Pesticide Safety:
Labels, Toxicology & PPE
What is a Pesticide?
Pesticides are chemicals used to destroy, prevent or control pests. Pests include weeds, diseases, and insects. Pesticides also include chemicals used to regulate plant growth or remove or coat leaves.

“Pesticide” can mean a fungicide, herbicide, insecticide, rodenticide, etc.
Labels/Labeling*

- Label – on or attached to container
- Labeling – label plus other manufacturer information
- *must be approved by
  - and registered with EPA
Labeling

Includes:
- Label
- Brochures
- Flyers
- Product Info
- Etc.

Must not differ from info furnished to EPA when product was registered.
Label = Instructions

- Describes risks and benefits of the product
- Primary source of information to user
- Information tells how to use product safely and correctly
- Primary tool of pesticide regulation
- Must be approved by and registered with EPA
Reading the Label

- Most valuable few minutes you can spend in pest control
- Small investment of time will help avoid injuring yourself, others, or the environment by misusing the pesticide.
Understanding the Label

Read before you buy to be sure you are buying the right product for the job.

Buy the proper amount so you can avoid storage, and dispose of container and left-over product properly.

Very important! Understand the potential dangers and keep out of the reach of children.

It is important to keep products in the original container in case of accidental poisoning so you can follow the first aid instructions and have the list of ingredients available to give to poison control.
Pesticide Use Classifications

- Restricted Use – may cause unreasonable adverse effects to the environment or humans, even if used as directed.

- Unclassified – usually no adverse effects if used as directed.
Why Restricted Use?

- Acute toxicity (humans, birds, mammals)
  - Oncogenicity (tumors in laboratory animals)
  - Groundwater concern
  - Other concerns
Restricted Use Designation

- “RESTRICTED USE PESTICIDE”
- always in a box at top of the front panel on the pesticide label
Trade Name/Ingredients Statement

Trade Name

Active Ingredients
Common & chemical name

Inert Ingredients
Dissolve active ingredient or affect how product works (may contain synergist, spreader, etc.)

Banvel®

HERBICIDE

ACTIVE INGREDIENTS:
Dimethylamine salt of dicamba
(3,6-dichloro-o-anisic acid)* 48.2%
Dimethylamine salts of related acids 12.0%
INERT INGREDIENTS:
TOTAL 39.8% 100.0%

*This product contains 40.0% 3,6-dichloro-o-anisic acid (dicamba) or 4 pounds per gallon.
Types of Formulations*

- Emulsifiable concentrates (EC)
- Flowables (F)
- Wettable powders (WP)
- Dry flowables (DF)

* Trade names used as examples - no endorsement intended.
Types of Formulations*

- Water-miscible liquids
- Water-soluble powders
- Oil solutions
- Soluble pellets
- Ultralow-volume concentrates
- Fogging concentrates
- Dusts
- Aerosols
- Granular
- Fumigants
- Impregnating materials
- Baits
- Microencapsulated
- Other slow-release formulations
Signal Words on Labels

Indicate potential hazard

A WEED AND GRASS KILLER – HARVEST AID CHEMICAL
Keep Out of Reach of Children

DANGER

POISON

DO NOT USE OR STORE IN OR AROUND THE HOME.
ONE SWALLOW CAN KILL!
SYMPTOMS ARE PROLONGED AND PAINFUL. ONSET OF SYMPTOMS
MAY BE DELAYED FOR UP TO 3 DAYS AFTER SWALLOWING.

PELIGRO

PRECAUCION AL USUARIO:
Si usted no lee ingles, no use este producto hasta que la etiqueta le
haya sido explicada ampliamente.

DO NOT REMOVE CONTENTS EXCEPT FOR IMMEDIATE USE.
NEVER PUT INTO FOOD, DRINK OR OTHER CONTAINERS.

Can Kill if Swallowed. May Be Harmful or Fatal if Absorbed Through Skin or
Signal Words

- **DANGER*** - highly toxic
- **WARNING** – moderately toxic
- **CAUTION** – slightly toxic

*with skull/crossbones/POISON = acute illness
*without skull/crossbones/POISON = skin/eye irritation potential
Signal Words on Labels

<table>
<thead>
<tr>
<th>Category</th>
<th>Signal word required on label</th>
<th>Approximate amount needed to kill an average person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Toxic (1)</td>
<td>DANGER POISON</td>
<td>A few drops to one teaspoon</td>
</tr>
<tr>
<td>Moderately toxic (2)</td>
<td>WARNING</td>
<td>one teaspoon to one ounce</td>
</tr>
<tr>
<td>Slightly toxic (3)</td>
<td>CAUTION</td>
<td>over one ounce</td>
</tr>
<tr>
<td>Not toxic</td>
<td>not required</td>
<td></td>
</tr>
</tbody>
</table>
DANGER - POISON

- Highly toxic by any route of entry

DANGER-POISON

PELIGRO

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS
AND DOMESTIC ANIMALS
RESTRICTED USE PESTICIDE
Due to Acute Toxicity
For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

Guthion® Solupak 50%
Wettable Powder Crop Insecticide
IN WATER SOLUBLE PACKETS
For effective economical insect control.
ACTIVE INGREDIENT:
O,O-Dimethyl S-[(4-oxo-1,2,3-benzotriazin-3(4H)-yl)methyl]phosphorodithioate 50%
INERT INGREDIENTS: 50%
100%

EPA Reg. No. 264-733
EPA Est. No. 3125-MO-1

DEALERS SHOULD SELL IN ORIGINAL PACKETS ONLY
Keep water soluble packets in their container and store in a cool dry place, but not below freezing (32°F). Protect from heat. Keep away from open flame. Do not heat. Entire inner packets dissolve in water. After opening water bag, drop the remaining unopened inner packets into spray tank as directed. Do not excessively handle water soluble packet or expose it to moisture, since this may cause breakage.

STOP – Read the label before use.
KEEP OUT OF REACH OF CHILDREN
DANGER POISON PELIGRO
Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(if you do not understand the label, find someone to explain it to you in detail.)

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER
Fatal if swallowed. May be fatal if inhaled. Harmful if absorbed through skin. Causes moderate eye irritation. Do not breathe dust or spray mist. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Remove contaminated clothing and wash clothing before reuse.
DANGER PELIGRO

• can cause severe eye damage or skin irritation

Causes irreversible eye damage.....
AMINE 4
2,4-D WEED KILLER

For Selective Broadleaf Weed Control in Certain Crops, Turf and Non-Crop Areas.

ACTIVE INGREDIENT:
*Dimethylna salt of 2,4-Dichlorophenoxyacetic acid .......................... 46.6%
INERT INGREDIENTS: .................................................. 53.6%
TOTAL 100.0%

*Equivalent to 38.6% 2,4-D acid or 3.74 pounds per gallon.
*Isomer specific by AOAC Method No. 8.275-6.279 (13th Ed.)

KEEP OUT OF REACH OF CHILDREN

DANGER — PELIGRO
Si usted no entienda la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

(See Below for Additional Precautionary Statements)

EPA REG. NO. 34704-120

Net Contents 2½ gal. (9.46 L)

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER — PELIGRO
Corrosive. Causes irreversible eye damage. Do not get in eyes or on clothing. Harmful if swallowed, inhaled, or absorbed through skin. Avoid contact with skin. Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Do not contaminate water used for irrigation, domestic or spray purposes.

Personal Protective Equipment:
Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof overshoes, non-porous socks and protective eye wear. Follow manufacturer's instructions for choosing/using.

USER SAFETY RECOMMENDATIONS
Users should:
Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

FIRST AID

If in eyes:
• Hold eye open and rinse slowly and gently with water for 15 - 20 minutes.
• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
• Call a poison control center or doctor for treatment advice.

If swallowed:
• Call a poison control center or doctor immediately for treatment advice.
• Have a person sip a glass of water if able to swallow.
• Do not induce vomiting unless told to do so by the poison control center or doctor.
• Do not give anything by mouth to an unconscious person.

If on skin or clothing:
• Take off contaminated clothing.
• Rinse skin immediately with plenty of water for 15-20 minutes.
• Call a poison control center or doctor for treatment advice.

If inhaled:
• Move person to fresh air.
• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
• Call a poison control center or doctor for further treatment advice.

FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT
WARNING AVISO

• Moderately toxic

WARNING AVISO

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS
AND DOMESTIC ANIMALS
DANGER

Causes moderate eye damage and/or skin irritation.....
Complete Directions for Use

EPA Reg. No. 524-445

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

Roundup Original, Monsanto and the Vine symbol are trademarks of Monsanto Company.

2000-1

Read the entire label before using this product.
Use only according to label instructions.
Read “LIMIT OF WARRANTY AND LIABILITY” before buying or using. If terms are not acceptable, return at once unopened.

Otherwise shall be the purchase price paid by the user or buyer for the quantity of this product involved, or, at the election of this company or any other seller, the replacement of such quantity, or, if not acquired by purchase, replacement of such quantity. In no event shall this company or any other seller be liable for any incidental, consequential or special damages.

Buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep out of reach of children.

WARNING! AVISO!
Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)
CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY.
HARMFUL IF SWALLOWED OR INHALED.
Do not get in eyes or on clothing.
Avoid breathing vapor or spray mist.

FIRST-AID: IF IN EYES, immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.
IF INHALED, remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.
IF SWALLOWED, this product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

Personal Protective Equipment (PPE)
Applicators and other handlers must wear: long-sleeved shirt and long pants, shoes plus socks, and protective eyewear. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product’s concentrate. Do not reuse them.
Caution

- slightly toxic

Avoid contact with eyes, skin or clothing.
KUMULUS® DF
fungicide/acaricide

ACTIVE INGREDIENT:
- Sulfur: 80%
- INERT INGREDIENTS: 20%
- TOTAL: 100%

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID
If Swallowed: Call a Poison Control Center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
If In Eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If On Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

PRECAUTIONARY STATEMENTS
Hazards to Humans and Domestic Animals
Harmful if swallowed. Avoid breathing spray mist. Avoid contact with eyes, skin, and clothing.
Directions For Use

What the pesticide product controls.
Where, how and when to use the product.
Entry statement
Storage/Disposal/Mixing
For: Plants, Animals, Sites
Pests, How much
Equipment
Potential injuries
When, How often, Where

It’s critical that applicators understand and follow these statements!
How AMDRO Fire Ant Bait Works:

1. AMDRO is a bait. Worker ants carry it into the mound as food for the colony.
2. They eat it and feed it to the queen. AMDRO starts to kill ants immediately.
3. In about a week the queen is dead, which destroys the mound.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

This product is not for use on vegetation or other food crops, timber or plants grown for sale or other commercial use, or for commercial seed production, or for research purposes.

Application Restrictions: Do not apply this product in any way that will contact any person or pet, either directly or through drift. Keep people and pets out of the area during application.

Outdoor Use:

For large, infested areas: Using a hand-held granular spreader, broadcast AMDRO at 2 to 4 ounces per 5000 square feet (1 to 2 pounds per acre).
For individual mounds: Sprinkle 2 to 5 tablespoons of AMDRO around the mound. Do not disturb the mound. Use a disposable scoop (do not use a kitchen utensil).
For best results, apply AMDRO when ants are active. Repeat application as needed.

AMDRO fire ant bait controls imported and native fire ants and other ants, such as vinegar ants, bigheaded ants and Argentine ants. AMDRO fire ant bait is for use ONLY in lawns, landscaped areas, golf courses, commercial grounds, parks, and other noncropland areas, as well as on grounds surrounding poultry houses (including runs and roosters) and corrals and other animal housing areas. AMDRO may be applied to pastures and range land if used ONLY for COMpanion ANimal (horses, donkeys, camels, etc.). Companion animals grazed on treated areas CANNOT be used for food or feed. Do not place feed or treat areas, or add clippings to livestock. Avoid direct exposure of animals to AMDRO granules.

STORAGE AND DISPOSAL

Store in cool, dry, secure place and keep container closed. Store container away from pets. When properly stored, this product will retain its effectiveness for up to three months after the package has been opened.

Container Disposal: If empty – Do not reuse this container. Place in trash or offer for recycling if available. If partially filled – Call your local solid waste agency or 1-800-CLEANUP for disposal instructions. Never place unused product down any indoor or outdoor drain.

FIRST AID

If on skin or clothing:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-30 minutes. Call a poison control center or doctor for treatment advice.

If in eyes:

Hold eye open and rinse slowly and gently with water for 15-30 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Wear long-sleeved shirt and long pants, socks and shoes, and chemical-resistant gloves (such as rubber or neoprene gloves). Wash thoroughly with soap and water after handling.

ENVIRONMENTAL HAZARDS

This product is toxic to fish. Do not apply directly to water. Do not contaminate water when cleaning equipment or disposing of equipment washwater.

Ambrands makes no express or implied warranties, including any other express or implied warranty of FITNESS OR MERCHANTABILITY.

In case of emergency, contact local poison control center or 1-800-284-2600.

EPA Reg. No. 33472-1
EPA Est. No. 5905-AH-1
Manufactured for AMBRANDS Atlanta, GA 30329

FOR LARGE, INFESTED AREAS

May be applied in pastures and range lands if used only for Companion Animals

- Use hand-held granular spreader
- Broadcast 2 to 4 ounces per 5000 square feet (1 to 2 pounds per acre)

FOR INDIVIDUAL MOUNDS

- Sprinkle 2 to 5 tablespoons around the mound
- Do not disturb the mound
- Use a disposable scoop (do not use a kitchen utensil)
Here’s your sign!!
Directions for Use By Reference

- Must obey directions contained in documents that are only referred to on the product labeling
- No longer room on traditional label to explain the requirements of all laws and regulations.
- This statement would probably be the ONLY indication in the labeling material that other use directions and restrictions apply
- You are responsible for determining if the document referred to applies to your situation
Misuse Statement

- Reminder – violation of Federal law to use product in a manner inconsistent with its label
- No pesticides may legally be used or recommended in any way that conflicts with the recommendations on the registered label
Misuse Statement

- Illegal uses or recommendations
  - Increase the label rate of application
  - Change method of application
  - Change time of application
  - Not following other conditions on the label
Misuse Statement

- Not illegal to use a pesticide:
  - At rates less than those recommended
  - Less frequently than recommended
  - For a pest not listed on the label if the site is listed
  - In combination with fertilizers
  - In combination with other pesticides, providing that labeled rates are not exceeded and the combination is not prohibited on the label
Reentry Statement

• Tells how much time must pass before a treated area is safe to enter by a person without protective clothing
Precautionary Statements

Hazards to humans and domestic animals
Protective equipment listed here

Environmental hazards
Ex. Toxic to bees, Do not contaminate water

Physical & chemical hazards
Fire, explosion, etc.
First Aid

Tells what to do if someone accidentally swallows or breaths the pesticide, or gets it on their skin or in their eyes.

May also contain section labeled “Note to Physicians” which provide doctors with specific medical information
Warranty Statement

Statement intended to limit company’s liability,

or to act as a disclaimer,

or as a warranty for the product
Other Label Information

Manufacturers Name & Address

EPA Registration #

EPA Establishment #

&

Net Wt./Net contents

EPA Reg. No. 55947-1
EPA Est. No. 55947-TX-1

NET CONTENTS: 1 GALLON
HAZARD = Toxicity x Exposure

- Risk; the potential for injury
- The capacity of a pesticide to cause injury
- The risk of a pesticide contacting or entering the body
Hazard

- Higher toxicity = greater hazard
  - Lower toxicity = less hazard
- Higher exposure = greater hazard
  - Lower exposure = less hazard
High toxicity, Low exposure risk

Low toxicity, High exposure risk
Hazards Increase...

- when mixing and loading the concentrate
- with a very high single exposure
- after many exposures over time
**LD_{50} and LC_{50}**

- **LD_{50} =** the *dose* of a substance that *kills* 50% of a population of test animals
  - measured in milligrams of toxicant per kilogram of body weight (mg/kg)

<table>
<thead>
<tr>
<th>Dose (mg/kg)</th>
<th>96 dead</th>
<th>50 dead</th>
<th>12 dead</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **LC_{50} =** *concentration* of a substance in air or water that *kills* 50% of a test population, measured in parts per million
Risk = Toxicity X Exposure

<table>
<thead>
<tr>
<th>Common Pesticides</th>
<th>Oral LD(_{50}) (mg/kg – rats)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temik</td>
<td>0.93 (.002 oz/150#)</td>
</tr>
<tr>
<td>carbaryl</td>
<td>500 – 850 (1.2 oz)</td>
</tr>
<tr>
<td>2-4-D</td>
<td>600</td>
</tr>
<tr>
<td>cyfluthrin</td>
<td>900</td>
</tr>
<tr>
<td>malathion</td>
<td>1375</td>
</tr>
<tr>
<td>pyrethrins</td>
<td>1500 (3.5 oz)</td>
</tr>
<tr>
<td>glyphosate</td>
<td>4,320</td>
</tr>
<tr>
<td>chlorothalonil</td>
<td>10,000 (23 oz)</td>
</tr>
</tbody>
</table>
**Risk = Toxicity X Exposure**

<table>
<thead>
<tr>
<th>Common Substances</th>
<th>Oral LD$_{50}$ (mg/kg – rats)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nail Polish Remover</td>
<td>10.7</td>
</tr>
<tr>
<td>Nicotine</td>
<td>50</td>
</tr>
<tr>
<td>Caffeine</td>
<td>355</td>
</tr>
<tr>
<td>Ibuprofen</td>
<td>626</td>
</tr>
<tr>
<td>Aspirin</td>
<td>1,000 (2.3 oz)</td>
</tr>
<tr>
<td>Table Salt</td>
<td>3,750</td>
</tr>
<tr>
<td>Antifreeze</td>
<td>8,540</td>
</tr>
<tr>
<td>Aspartame</td>
<td>10,000</td>
</tr>
</tbody>
</table>
## Signal Words

<table>
<thead>
<tr>
<th>Signal Word</th>
<th>Category</th>
<th>Toxicity</th>
<th>Oral LD$_{50}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger-Poison</td>
<td>I</td>
<td>High</td>
<td>0-50 mg/kg</td>
</tr>
<tr>
<td>Peligro</td>
<td></td>
<td>A few drops to one tsp</td>
<td></td>
</tr>
<tr>
<td>Danger/Peligro</td>
<td>I</td>
<td>High - Eye or skin damage concerns greater than acute lethal toxicity</td>
<td></td>
</tr>
<tr>
<td>Warning/Aviso</td>
<td>II</td>
<td>Moderate</td>
<td>50-500 mg/kg or skin/eye tsp - oz</td>
</tr>
<tr>
<td>Caution</td>
<td>III</td>
<td>Slight</td>
<td>&gt;500 mg/kg or skin/eye &gt; oz</td>
</tr>
</tbody>
</table>
Attitude Makes a Difference

- Read and follow the label carefully
- Be aware of the people and the environment in and around treated areas
Types of Toxicity to Pesticides

- Acute – usually immediate, obvious, reversible

- Delayed – “chronic”, usually from repeated doses

- Allergic – immune system response to chemicals
Acute Effects

• Oral – examples: burned mouth, sore throat, upset stomach
• Inhalation – examples: pain or tightness in chest
• Dermal (skin) – examples: itching, blisters, rash
• Ocular (eyes) – examples: irritation, temporary or permanent blindness
Acute effects…

- Occur from a single exposure
- Develop within 24 hrs of exposure
Delayed (Chronic) Effects

- May appear long after exposure:
  - Tumors
  - Gene effects
  - Miscarriage
  - Impotence
  - Birth defects
  - Infertility
  - Sterility
  - Nervous system disorders
Types of Allergic Effects

- Systemic – as asthma, shock
- Skin irritation – rash, blisters, sores
- Eye and nose – itchy/watery eyes, sneezing
- Will occur with every exposure to the offending chemical
General Symptoms Associated with Pesticide Poisoning

- Headache
- Giddiness
- Nausea
- Blurred Vision
- Chest Pains
First Aid - Skin

- Drench with water
  - Remove clothes
- Wash body with mild soap/water
- Avoid chills/overheating
- Burns: apply loose, clean, dry covering
- No ointments (unless prescribed)
First Aid - Eyes

- Wash quickly (eye wash or water)
- Rinse eye with cool, clean water 15 for more minutes
- No chemicals/drugs in rinse
First Aid - Inhalation

- Get to fresh air
- Loosen clothing
- Artificial respiration (if needed)
First Aid – Mouth/Swallowed

- Rinse mouth
- Drink milk/water (up to 1 qt.)
- Induce vomiting (if label says so)
First Aid – Mouth/Swallowed

• Do NOT induce vomiting if:
  ✓ unconscious/convulsions
  ✓ corrosive poison swallowed
  ✓ EC or oil solutions
  ✓ label prohibits
• Federal law requires that highly toxic pesticides contain instructions for the physician on the label in case of pesticide poisoning.
Emergency Responses

- Call for help
- First aid
- Call physician/go to hospital
- Take chemical or labeling
- Call – Poison Control Center 1-800-222-1222

*pesticide illness may be confused with heat stress, heat cramps, or plants poisoning
Absorption through the skin is the most common route of poisoning of agricultural workers.
How Pesticides Enter the Body

- **Anatomy**
  - Forearm
  - Palm of hand
  - Ball of feet
  - Abdomen
  - Scalp
  - Forehead
  - Ear canal
  - Scrotum

- **% Absorption**
  - 8.6
  - 11.8
  - 13.5
  - 18.4
  - 32.1
  - 36.3
  - 46.5
  - 100.0
This exposure can be reduced by 99% simply by wearing chemical resistant gloves and a long-sleeve shirt.
Personal Protective Equipment (PPE):

- **Body Coverings**
  - Long-sleeved shirt, long pants, coveralls, *liquid proof apron*
- **Gloves** – neoprene or natural rubber
- **Boots** – neoprene or natural rubber
- **Goggles or face shield**
- **Hat**
- **Respirators**

*Always Read the Label for Proper PPE*
Personal Protective Equipment (PPE): Gloves

Waterproof or chemical resistant gloves

Never wear leather!

Always Read the Label for Proper PPE
PPE: Respirators

- Dust/Mist (MSHA/NIOSH TC-21C)
- Reduces exposure to various dusts and mists.
- Label will specify type of respirator.

Always Read the Label for Proper PPE
Mixing and Loading

The potential for human exposure is greatest during mixing>Loading

Wear the Correct PPE!
Keep Out of Mouth

- Never mouth siphon
- Use soft brush to unclog nozzles
- Keep in original container
- No eating, smoking, etc. until you have thoroughly cleaned up
Changing or Cleaning Nozzles
Cleaning Nozzles
Washing and Bathing

- Shower or bathe daily after using pesticides.
- Wash hands before touching anything that goes into mouth.
- Do not touch face or genitals before washing hands.
- Do not hug children with pesticides on your clothing or body
The Label is the Law

Do Not Apply Any Pesticide in a Manner Not Specifically Listed on the Label!
Here’s your sign!!