



Science For A Better Life

#### Worker Protection Standard Training An Industry Perspective

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Outline

#### Background

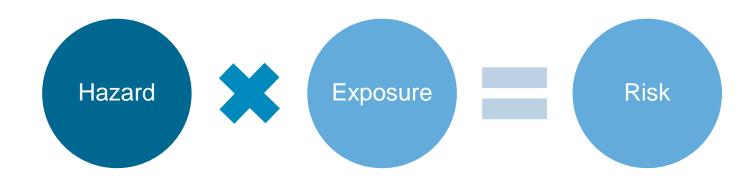
- Worker Protection Standard Revisions
- Risk Assessment
- Handler and Worker Exposures
- Handler Exposure Examples
  - Good and Poor Work Practices
  - Water Soluble Packets, Rinsing Containers/Stingers
- Key Training Messages



- Worker Protection Standard (WPS), 40 CFR part 170, established in 1992.
  - Recently EPA revised to further reduce occupational pesticide exposure and incidents of related illness among agricultural workers and pesticide handlers covered by the rule, and to protect bystanders and others from exposure to agricultural pesticide use.
- Final Rule published November 2, 2015 and effective January 1, 2016.
- One major goal of the revised WPS is to improve effectiveness of worker and handler training.
  - Workers and handlers will be required to receive pesticide safety training every year.



## **Risk Assessment**



- Knowing the toxicology (hazard) of a product is important however you can not change it, only refine it.
- Exposure is the part of the risk equation that we can control and so can the worker!
- Formulation, methods of application, application rates, protective clothing and equipment all affect exposure potential.



## Handler Exposure

- What is a handler?
  - Those who mix, load and apply pesticides





#### Worker Exposure

• Those performing hand-labor tasks in pesticide-treated crops, such as harvesting, thinning, pruning, etc.

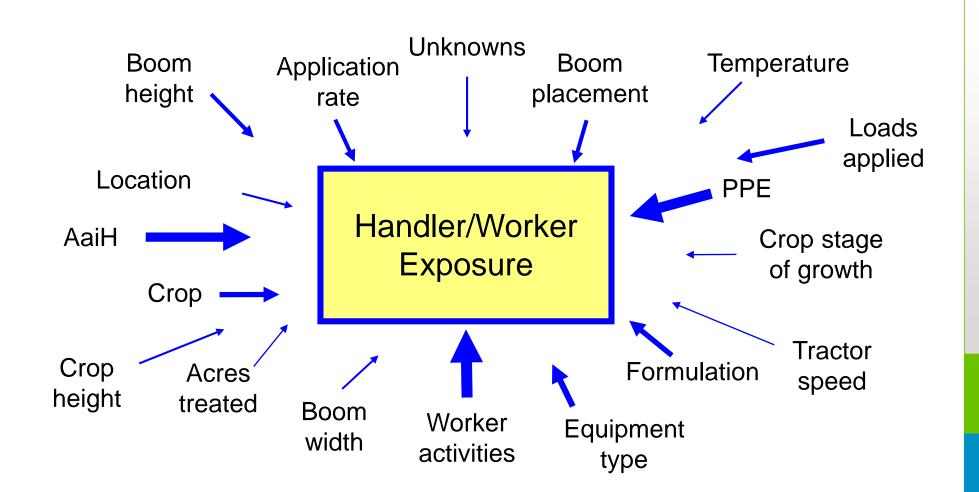




High Contact Activity

Low Contact Activity







## Exposure Task Forces

- Agricultural Reentry Task Force (ARTF)
  - Generated a proprietary database of generic agricultural reentry transfer coefficients
    - Can be used to estimate occupational exposure and risk in any scenario where a worker might contact treated foliage
    - EPA Policy 3
- Agricultural Handler Exposure Task Force (AHETF)
  - Generating database for mixer, loader, and applicators of pesticides for a variety of scenarios
    - Will complete 24 scenarios
    - Update most of PHED
      - So far 6 scenarios updated
      - open-pour M/L, dry flowable M/L, open-cab groundboom, open-cab airblast, enclosed-cab airblast, and enclosed cockpit liquid aerial



## Worker Reentry Exposure

- Growth stage, high contact vs low contact
- Leaf type effect on exposure
  - Residues more easily removed from waxy leaves







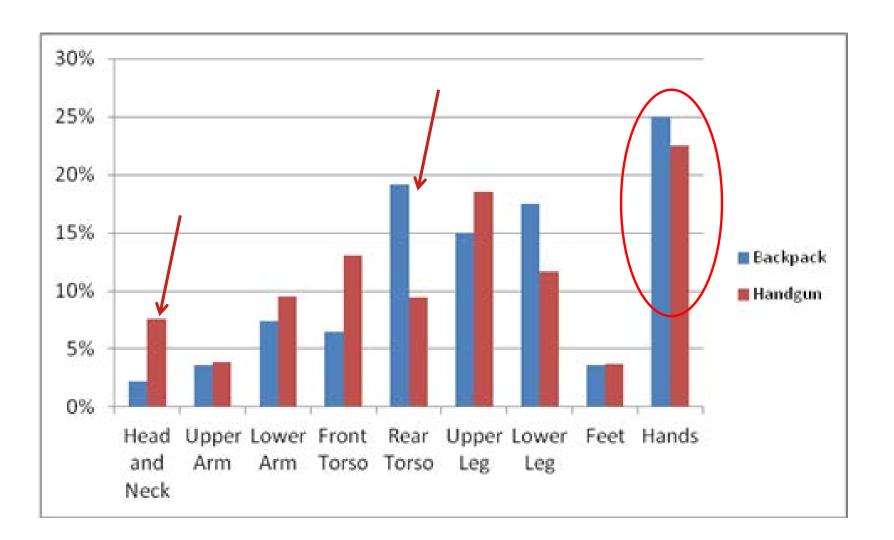
#### Handler Exposure Examples







## Rights-of-Way Applicator Dermal Exposure





## **Open-Cab Airblast Application**

- 25 workers monitored
  - 90% total dermal exposure to head
  - 5% total dermal exposure to upper body
  - 4% total dermal exposure to hands
  - 1% total dermal exposure to lower body
  - <1% total dermal exposure to feet





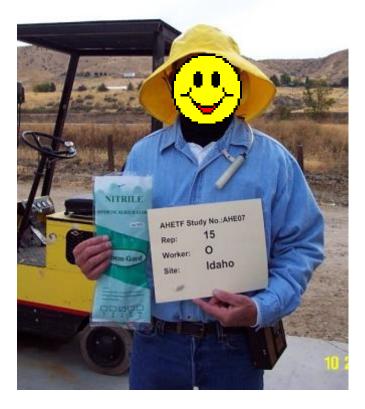




# Use of Personal Protection Equipment

Majority of exposure during open cab airblast exposure is to the head.

Rain hat reduces dermal exposure 7-fold and the rainsuit 11-fold







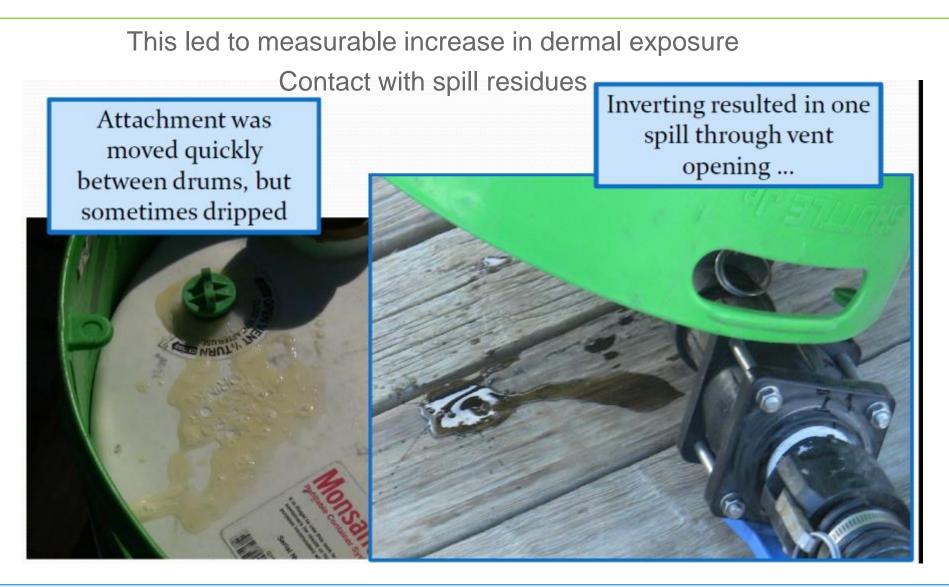
# **Work Practices**



Tank residues can lead to increased front of body exposure



## **Work Practices**





## Use of Technology



Reduction of drift and exposure potential



Water Soluble Packets Work Practices







#### WSP Poor Practices



The placement of the WSP in baskets at the opening to the spray tank was observed for some orchard applications in the Northeast.

Analysis for two mixer/loaders confirmed high exposure potential.



#### **WSP** Poor Practices





#### **WSP** Poor Practices



Contamination from broken/burst WSP

## WSP Poor Practices Negation of Engineering Controls





#### Dermal exposure was greater than pouring from a bag



#### WSP Good Practices





#### WSP Good Practices





Rinsing Containers and Stingers Good Work Practices to Reduce Contamination





# Inverted Nozzle Over an Open Mixing Tank for Rinsing Jugs and Drums













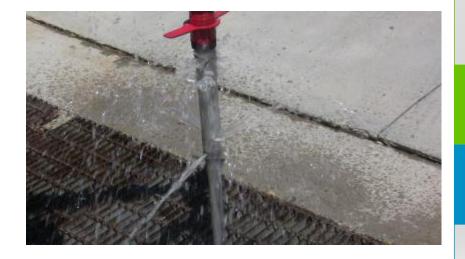


# **Rinsing Stingers**











- Hand exposure is usually the greatest source of exposure (but not always)
  - CR gloves should be worn as much as possible, washed regularly, and maintained in good condition
- Dermal exposure from contaminated equipment can be significant
- Label PPE requirements must ALWAYS be followed
- Inhalation exposure can also be important
  - Masks or respirators must be worn when required



## Key Training Messages

- Empower the worker to make decisions that will reduce exposure
  - Examples of how PPE reduces exposure
  - Emphasis on good work practices
    - Washing hands, changing clothes, not using smartphones, clean work areas
  - Provide examples of poor work practices
  - Use of technology
    - Nozzle types that reduce exposure, formulations, equipment





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## Thank you!

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#### Overhead Handgun Application

