



# GILA RIVER INDIAN COMMUNITY DEPARTMENT OF ENVIRONMENTAL QUALITY

PESTICIDE  
CONTROL OFFICE

Community  
Applicator  
Certification  
Training



Image Credit: Utah State University Extension

## Module 5: Pesticide Hazards, First Aid, and Incident Response



# Pesticide Hazards, First Aid, and Incident Response

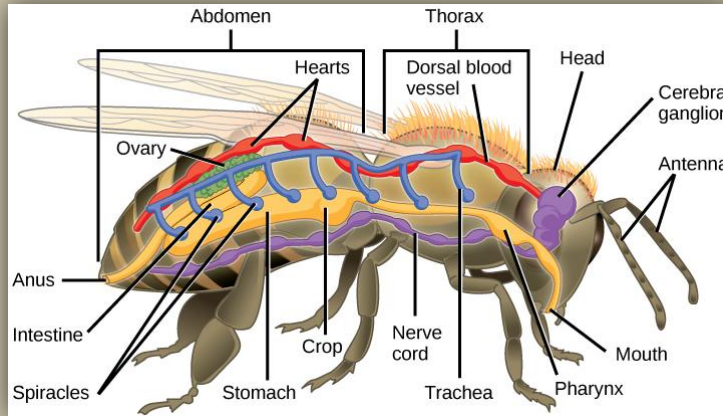
*This Module Will Help You:*

- Know the different types of effects pesticides can have on your health
- Understand signal words
- Know the routes of exposure
- Recognize symptoms of exposure
- Know when and how to give first aid
- Know how to implement and execute an emergency response plan
- Identify how unintended spills and fires can harm humans and the environment
- Understand how to clean up spills to reduce environmental impact
- Know how to dispose of contaminated items
- Be familiar with emergency response equipment

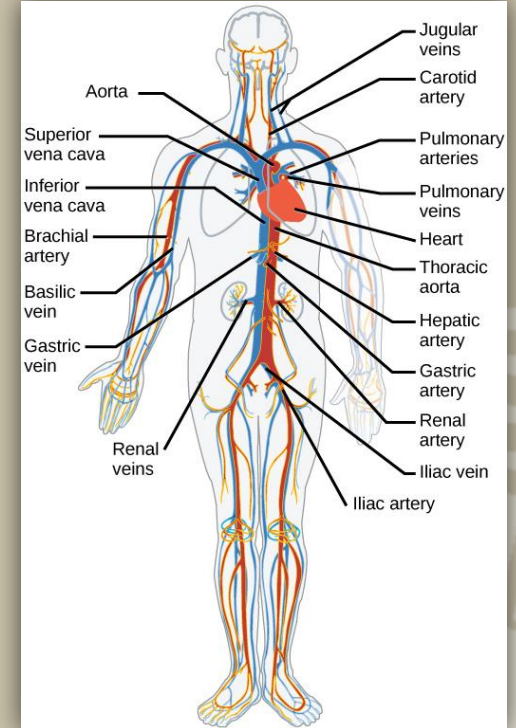


# Pesticides and Humans

- Insects, rodents, and humans have similar nervous, circulatory, and respiratory systems- pesticides affect similarly
- Health effects: short or long-term
- Physical and chemical risks - explosive or combustible



Anatomy of a bee  
Image Credit: Rice University



Human circulatory system  
Image Credit: Rice University



# Pesticide Hazard

$$\text{Hazard} = \text{Toxicity} \times \text{Exposure}$$



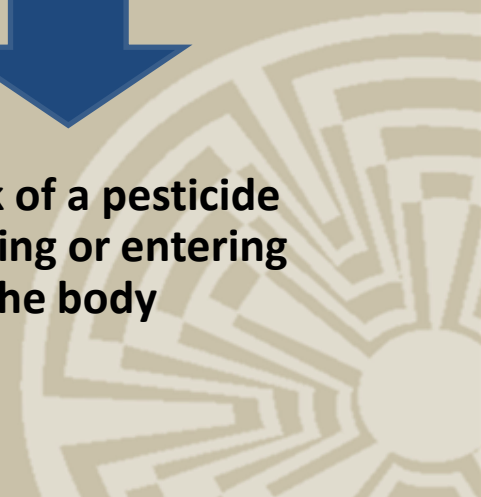
**risk; the  
potential for  
injury**



**capacity of a  
pesticide to cause  
injury**



**the risk of a pesticide  
contacting or entering  
the body**





# Hazards Increase...

- When mixing and loading the concentrate
- With a very high single exposure
- After many exposures over time

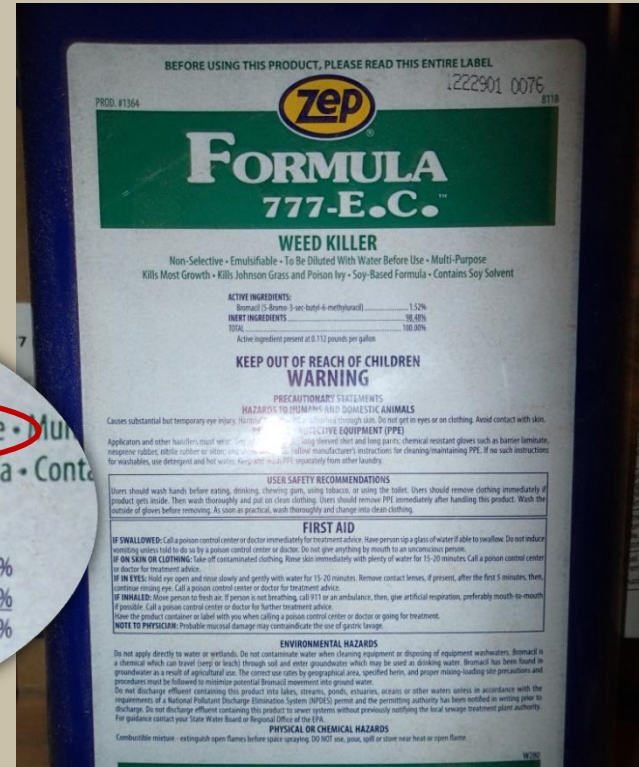
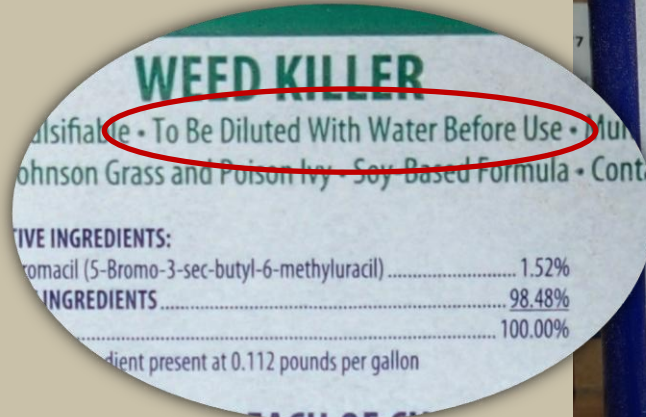


Image Credit: GRIC PCO



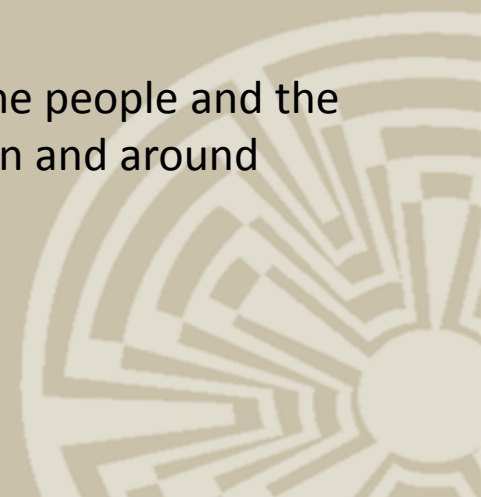


# Reduce Hazards...



Image Credit: GRIC PCO

- By using least toxic pesticides
- Wearing personal protective equipment
- Read and follow the label carefully
- Be aware of the people and the environment in and around treated areas





# Pesticide Hazards



Image Credit:  
University of Florida, Entomology

**Acute**: Effects from a single exposure over a short period of time

**Sensitization**: Certain people develop allergic reactions or sensitization to some types of pesticides



Image Credit: Kentucky PSEP



Image Credit:  
University of Colorado, Denver

**Chronic**: Exposure to small amounts over a long period of time: cancer, sterility, birth defects



# Signs and Symptoms of Pesticide Poisoning







# Routes of Exposure: Skin





# Routes of Exposure: Ingestion





# Routes of Exposure: Inhalation





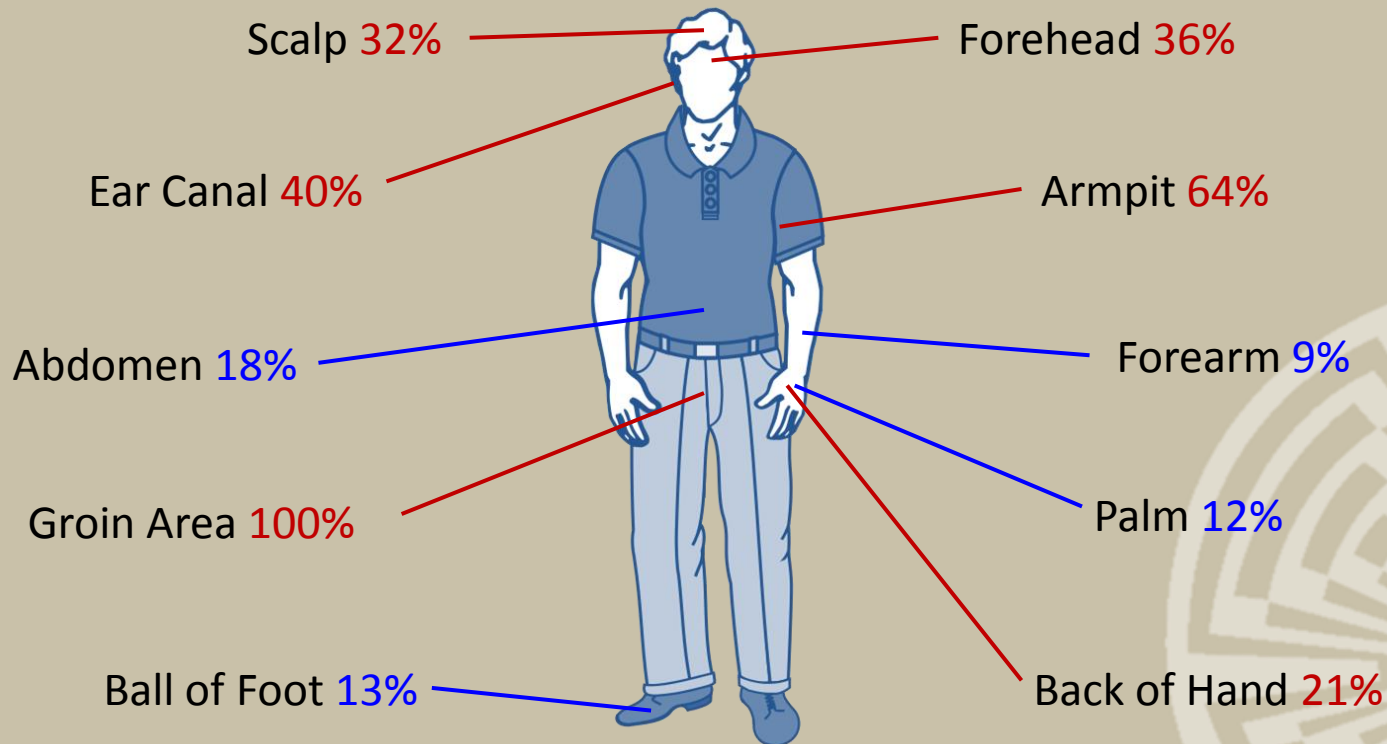
# Routes of Exposure: Eyes





# Percentage of Dose Absorbed

## Parathion Study – Maibach 1974







# Heat Stress





# Please Note

- The following slides are primarily provided to you as general guidance and highlights industry “Best Practices”.
- These practices are not intended to conflict with guidance provided by lead GRIC entities tasked with Emergency / Incident Response whose guidance or regulation take primacy.





# Pesticide Incident Response



Image Credit: University of Nebraska, Lincoln Extension

## What incidents can occur?

- Application tank/hose leaking
- Pesticide container spill/leak
- Explosion or fire in storage area



# Pesticide Incident Response

## Why plan for an incident response?

- Protects employees, community, environment
- How you respond, makes the difference!



Image Credit: GRIC DEQ Outreach Program



Image Credit: GRIC DEQ Outreach Program



# Take Precautions to Reduce Fire Hazards!








Image Credit: GRIC PCO

- Locate storage facility far from people, animals
- Always keep storage locked!
- Clearly post warning signs





# Take Precautions to Reduce Fire Hazards!

CLASS OF FIRE	TYPE OF FIRE	APPROVED FIRE EXTINGUISHER
 ORDINARY COMBUSTIBLES <b>A</b>	Wood, paper, cloth	Type A; Type A-B
 FLAMMABLE LIQUIDS <b>B</b>	Gasoline, paints, oils, grease	Type A-B; Type B-C; Type A-B-C
 ELECTRICAL EQUIPMENT <b>C</b>	Electrical wiring, fuse box	Type B-C; Type A-B-C
 COMBUSTIBLES <b>D</b> METALS	Metals	Bucket of Sand
 <b>K</b>	Commercial cooking oil appliances	*Wet Chemical

\*Class K extinguishers may require specific training, including when they should be used or not used. For example, the extinguishing agents in many Class K extinguishers are electrically conductive and should only be used after electrical power to the kitchen appliance has been shut off.

- Store combustibles away from heat sources
- Do not store containers in sunlight, especially glass!
- Install fire alarms
- Keep foam-type fire extinguishers approved for chemical fires available



# If There is a Chemical Fire:



**9 1 1**

1. Evacuate the area!
2. Call 911, and tell what chemicals are involved
3. Keep people away; establish a perimeter and protect downwind
4. Have SDS notebook ready!

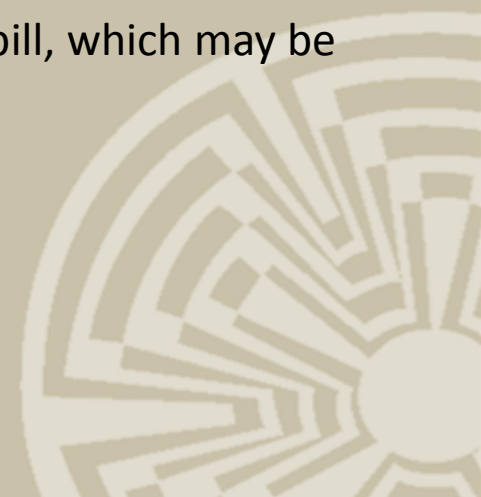


# Pesticide Spills



Image Credit: University of Florida, Entomology

- Protect yourself and others first (PPE), and administer first aid
  - Different spills = different hazards
- Then respond to spill, which may be small or large





# Spill Clean Up – The 3 C's

- **Control the Situation**

- Protect yourself
- Stop the source
- Protect others
- Stay at the site

- **Contain the Spill**

- Confine the Spill
- Protect water sources
- Absorb liquids
- Cover dry materials

**Control**  
**Contain**  
**Clean up**

- **Clean Up**

- Clean up the spill
- Decontaminate the site
- Neutralize the site
- Decontaminate equipment
- Decontaminate yourself



# Spill Clean Up: PPE







# Spill Clean Up: Control





# Spill Clean Up: Contain





# Spill Clean Up: Clean Up





# Prevent Spills First



Image Credit: University of Florida, Entomology

- Inspect and maintain vehicles and equipment
- Understand your spray system thoroughly
- **Be a safe driver!**





# Keep a Spill Kit Nearby...

Whenever you are handling pesticides, including in storage areas and transport vehicles



Image Credit: GRIC PCO



Image Credit:  
University of Kentucky



Image Credit: GRIC PCO



# A Spill Kit Should Include:

- Emergency phone numbers
- Personal protective equipment
- Absorbent materials: pillows, containment tubes, clay, sawdust, pet litter, activated charcoal, vermiculite
- Shovel, broom, dustpan, sweeping compound
- Fire extinguisher rated for many chemical fires
- Large, sturdy plastic drum (overpack)





# For Major Spills, CALL...



**520.796.3755**

- GRIC Office of Emergency Management
- **CHEMTREC** for emergency response info and technical assistance **1-800-424-9300** (emergency only)
- Emergency number on the pesticide label(s)





## 18.327: Notification of Spillage

- A. *All persons regulated under this chapter must notify the **Office** as soon as a person learns of the spillage of one gallon or more of a pesticide in concentrated form, or the spillage of five gallons or more of a diluted pesticide, or whenever a spill of a pesticide may present a hazard to humans in the area.*
- B. *In the event a spillage of a pesticide solution occurs, the applicator or trained personnel wearing protective equipment as required by the pesticide label shall contain the spillage, and clean-up the affected area.*
- C. *The materials used to clean-up a pesticide spillage shall be placed in tight, non-combustible containers, and then transported to an authorized disposal site within 30 calendar days.*



# Acknowledgements

Adapted with permission from the Washington State University  
Urban IPM and Pesticide Safety Education Program  
for use by the

**GILA RIVER INDIAN COMMUNITY**  
**Department of Environmental Quality**  
**Pesticide Control Office**

PO Box 2139 • 45 S. Church Street • Sacaton, AZ 85147

Office (520) 562-2234 • Fax (520) 562-3198

Email: [GRIC.Pesticide.Office@GRIC.nsn.us](mailto:GRIC.Pesticide.Office@GRIC.nsn.us)

Web: [www.GRICDEQ.org](http://www.GRICDEQ.org)