common and least understood means of poisoning is through skin absorption. Whether liquid spray or granular, all forms of pesticide can soil your clothes, putting them in close contact with your skin where they may be absorbed. Granules may not stick to fabrics or leave evidence of soiling, but cotton fabrics may hold their pesticide residues.

Select the right clothing

Manufacturers’ precautionary statements on the pesticide label indicate the type of protective covering that must be worn to reduce exposure to pesticides. Under the Worker Protection Standard (WPS), the specific items listed will vary with the toxicity of the chemical. Regardless of toxicity, regular working clothing should be worn at all times around most chemicals. This includes underwear, a long-sleeved shirt, long pants, and socks. Most labels also specify chemically resistant gloves and boots. Other labels may specify use of coveralls, chemically resistant aprons, goggles, face shields, and respirators.

Clothing materials vary in their ability to resist penetration and permeation of pesticides. Cotton woven materials, such as heavy denim, may offer adequate protection from granular and dry formulations in limited exposure situations. For liquid sprays, chemically resistant materials or those with a chemically resistant finish offer more protection and can be worn over regular work clothing, especially for mixing and loading tasks. This publication outlines care for regular work clothing of cotton or cotton-blend materials, such as denim jeans that 90 percent of Iowa farmers wear for pesticide application. Other Safe Farm publications explain how to care for more chemically resistant materials and what to do with disposables.

Launder clothing carefully

Traces of pesticide remain on work clothing, even after washing. Careful laundering techniques, however, can reduce pesticide residue to extremely small levels, measured in parts per million or billion. Whether or not trace residues in clothing represent a health hazard to humans is unknown — pesticides remain biologically active in the cloth and can suppress enzymes and kill fruit flies or cockroaches.

Wear clean clothes daily. If pesticide gets on clothes that are already soiled or dirty, the pesticide will be more difficult to remove than from clean clothes.

Discard all clothing heavily soiled with full-strength or concentrated liquid pesticides.

Step-by-step methods

Follow these laundering practices for all cotton and cotton-blend clothing worn around pesticides. These methods will lessen your exposure to pesticides and leave the least amount of residue in clothing.

- Wear chemically resistant gloves to handle pesticide-soiled clothes.
- Keep pesticide-soiled clothing separate from other family clothes before and during laundering to avoid transfer of residues.
- Wash pesticide-soiled clothing daily, and as soon as possible after wear to maximize removal of chemicals.
- Pre-rinse or pre-soak in a separate tub, on

See answers on back.
the line with a garden hose, or in the pre-
rinse cycle of your washer; discard water
used for rinsing or soaking.
• Fill tub again with hot or warm water for
washing. Use cold water for the rinse cycle.
• Use a heavy-duty detergent, preferably
phosphate-based or liquid.
• Do not overcrowd the washer; wash only
a few items at a time.
• Use the highest water level setting, even
for small loads.
• Use the longest wash time cycle—at least
10 to 12 minutes—not a shorter knit cycle. If
your washer has a sudsover feature, never
use it for clothing soiled with pesticides.
• If possible, hang cotton and cotton-blend
clothes on the line to dry in the sun. Sun
helps degrade some pesticides.
• Before laundering family clothes, run the
washer through a complete cycle without
clothes to rinse pesticide residue out of your
machine. Use hot water and detergent.

Repeated or multiple washing before drying
helps remove more of the residue from
work clothing. After washing, check wet
clothes for visible staining, an unusual odor,
or color differences and repeat the washing—before clothing is dried. If a second
washing does not remove stains or odor,
discard the clothes.

About laundering additives
• Ammonia: Ammonia has not been
shown to help remove residues. Never use
bleach and ammonia in the same wash load;
toxic fumes result.
• Chlorine bleach: A three-hour soak in
chlorine bleach solution may help remove
chloropyrifos, but fabrics will be weakened
and color may fade. This has not been
shown to be effective with other pesticides.

For more information
When selecting clothes for pesticide safety,
two other Safe Farm publications may help:
Cover up with coveralls and aprons,
Pm-1563a, and Keep gloves handy for
pesticide work, Pm-1518e. For information
about the Worker Protection Standard, see
WPS: New rules for pesticide safety,
Pm-1563b, or ISU Extension’s1991 Private
Pesticide Applicator Study Guide. PAT-1.
All publications are available at your local
extension office. This publication is based on
these and other research articles:

- Limiting Pesticide Exposure through

Central Regional Research Bulletin #314,
available from North Dakota State
University, Fargo, North Dakota 58105.

- Raheel, M., (1988) "Dermal Exposure to
Pesticides." Journal of Environmental
Health 51 (2):82-84.

"Pesticide Residues in Clothing: A Case
Study of a Midwestern Farmer’s Coverall
Contamination." Journal of Environmental

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