



# Safe Farm

Promoting Agricultural Health & Safety

## Keep gloves handy for pesticide work

Field studies show that wearing gloves reduces pesticide exposure on your hands. If you think gloves are uncomfortable, clumsy, difficult to get on or off, and hard to manage, for safety's sake, think again. This publication may help you find gloves you like better.

### Choose the right glove

Precautionary statements on pesticide labels state whether waterproof or chemical resistant gloves are required. After that, the choice is yours. Cotton, canvas, and leather gloves are not acceptable for pesticide work. However, rose growers can wear leather gloves on top of chemical resistant gloves when thorns are a hazard.

**Pesticide formulation.** Suitable chemical resistant glove materials vary with the form of the pesticide. No glove resists all chemicals equally well.

The pesticide label may show a letter (A-H) that corresponds to glove materials in the *EPA Chemical Resistance Category Chart*. The Web address for this is [www.epa.gov/oppfead1/safety/workers/equip.htm](http://www.epa.gov/oppfead1/safety/workers/equip.htm).

**For liquid concentrates,** the glove must also resist the solvent. The materials most likely to be suitable are: fluorocarbon (Viton®), butyl, nitrile or barrier laminate (Silver Shield® or Norfoil®).

**For water-based pesticides,** wettable powders, or granular products, you can choose from a broader range of materials including: all of the above and natural rubber, neoprene, polyvinyl chloride (PVC) and polyethylene.

**Glove thickness.** Thicker gloves usually offer more protection because they resist tearing and puncture, but thickness can also reduce your grasping ability and manual dexterity. For pesticide work, suitable thickness varies with the material, the task, and how long it takes to do it. Glove thickness is measured in gauge (inches) or mils (1 mil = 0.001 inch). The higher the number, the thicker the glove. For neoprene, the typical thickness is 22 mil, but for nitrile, it may range from 11-22 mil. Some of the most chemical resistant gloves are very thin and meant to be worn a short time. Barrier laminates and single-use nitrile thicknesses are 4 to 8 mil but are intended to be worn 8 hours or less. If thickness and dexterity or grasping ability is a concern, put the glove on and test it by picking up a pencil or coin.

**Glove fit and length.** Your glove size should be the same as your hand measures in inches around your palm. If your hand is 9 inches around the palm, try a Medium and a Large size to see which works best for you.

- 5-7 Extra small
- 7-8 Small
- 8-9 Medium
- 9-10 Large
- 10-12 Extra large

**If too large,** gloves may be more clumsy and awkward to use and could get caught in equipment.

**If too small,** gloves must stretch, making them harder to get on and off and thinner, offering less protection. Also, they may tire your hands more quickly.

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### How much do you know ?

1. Chemical resistance of gloves depends on:
  - a) glove material.
  - b) pesticide formulation and contact.
  - c) thickness of gloves.
  - d) all of the above.
2. Gloves with linings or cotton cuffs are not recommended for pesticide use at all because they're difficult to clean. True or false?
3. You should always wear your gloves over the sleeves. True or false?
4. If your glove seems too clumsy, you could:
  - a) try a different size.
  - b) try a different thickness.
  - c) try a different brand.
  - d) all of the above.
5. It's always obvious when gloves need to be replaced. True or false?

See answers on back.

**Glove length** needs to change with your task. For most tasks, a glove must cover your wrist and probably should be about 12 inches long. You can get gloves that reach over your elbows if you need to reach into chemicals.

**Glove construction affects fit.** Gloves are made in either a handprint design that can be worn on either hand or by dipping a hand mold into the molten polymer. The latter provides for shaped gloves with curved fingers. Different manufacturers use different hand molds, so finger length, size, palm dimensions, etc. vary a lot. Try on sample gloves to find your best fit.

**Glove linings.** Unlined chemical resistant gloves are required by the Worker Protection Standard for Agricultural Pesticides. Research is underway about the effect of various linings with regard to comfort and cleanup.

**Wearing gloves.** Chemical resistant gloves do not help you if they are not available to wear when you need them. Keep several clean extra pairs in zip-close bags in the cab of your tractor or truck. After use, put them back in a bag, so they don't contaminate surfaces they contact.

Use common sense about wearing gloves over or under sleeve cuffs. Wear gloves over your sleeve cuffs unless you are working in a drenching spray from above. Then put gloves under your sleeves so the chemical doesn't run down your sleeve and arm into the glove.

**Taking gloves off.** Peel one glove off by grasping the cuff, then hold it wrong-side out in the ungloved hand as you peel off the other glove. Both will be wrong side out, with the contamination inside. Never pull gloves off with your teeth.

**Glove cleanup.** If possible, rinse gloves under running water before you take them off. Washing gloves can reduce contamination on the outside, but some may be retained in the thickness of the gloves. The health hazard represented by this is unknown. Flush gloves in running water, then wash the outside with soapy hot water if you intend to reuse them. Never put gloves in the washing machine because they will get contaminated inside and spread pesticide to other items via the wash water.

**Glove replacement.** All gloves must be replaced frequently. Pesticides can permeate glove materials without showing evidence of damage to the glove. You may not see any pesticide on them, but tests with fluorescent dyes have shown that gloves are easily contaminated during pesticide handling. Disposable gloves may only be worn a few minutes, then thrown away. Watch for the warning signs that show when reusable gloves need replacement:

- staining, or color change;
- softening, swelling, or bubbling;
- stiffening or cracking;
- dissolving or getting jelly-like; and/or
- leaking.

**Glove disposal.** Cut the fingers off gloves if you put them in the trash so no one else will be tempted to use them. Contaminated gloves may be handled in the same way as pesticide containers or bags.

Additional information is available at any county extension office:  
*Guard Your Hands with Gloves*, PM 1878, ISU Extension, June 2001 (this includes *EPA Chemical Resistance Category Chart*, which is also available at [www.epa.gov/oppfead1/safety/workers/equip.htm](http://www.epa.gov/oppfead1/safety/workers/equip.htm))  
*Wear the Right Gloves*, PM 1663c, ISU Extension, June 2000  
*Private Pesticide Applicator Study Guide*, PAT 1

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*No endorsement of products or firms is intended, nor is criticism implied of those not mentioned.*

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**... and justice for all**

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### What can you do?

Wearing the right kind of gloves and caring for them properly can protect your hands from contamination whenever you work with pesticides. Consider these tips as you select and care for gloves:

- Read your pesticide label's precautionary statements regarding glove use.
- Choose glove materials considering both the pesticide's active ingredient and formulation.
- Always keep several pairs of clean gloves handy.
- Keep contaminated gloves stored safely until cleaning or disposal.
- Replace gloves frequently.

Answers to quiz: 1-d; 2-True; 3-False; 4-d; 5-False



Safe Farm is an Iowa State University Extension project helping to make Iowa farms a safer place to work and live.

Check the World Wide Web at: <http://www.ae.iastate.edu/safety.htm> for more information.

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