

# How Safe Are They? – Herbicides and Pesticides

The idea for this article came from the recent concern about weed spraying in my neighborhood. To understand the level of danger you need to be able to read and interpret the label on the product. Note, however, that in most situations most of the risk is to the person doing the application – in a residential situation that may be you.

The suffix “cide” means to kill something. What it kills is usually determined by the word immediately preceding “cide”. Things killed range from homicide (kills man) to herbicide (kills herbaceous plants) to rodenticide (kills rodents).

Unfortunately most labels are written in legalese to protect the manufacturer against lawsuits, and are not easily readable or clear to the layman. In addition, the label information has become so extensive (30 pages in a pdf?) that it has to be folded up and glued down on the bottle. This makes it difficult to read the material before you purchase the product.

What I consider the most important information on the label that you should understand and be able to interpret includes:

- the Signal word that tells you how dangerous (or not) it is
- what the product kills
- how it works
- precautions to take and/or what protective clothing you should wear when applying it
- directions for use
- how to dispose of it
- what kind of emergency first aid might be needed
- post application instructions e.g. when can you reenter the area.

**Signal Word** – is a one word summary or cliff-notes version of how dangerous the product is to humans. There are three words to select from: *Caution* means the product has fairly low toxicity, *Warning* means it's moderately toxic, and *Danger* means it is highly toxic. This should be found on the front of the Label and not hidden in the folds. Always try to use the least toxic product; as this is better for you and the environment.

**What the product kills** – lists the specific things killed. If the thing you want to kill isn't listed, then you are probably wasting your money buying the product. You may do some harm to the environment because like drugs, herbicides and pesticides may have some side effects and pests or plants may develop resistance to the product if used over and over again.

**How it works** – you may not think you care how the product kills, but if the treatment is to be effective you need to understand how it works. If the product says “systemic” then typically you would drench the soil with diluted product and the plant would absorb it into its vascular system. Pests die by chewing parts of the plant. So if the insect you're trying to kill does not have chewing or sucking mouthparts, this product will not kill it.

Some poisons are contact poisons, meaning you have to spray the product on the pest not just the leaf to kill it. It's also important to know how the product works because periodically you may need to try a different method so the pest doesn't become resistant.

**What precautions to take and/or how to dress when applying it** – the term on the label is PPE (personal protective equipment). I always read this section because it tells me what to watch out for. Do I need gloves, pants, or long sleeves (skin contact is a problem), do I need a mask (respiratory issues), do I need eyeglasses (eye irritant), etc.? These instructions are important and should be followed to avoid a trip to the hospital - or the morgue! Some pesticides are registered for use by professionals that have regular training and certification. There's a reason for this and you shouldn't be attempting to use these products unless you're licensed for it. The following example is from the label for Sevin.

#### **PRECAUTIONARY STATEMENTS**

##### **HAZARDS TO HUMANS & DOMESTIC ANIMALS**

##### **CAUTION**

Harmful if swallowed. Harmful if absorbed through skin. Harmful if inhaled. Avoid contact with skin, eyes or clothing. Avoid breathing vapor or spray mist. Wear long-sleeved shirt, long pants, shoes plus socks and household latex or rubber gloves when mixing and applying this product. Wear a hat and eye protection when making overhead applications. Remove clothing immediately if pesticide soaks clothing. Change clothing as soon as possible after use. Wash the outside of gloves before removing. Wash thoroughly after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

Not only what to wear and what equipment to use is specified here, but how to clean it is also described. The following description is for the use of Round-Up.

##### User safety

**Directions for use** – tells you how to apply the product correctly. If the directions say 1 tsp. to a gallon, then 3 tsp. is not better or more effective – just more dangerous to you. According to the law YOU are responsible for using the product carefully and according to the directions – not the person that sold it to you. The following is from the label for Bayer All-In-One Rose and Flower Care Concentrate:

- This product is highly toxic to aquatic invertebrates.
- To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

**How to dispose of it** - is another section I always read and carefully. ~~Plus~~ legally you must dispose of the product as the label specifies. Dumping down a storm sewer endangers all kinds of life from kids playing in a storm drain to fish living in the river. The disposal section helps me understand how toxic the product is.

Again below is the Storage and Disposal instructions for Round-Up.

#### Storage and disposal

**What kind of first aid might be needed** – tells how to treat someone that might have problems. Here is a part example from a label for 2-4 D a professionally applied herbicide:

**IF IN EYES** - Hold eye open and rinse slowly and gently with water for 15 to 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.

**Post instructions** i.e. when can you and your pets reenter the treated area or other information you need to know after applying the product.

Other information that might be helpful to you includes whether a “cide” is Selective or Non-Selective. Another name for Non-Selective is broad spectrum, killing any plant they touch. Round-Up and other products whose primary ingredient is glyphosate are broad spectrum. Weed-n-feed, often used for weed control in lawns, is Selective since it only kills broadleaf plants and does not affect the turf grass. This is both good as it is not broad spectrum killing everything and bad because when used around trees and shrubs it kills them!

Generally products should not be used when temperatures are over 85 degrees or when the wind is blowing more than about 5 mph. The higher temperatures may cause the product to go from a liquid state to a gas state (volatilize) and kill any overhead or nearby plant. Wind causes either liquid or gas to drift, affecting unintended vegetation possibly even your neighbor’s.

Products that come in a granular form can be good or bad. They won’t drift, but they do stay around longer.

Finally it’s important to know how much/long a “cide” stays in the soil or water (its residual) and whether it can get into our drinking water supply – aquifer or river. When using “cides” either personally, or hiring someone, begin with the least toxic, more organic approaches. Both you and your neighbors will appreciate this. It’s pretty scary to be working in your garden, smell something funny, look over your wall and see workers in full protective gear including mask and goggles, applying something you know nothing about, but have just been exposed to. Keeping your neighbors informed might be part of your process.

A quick source of label information is available on this website <http://www.domyownpestcontrol.com/> To find the pdf of the label you’ll need to click on a specific product first and then click on the link to the label. However, this is NOT a recommendation to do your own pest control!