Pesticide Labels

Daphne Richards
Texas A&M AgriLife Extension Service
Travis County
The Label is the Law

- Required by law – the manufacturer must apply to the EPA for label approval and provide the label with the pesticide
- Also required by law – the applicator must read and follow label instructions
The Label is Informative

- Use
- Safety
- Storage
- Environmental Impacts

Pesticide manufacturers spend millions developing pesticide labels ($180 million, Purdue 2010)
Reading Labels

When applying a pesticide, do you read the label?

1. Always
2. When I haven’t used the product
3. When I haven’t used it for some time
4. Maybe

![Bar chart showing the percentage of people who read the label under different scenarios.]

- Always: 56%
- When I haven’t used the product: 17%
- When I haven’t used it for some time: 28%
- Maybe: 0%
I’m an experienced applicator...

I’m too busy...

I’ve used this product for years...

Common excuses for not reading the label
You need to know

- Is this the right product for the job?
  - Target pest
  - Application site

- Can I apply it correctly and safely?
  - Application equipment
  - Personal protective equipment
  - Weather conditions
Pesticide Names

Pesticides typically have::

1. Chemical Names
2. Common Names
3. Trade Names
4. All Three
Trade, Brand, or Product Names

Brand Name can often include:

- The percent of active ingredient incorporated into the product name
- Type of pesticide
- Formulation (EC, etc)
Trade, Brand, or Product Names

- Companies register trade names as a trademark
- The same active ingredient may be sold under different trade names
Trade or Brand Names

Be careful, some products with:

Different brand names may have the same active ingredients

Example: Spinosad is the active ingredient in:

Tracer  Spintor  Conserve
Does this mean that I can substitute these products for each other?

Only if the label allows!
Many active ingredients are given a common name

Only common names accepted by the EPA may be used on the label
Active Ingredients

- Official common name is usually followed by the chemical name in the list of active ingredients.

**ACTIVE INGREDIENT:**
Glyphosate (N-(phosphonomethyl)glycine)
in the form of its isopropylamine salt ................. 41.0%

**INERT INGREDIENTS:** .............................................. 59.0%

**THIS PRODUCT CONTAINS:** ................................ 100.0%
Ingredient Statement

- Active Ingredients:

- Inert Ingredients:
Ingredient Statement

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Glyphosate (N-(phosphonomethyl)glycine) in the form of its isopropylamine salt .......... 41.0%

**INERT INGREDIENTS:** ........................................... 59.0%

**TOTAL 100.0%**

THIS PRODUCT CONTAINS:
Inert Ingredients

Listed as total percentage in the product

ACTIVE INGREDIENT:
Glyphosate (N-(phosphonomethyl)glycine) in the form of its isopropylamine salt

INERT INGREDIENTS:

TOTAL 100.0%
Ingredient Statement

Active Ingredients

The part of the product that actually controls the pest(s)

ACTIVE INGREDIENT:
Glyphosate (N-(phosphonomethyl)glycine)
in the form of its isopropylamine salt ......................................... 41.0%
INERT INGREDIENTS: ................................................................. 59.0%
THIS PRODUCT CONTAINS: ......................................................... 100.0%
Active Ingredient:
- Each active ingredient must be listed by individual percentage.
Precautionary Statements

Which precautionary statement is on every label?

1. Danger
2. Keep out of reach of children
3. Do not apply to water
4. Agricultural Use Requirements

![Bar Chart]

- Danger: 19%
- Keep out of reach of children: 41%
- Do not apply to water: 0%
- Agricultural Use Requirements: 41%
Precautionary Statements

- Other precautions that should be followed when handling the product
- Common sense practices to minimize exposure to applicators, the environment and others who may come in contact with the treated area
User Safety Recommendations:
Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
Users should 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.
Personal Protective Equipment

- Tells applicators what Personal Protective Equipment (PPE) should be worn to minimize exposure
- Often different for different tasks

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**
Applicants and other handlers must wear:
- Protective eyewear
- Coveralls over long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing or loading
- For handling activities, a dust/mist filtering respirator (MSHA/NIOSH) approval number prefix TC-21C

Follow manufacturer’s instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.
A Pesticide Applicator’s Guide to Glamour

DOES YOUR PPE REALLY KEEP YOU SAFE?

7 TOP PPE FOR THE SAFETY MINDED

Linda Seals, Commercial Horticulture Agent, Brevard County UF/IFAS Extension
Daphne Richards, Horticulture Agent, Travis County, Texas A&M AgriLife Extension Service

AVOID EXPOSURE WITH PROPER PPE CARE
How can pesticides enter your body?

1. Inhalation
2. Ingestion
3. Contact with skin
4. Contact with eyes
5. All of the above
PPE must be worn properly
PPE must fit the job & the pesticide used
PPE is required by law
The pesticide label will list the MINIMUM requirements

Proper PPE protects against pesticide exposure
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION
Harmful if swallowed, inhaled, or absorbed through skin. Causes eye irritation. Avoid contact with skin, eyes, or clothing. Avoid breathing dust or vapor. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Keep children or pets off treated area until spray is dry.

Personal Protective Equipment (PPE):

WPS USES: Applicators and Other Handlers who handle this product for any use covered by the Worker Protection Standard (40 CFR part 170) – in general, agricultural plant uses e.g., use in sod farms, must wear:
- Long-sleeved shirt and long pants
- Chemical resistant gloves made of any waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.
- Shoes plus socks

Follow manufacturer’s instructions for cleaning/ maintaining personal protective equipment, PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Non-WPS USES: Applicators and other handlers who handle this product for any use NOT covered by the Worker Protection Standard (40 CFR part 170) – in general, only agricultural plant uses are covered by the WPS, must wear:
- Shirt and pants
- Gloves
- Shoes plus socks

Engineering controls statements:
- When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

User 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.
What is WPS?

- Agricultural production of plants
  - Farms
  - Forests
  - Nurseries
  - Greenhouses
- Landscape uses
- Structural applications
- Wide area public pest control such as mosquito control
- Vertebrate pest control
- Pasture
- Right-of-way
Agricultural Use Requirements

Where does this NOT apply?

1. Farms
2. Forests
3. Nurseries
4. Landscapes
Does the Worker Protection Standard apply to you?

1. Yes
2. No

- Yes: 86%
- No: 14%
Worker Protection Standards (WPS)

Within the Agricultural Use Requirements box you will find:

- Restricted entry interval (REI)
- Early entry PPE requirements
- Worker notification
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The term *chemical-resistant* means there is no measurable movement of pesticide through the material PPE that is *Water resistant* prevents a small amount of fine spray particles or small liquid splashes from penetrating the clothing and reaching the skin.

*Waterproof* (liquid-proof) material keeps water-soluble materials out, but not necessarily oil solvent-based products.

Check the label for specific requirements!
### EPA Chemical Resistance Category Selection Chart

<table>
<thead>
<tr>
<th>Selection</th>
<th>Type of Resistant Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>category on label</td>
<td>Barrier laminate</td>
</tr>
<tr>
<td>A Dry &amp; water-based formulations</td>
<td>High</td>
</tr>
<tr>
<td>B</td>
<td>High</td>
</tr>
<tr>
<td>C</td>
<td>High</td>
</tr>
<tr>
<td>D</td>
<td>High</td>
</tr>
</tbody>
</table>

*Natural rubber is indicated with an asterisk.
7 Top PPE for the Fashion Minded

Safety
Fashion Show Time!
Which body part is most likely to be exposed to pesticides?

1. Mouth and Nose 34%
2. Feet 45%
3. Hands 0%
4. Eyes 21%
Gloves should be worn any time pesticides may contact hands.

Research showed wearing gloves reduced exposure by at least 98 percent to applicators who had spills while mixing or applying pesticides.

Hands and forearms are the parts of the body that get the most exposure.

<table>
<thead>
<tr>
<th>Part</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hands</td>
<td>87%</td>
</tr>
<tr>
<td>Forearm</td>
<td>13%</td>
</tr>
</tbody>
</table>
### Average urinary glyphosate concentration values on the day of application according to use of rubber gloves

<table>
<thead>
<tr>
<th>Activity</th>
<th>Use of Rubber Gloves</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concentration (ppb)</td>
<td>Concentration (ppb)</td>
<td></td>
</tr>
<tr>
<td>Spill while mixing</td>
<td>4.1</td>
<td>232.7</td>
<td></td>
</tr>
<tr>
<td>Spill while applying</td>
<td>3.6</td>
<td>153.6</td>
<td></td>
</tr>
</tbody>
</table>
7 Top PPE for the Fashion Minded

Your hands are covered, which body part is the next most likely to be exposed to pesticides?

1. Ears
2. Feet
3. Mouth
4. Eyes
7 Top PPE for the Safety Minded

#2 Goggles, face shields, and safety glasses with shields at both the brow and sides are examples of protective eyewear.

Eyes are very sensitive to the chemicals contained in some pesticide formulations, especially concentrates.

Protect your eyes by selecting the appropriate eyewear:
Safety glasses, face shield, goggles, full face respirator
Which body part is most likely to be exposed to pesticides?

1. Ears
2. Feet
3. Mouth and Nose
4. Scalp
The label will specify the type of respirator required.

Use only National Institute of Occupational Safety and Health and Mine Safety Health Administration approved respirators.

Approved respirators carry a “TC” prefix.

2 types of respirators: air-supply and air-filtering respirators.

Respirators protect from breathing pesticide-contaminated air.
NIOSH TC Code Designations

- TC–84A: non-powered particulate respirators (N, P, and R filters)
- TC–21C: powered particulate respirators only (100 series filters)
- TC–23C: chemical cartridge respirators
- TC–14G: gas masks with canisters
- TC–19C: supplied-air respirators
- TC–13F: self-contained breathing apparatus
Which body part is most likely to be exposed to pesticides?

1. Neck to ankles and wrists
2. Feet
3. Frontal Body Parts
4. Scalp
Always wear an apron when pesticide concentrates are used.

The pesticide label may require wearing a chemical-resistant apron when mixing or loading a pesticide or when cleaning application equipment.

Be careful when wearing an apron around equipment with moving parts. Consider wearing a chemical suit in those situations.
Which body part is most likely to be exposed to pesticides?

1. Ears
2. Feet
3. Neck to ankles and wrists
4. Scalp

![Bar chart showing percentage exposure to pesticides]
Top PPE for the Safety Minded

The protection offered by chemical-resistant clothing depends on the fabric, and on design features. Coveralls should be made of sturdy material such as cotton, polyester, a cotton–synthetic blend, denim, or a non-woven fabric such as Tyvek®. Well-designed coveralls offering protection from pesticides are tightly constructed, have sealed seams and snug, overlapping closures that do not allow gaps and do not unfasten readily.

Coveralls can protect clothing and reduce exposure.

Some product labels require a chemical-resistant suit.
Which body part is most likely to be exposed to pesticides?

1. Neck (54%)
2. Feet (30%)
3. Ears (3%)
4. Scalp (14%)
Top PPE for the Safety Mind

Check the product label for specific footwear requirements (i.e., chemical-resistant, waterproof)

Feet are highly susceptible to pesticide exposure

Shoes and socks are adequate for most pesticide handling activities
Should you tuck your pants legs in chemical resistant boots?

1. Yes
2. No
Which body part is most likely to be exposed to pesticides?

1. Neck
2. Belly Button
3. Ears
4. Scalp
Plastic safari hat with a plastic sweatband is best choice.

Check product label for specific requirements (i.e., chemical-resistant hoods)
**PPE Maintenance**

<table>
<thead>
<tr>
<th>Disposables</th>
<th>Reusable</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Meant to be disposed of</td>
<td>• Meant to be washed or cleaned after use</td>
</tr>
<tr>
<td>• Use for handling activities that require dexterity and does not tear the thin plastic</td>
<td>• Gloves are good for about 7 days/applications</td>
</tr>
<tr>
<td></td>
<td>• Respirators, headgear, footwear may last years</td>
</tr>
</tbody>
</table>
Washing Contaminated PPE

1. Wash a few items at a time
2. Wash in washing machine on the longest cycle
3. Wash twice if heavily contaminated
4. Run empty cycle in washer
5. Hang dry items if possible for at least 24 hours
Wash after each use with detergent and hot water

Sanitize by soaking 2 minutes in 2 tbs. bleach to 1 gal. hot water

Hang dry thoroughly

Store in plastic bags with zip closures
The Label is the Law

When is it ok to deviate from the label instructions?

1. Follow an old label
2. Don’t have the right equipment
3. Wear more PPE
Signal Words

Most to Least Toxic

1. Danger, Warning, Caution
2. Warning, Caution, Danger
3. Danger, Caution, Warning

![Bar chart showing percentages of signal words]

- Danger: 46%
- Warning, Caution: 9%
- Danger, Caution: 46%
**Signal Words**

- The word on the label that tells the potential hazards of the product
  - Danger Poison
    - w/ skull & Crossbones
  - Danger
  - Warning
  - Caution
**DANGER–POISON**

with a skull and crossbones symbol

- **Peligro** (Spanish for "danger"
  must also appear on the label)

- Indicates the product is highly toxic by any route of entry
Signal Words

- **DANGER**
  - Indicates that the product has a high potential to irritate skin and eyes
WARNING

- Product is moderately toxic orally or when inhaled
- Can also cause moderate eye or skin irritation
Signal Words

- **CAUTION**
  - Harmful if swallowed or inhaled
  - May irritate eyes, nose, throat, and skin
Which numbers will you find on a label?

1. EPA Registration #
2. Emergency phone
3. EPA Establishment
4. All of the above

![Bar chart showing the percentage of responses to the question.](chart.png)
EPA Establishment Number

- Tells where that product was made
  - Important if it is ever necessary to recall the product
- Includes abbreviation of state of origin
Indicates that the product has passed all tests required by EPA
- Human health testing
- Environmental testing
- Wildlife toxicities
If a product contains an active ingredient on EPA’s 25B list, no EPA registration number is required.

- 25B list contains 31 active ingredients that are “non-toxic”
  - e.g. Mint oil, dried blood, citronella
Emergency Number

Contact number in the event of human exposure, spill, accident, or environmental exposure
Emergency Number?

National poison center number

1-800-222-1222
Use Classification

What are the use classifications?

1. General and Restricted
2. General, Private, and Restricted
3. General and Precautionary
Use Classification Statement

- Two types of classification
  - Restricted Use
  - General Use
Use Classification Statement

- Restricted Use:
  - For sale to, and for use only by, certified applicators or applicators under the direct supervision of a certified applicator
Why should you keep pesticides in their original container?

1. So you don’t lose the label
2. To prevent accidental consumption
3. All of the above
Storage and Disposal

- Store in original container only
- Temperature restrictions
- Container disposal
Storage and Disposal

Storage: Store above 10°F (12°C) to keep product from crystallizing. Crystals will settle to the bottom. If allowed to crystallize, place in a warm room (68°F or 20°C) for several days to allow crystals to re-dissolve, then shake before using.
Herbicide
Nonselective Foliar Systemic
Herbicide for Weed Control

Active Ingredient:
*Glyphosate: N-(phosphonomethyl) glycine . . . 28.3%
Inert Ingredients: 71.7%
Total: 100.0%
*Contains 3 pounds of glyphosate acid in each gallon, in the diammonium salt form.
See directions for use in attached booklet.

AGRICULTURAL USE REQUIREMENTS
Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. No. 100-1121
EPA Est. 100-LA-001 M
Superscript identifies manufacturing site
Touchdown® and the Syngenta logo are trademarks of Syngenta Crop Protection, Inc. Greensboro, North Carolina 27409 www.syngenta-us.com
SCP 1121A-L1 0601

KEEP OUT OF REACH OF CHILDREN.
CAUTION

FIRST AID
If in eyes: Flush eyes with plenty of water. Call a physician if irritation persists.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

HOT LINE NUMBER
For 24 Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372

Precautionary Statements

Hazards to Humans and Domestic Animals
Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

Environmental Hazards
Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash water.

Storage and Disposal

Container Disposal
Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

2.5 gallons
U.S. Standard Measure
**Herbicide**
Nonselective Foliar Systemic Herbicide for Weed Control

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EPA Reg. No. 100-1121
EPA Est. 100-LA-001 SS
EPA Est. 100-NE-001 MHA
Superscript identifies manufacturing site

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U.S. Patent No. 5,468,718
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SCP 1121A-L1 0601

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CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

2.5 gallons
U.S. Standard Measure

Review

Net Contents
Herbicide
Nonselective Foliar Systemic Herbicide for Weed Control
Active Ingredient:
*Glyphosate: N-(phosphonomethyl) glycine . . . 28.3%
Inert Ingredients: 71.7%
Total: 100.0%
*Contains 3 pounds of glyphosate acid in each gallon, in the diammmonium salt form.
See directions for use in attached booklet.

AGRICULTURAL USE REQUIREMENTS
Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. No. 100-1121
EPA Est. 100-LA-001559
EPA Est. 100-NE-001MHA
Superscript identifies manufacturing site
Touchdown® and the Syngenta logo are trademarks of a Syngenta Group Company
U.S. Patent No. 5,468,718
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Syngenta Crop Protection, Inc.
Greensboro, North Carolina 27409
www.syngenta-us.com
SCP 1121A-L1 0601

KEEP OUT OF REACH OF CHILDREN.

CAUTION

FIRST AID
If in eyes • Flush eyes with plenty of water. Call a physician if irritation persists.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

HOT LINE NUMBER
For 24 Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372

Precautionary Statements
Hazards to Humans and Domestic Animals
Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

Environmental Hazards
Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash water.

Storage and Disposal
Container Disposal
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2.5 gallons
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Review
**Herbicide**

Nonselective Foliar Systemic Herbicide for Weed Control

Active Ingredient:
* Glyphosate: N-(phosphonomethyl) glycine . . . . 28.3%

Inert Ingredients: 71.7%

Total: 100.0%

*Contains 3 pounds of glyphosate in each gallon, in the diammonium salt form.
See directions for use in attached booklet.

**Agricultural Use Requirements**

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EPA Reg. No. 100-1121
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**2.5 gallons**

U.S. Standard Measure
Herbicide
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Herbicide for Weed Control
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Thanks!