DRESS FOR SUCCESS! (AND SAFETY WOULDN'T HURT EITHER)

Thia Walker
Extension Specialist – Pesticide Safety Education

Colorado Environmental Pesticide Education Program

How often do you handle pesticides?
- Transport from the dealer
- Moving into the storage facility
- Mixing/Loading the chemical
- Applying the chemical
- Disposing of the unused spray material

What are some of the ways to protect yourself?

Before the application:
- Know your product
- Read label & MSDS for product info
- Know when and what PPE to wear

What? Read that WHOLE label?
- Signal word
  - Risk level & toxicity level
- Choose the right formulation for the job

Other important info on that label...
- Routes of exposure
- Personal Protective Equipment (PPE)

PPE Requirements Vary
- Different categories of users may require different PPE:
  - Applicators/other handlers; mixers/loaders
  - Non-WPS vs WPS
Worker Protection Standard
Owner, manager, labor contractor, or consultant where pesticides used in production of agricultural plants

Does Not include:
- Ornamental gardens
- Golf courses
- Parks
- Right-of-way

Farms (sod farms)

So how DO you decide which PPE?

CONFUSED?

Let’s talk PPE...Gloves!

- Unlined...no fabric or leather gloves
- Should be chemically resistant & at least 14 mil thickness
- Choose based on label recommendations
- Should extend at least to forearm, longer for mixing and loading

Different formulations with the same ai. may require different PPE due to solvents

Pendulum® 2G

Precautionary Statements

Hazard to Humans
CAUTION

Carcinogenic: by inhalation. Harmful if absorbed through skin. Avoid contact with eyes, lips, or mouth.

Personal Protective Equipment (PPE):
- Use materials that are chemically resistant to the product as stated below. For your own safety, follow the instructions as stated in the Material Safety Data Sheet (MSDS) or on an EPA chemical resistance category selection chart.
- Applications and other workers must wear:
  - Chemical resistant gloves
  - Protective shoes
**Solvent Categories**

- **Category A**: For dry and liquid formulations
- **Category B**: For ketones: acetone
- **Category C**: For alcohol: methanol, isopropanol
- **Category D**: For acetates
- **Category E**: For aliphatic petroleum distillates
- **Category F&G**: For aromatic petroleum distillates
- **Category H**: For halogenated hydrocarbons

---

**Selection Category Listed on Pesticide Label**

- **Barrier Laminate Butyl Rubber**
- **≥ 14 mils**
- **Nitrile Rubber**
- **≥ 14 mils**
- **Neoprene Rubber**
- **≥ 14 mils**
- **Natural Rubber**
- **≥ 14 mils**
- **Poly-ethylene**
- **Polyvinyl chloride (PVC)**
- **≥ 14 mils**
- **Viton**
- **≥ 14 mils**

**Types of Personal Protective Material (EPA Chemical Resistance Category Chart)**

<table>
<thead>
<tr>
<th>Selection Category Listed on Pesticide Label</th>
<th>Barrier Laminate Butyl Rubber</th>
<th>Nitrile Rubber</th>
<th>Neoprene Rubber</th>
<th>Natural Rubber</th>
<th>Poly-ethylene</th>
<th>Polyvinyl chloride (PVC)</th>
<th>Viton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category A (Pendulum)</td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>Category B (Dimension)</td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>none</td>
<td>high</td>
<td>slight</td>
<td>high</td>
</tr>
<tr>
<td>Category C</td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>slight</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>Category D</td>
<td>high</td>
<td>high</td>
<td>moderate</td>
<td>moderate</td>
<td>none</td>
<td>slight</td>
<td>slight</td>
</tr>
<tr>
<td>Category E</td>
<td>high</td>
<td>slight</td>
<td>high</td>
<td>high</td>
<td>slight</td>
<td>none</td>
<td>moderate</td>
</tr>
<tr>
<td>Category F&amp;G (Prograss)</td>
<td>high</td>
<td>slight</td>
<td>slight</td>
<td>slight</td>
<td>none</td>
<td>none</td>
<td>high</td>
</tr>
</tbody>
</table>

**How to Wear Your Gloves**

- When spraying downward
  - sleeves over the gloves and fasten the cuffs
- When spraying overhead
  - sleeves inside the gloves
  - turn up the cuff of the glove to catch any material that may run down your arm

**After You Have Finished Your Work**

- To avoid secondary exposure & before removing the gloves:
  - Thoroughly wash the gloves with soap & water
  - Rinse with large amount of running water
  - Then remove the gloves
  - Thoroughly wash your hands and arms with soap & water

**Glove Use & Maintenance**

- Inspect gloves for visual signs of wear before each use—i.e. cuts, holes, abrasions, bubbling, cracking.
- Discard if there are any signs of wear
- Discard disposable gloves after use
- Triple-rinse gloves before disposal, then cut off the fingers to prevent reuse
- Keep an extra, clean pair of gloves in a zip-closed plastic bag in a location free of pesticides in case the pair you are wearing gets torn or contaminated
**Glove Use & Maintenance--continued...**

- Store contaminated, reusable gloves in zip-closed plastic bag until final clean-up or disposal.
- Keep pesticide-contaminated gloves separate from other safety equipment.
- Never try to patch gloves with duct or electrical tape.
- Do not leave pesticide-contaminated gloves on surfaces such as truck floor board, seat, bed.
- Never wear pesticide-contaminated gloves when feeding or watering livestock, harvesting fruits & vegetables or cleaning animal pens.

**Let’s keep talking PPE... Body Protection**

- Long-sleeved shirts & pants at the minimum.
- Coveralls should be chemical resistant if highly or moderately toxic pesticide used.
  - Chemical-resistant aprons should reach neck to knees.
- Always treat used PPE as if it were contaminated!

**Glove Summary**

- Always read the label to see what materials are resistant to the pesticide product.
- If the label does not specify a glove material select a barrier laminate, butyl or nitrile glove.
- Wear gloves that reach at least halfway to the elbow.

**Comparison of Coveralls**

<table>
<thead>
<tr>
<th>Material</th>
<th>Liquid proof</th>
<th>Splash protection class</th>
<th>Breathable</th>
<th>Relative Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyvek</td>
<td>NO</td>
<td>Only dry (granules &amp; powder) class III</td>
<td>YES</td>
<td>Low</td>
</tr>
<tr>
<td>MicroMax</td>
<td>NO</td>
<td>Splash/spray from class III</td>
<td>YES</td>
<td>Low</td>
</tr>
<tr>
<td>Kleenguard A70</td>
<td>NO</td>
<td>Splash/spray from class III</td>
<td>YES</td>
<td>Low</td>
</tr>
<tr>
<td>Tychem QC</td>
<td>YES</td>
<td>II, III, IV</td>
<td>NO</td>
<td>Moderate (&gt;$24)</td>
</tr>
<tr>
<td>Tychem SL</td>
<td>YES</td>
<td>I</td>
<td>NO</td>
<td>High (&gt;$50)</td>
</tr>
<tr>
<td>PVC reusable</td>
<td>YES</td>
<td>I</td>
<td>NO</td>
<td>High</td>
</tr>
</tbody>
</table>

**More PPE talk... Boots**

- Select unlined waterproof boots that reach at least halfway to knee.
- DO NOT use leather or canvas foot gear.

**PPE can be fashionable... Headwear & Eyewear**

- **Headwear**
  - should be chemical-resistant, wide-brimmed
  - coveralls with a hood...tuck in if not wearing it.
- **Eyewear**
  - Wear when pesticides may come into contact with eyes.
  - Should have chemical resistant straps (or change them frequently).
**Let’s talk respirators...**

- Check the label to see if required
  - Always when mixing/loading
- Or wear one if you will have lengthy or frequent exposures
- ALWAYS fit check your respirator prior to exposing yourself to pesticides!

**Create an PPE inventory in the off-season**

- Check label of pesticides you will be applying
- Get the right PPE before the season
- Label gloves and coveralls with appropriate Chemical R Categories

**During Applications**

**Stand upwind of all spraying operations**

**After the application...**

- Keep your PPE on until the job is done!
- Clean or dispose of your PPE properly
  - Dispose of PPE MARKED by ‘Warning’ or ‘Danger’ pesticides!
  - Clean, dry, and store PPE away from personal belongings
  - Replace cartridges on respirator
- Clean up yourself!

**Don’t take your work home!**

- If possible, shower and change to clean clothes and shoes at work.
- Reduce exposure in your home by:
  - Clean the vehicle you use to commute to work frequently
  - Remove work shoes & boots before going into the house
  - Remove work clothes in a less traveled area of the house
  - Launder work clothes separately from family laundry
  - IMMEDIATELY wash your whole body, including hair
  - Vacuum carpets & clean floors on regular basis

**Results from Ag Health Study**

- Analyze the impact of pesticide use on home health and safety.
- Chart 1: How much pesticide residue was found in the carpet dust?
BMP's for Pesticide Applicators
(take home message!)

- Read the label
- Select the best PPE for the job and take care of your PPE
- Think about your practices DURING the application
- Dispose of any excess spray material BEFORE you remove PPE
- Clean your PPE and then clean YOU!
- Don’t take your work home!

Contact Information

Thia Walker
Extension Specialist – Pesticide Safety Education
thia.walker@colostate.edu

Colorado Environmental and Pesticide Education Program (CEPEP)
www.cepep.colostate.edu

Phone: 970-491-6027