

# Pesticide Primer

## How To Safely Use and Store Chemicals

Probably the least understood and potentially the most dangerous part of rose growing is the safe handling of pesticides. This is an area we all have to be reminded of from time to time and is now a requirement for all Consulting Rosarian seminars and schools.

First, what is a pesticide? Simply, it is a material that will kill or inhibit the growth of a pest. This may be an insect, fungus, spider mite, weed, etc. The pesticide may be natural or synthetic. A pesticide is the generic term which covers fungicides, insecticides, herbicides, miticides, rodenticides, etc.

The bottom line is that all pesticides are poisons, either to man, animals, or the environment. The lethality is often measured by LD-50s, the dose needed to kill one half of the population exposed, either by inhalation, ingestion, or through the skin. For this reason, pesticides are rated as:

**Danger-Poison** (highly poisonous)

**Danger** (poisonous or corrosive)

**Warning** (moderately hazardous)

**Caution** (least hazardous)

Most of the "Danger-Poison" materials are restricted and often require an applicator permit. Many of the "Danger" materials are so rated because the pesticide or the carrier (solvent or oil) can cause skin or eye irritation or damage.

There are two general types of pesticides: *eradicator* (kills in place, direct or indirect) and *inhibitor* (stops further growth).

There are a few things you can do to reduce the number of pests that will attack your roses. Some of these are: purchase disease resistant varieties, plant roses far enough apart to get good air circulation, keep the centers of rose plants cleared out of extra growth, since we do not have problems with blackspot in our area, wash your roses with water, use companion plants that deter insects, and make sure you water under the foliage to reduce spider mites. The purpose of air circulation is to avoid creating ideal growth situations for fungus to form. Fungus spreads mostly from airborne spores. If you have good air circulation and wash your plants, the fungus spores will not settle on the plant and become established.

However, even the best attempts will not take care of all the problems we face, so the use of a pesticide is sometimes the answer.

### Selecting A Pesticide

The first step in determining if you want to use a pesticide is to identify the pest you want to remove. Often, the bug you see may be a beneficial insect, such as ladybugs. I have often identified a "nasty bug" as the larva of a ladybug which by itself is pretty ugly, but excellent at aphid control. You can identify the pest by using garden or insect books, take a sample to your local garden shop or Ag department, or to your rose society meeting.

The next step is to determine the amount of damage you can live with. Often damage is minimal and hardly worth the effort or expense to spray with a pesticide. There are two philosophies of spraying, preventative (also called prophylactic) and spray when symptoms appear.

Next is whether you want to control the pest by spraying with chemicals or organically. A good program is called Integrated Pest Management (IPM).

Here you start off with the most organically and environmentally sound materials, and work your way up the chemical chain until you reduce the pest to an acceptable level. This is where personal preference plays an important role. Many rosarians do not want any pest in their garden and will make sure by spraying weekly. You can also get a jump on problems by watching the changing weather and signs that problems are on their way, such as dry heat will mean spider mites are close by. A quick note: just because it is organic, it does not mean it is safe. Also, by using pesticides, you may remove the good bugs as well as the bad.

Once you have identified the pest and determined the level of damage you are willing to accept, then we need to purchase the material. For roses, this is where Consulting Rosarians are a big help. They are quite familiar with the pests in your area and methods of control. There are numerous products available in all kinds of packaging. For small gardens, hand spray bottles or aerosol cans are effective and easy to use with little danger of exposure. These range from the least dangerous products such as *Safer*, to the mixed insecticide and fungicides in aerosol cans. Each has their advantages and disadvantages. Pesticides also come in dusts, granular, and wettable powders as well as liquids. The liquids can be ready-to-use or

concentrated. For large gardens, buying pesticides in the concentrated form and mixing yourself is more economical, and potentially dangerous.

When you are at the store to purchase a pesticide, read the label and see what pests they control. Also, look at the warning or rating label, see what the active ingredient is, whether it is toxic or not to plants, animals, children, or the environment, and if it meets your personal preference. Don't be afraid to ask questions. A broad spectrum product controls a wide range of pests, while selective products are very narrow in control. For information, there is a toll free National Pesticide Telecommunications Network (NPTN) Hot Line, 1-800-858-7378.

### **Mixing The Pesticide**

The most important thing about pesticide use is to read the label. NEVER use a pesticide other than its original intent which is clearly defined on the label. Never mix the pesticide in concentrations higher than what the label states. Most accidents happen because people do not read and fully understand the information on the label. Make sure you know what first aid is necessary if a problem should occur. In the event of an accident, follow the first aid instructions under "Statements of Practical Treatment" and call your doctor and/or poison control center.

There are no mixing precautions if you are using a pre-mixed pesticide. If you need to mix the pesticide in a sprayer, read the instructions to determine how much you need. Measure carefully. More is often not better and you can cause damage to the plant, such as spray burn. You can always mix less, but never more than the instructions. Mix your pesticide in a well-ventilated area. Place newspapers, cloth or plastic to protect your mixing surface. If the product is an eye irritant, wear goggles. Also wear clothing that protects and is washable or disposable. Tyvek suits are lightweight and they provide good protection. Always wear gloves when mixing to avoid skin irritation or absorption. Make sure you mix up only what you intend to use. Most pesticides will lose their effectiveness in a short time and never should be stored. Needless to say, never use measurement tools that could be used for food preparation. Get a set of measures for pesticide mixing only. Do not smoke or eat while mixing or spraying pesticides.

You may be able to mix several types of pesticides together in a spray mix. Often the label will tell you if you can mix other materials. Unless you know for sure, try not to mix different materials because they may have an inhibiting effect or may clog your sprayer. Ask your local Consulting Rosarian.

### **Using Pesticides**

After the pesticides are mixed, they can be used. First, check the label for potential climatic problems. For example, many insecticides should not be used at high temperatures. A good rule of thumb is never spray when it is hot. This will cause more damage than what you are trying to control.

Wear protective clothing: long sleeved shirt, goggles or face shield, hat, closed shoes, washable or disposable clothing, dust mask if you are using dusts, and gloves. Try to protect all exposed portions of your skin. The best times to spray are early in the morning when the wind is calm. Do not spray in high wind conditions. You may want to close up your house so the spray does not enter.

Spray close to the plant and make sure you spray on all surfaces of the leaf. Many pests live underneath the leaf. Keep the spray away from children, animals, and water sources, such as fountains and ponds. Because pests can become immune to a pesticide, alternate using different materials.

### **Clean Up**

If you planned right, there should not be any leftover materials. Do not store mixed pesticides. Pre-mixed pesticides have the advantage of no clean-up. Clean all spray equipment according to instructions. Clothing can be stored or washed if need be. You should never wash spray clothing with regular clothing. Try to rinse the spray clothing several times first and then wash alone.

### **First Aid**

As previously mentioned, the instructions for first aid are on the pesticide label. Washing skin or eyes with plain water is often the first aid method of choice. Do not use other materials such as eyedrops. Other chemicals can cause more damage or faster absorption into the body than water alone. For ingestion, read the label and see what they recommend. *Ipecac* will help the person vomit the poison so it is a good idea to keep some around, especially if you have kids. If you inhale the pesticide, get plenty of fresh air. Call your doctor, 911, local poison center or NPTN.

### **Pesticide Storage**

Make sure all of your pesticides are stored in a safe, high, locked cabinet. Always use the original containers and do not store in a container that a child may mistake for a beverage, such as milk containers.

An interesting and scary fact from a 1992 EPA survey is that 47% of all homes with children under the age of five had at least one pesticide stored within their reach. Try not to purchase more than you need. The storage area should be in a place where spills are confined and will not cause ground water

contamination. Many pesticides are flammable, so keep them away from all heat sources such as water heaters, etc.

If you have a spill, make sure you clean it up. Use kitty litter, sawdust, or other absorbent material. Do not wash it down the drain. Make sure the area is properly ventilated before attempting to clean it up.

#### **Pesticide Disposal**

Most pesticides and their containers are considered hazardous waste and must be disposed of properly. Read the instructions for disposal on the label and check with your local disposal company. There are hazardous material "round-ups" held from time to time locally. Take all unwanted pesticides to the round-up for proper disposal. Do not dump pesticides down a sink or storm drain. It does not take much to kill a significant number of aquatic animals downstream.

#### **Miscellaneous**

Because many pesticides are expensive, come in large packages, and little is used, rosarians often will split packages. This is illegal. It is also illegal to use a product for a use not listed on the label. Often a product like *Sentinel* is approved for several products, but not for use on roses. It takes a lot of testing to get a product approved for use on certain types of plants.

Several materials are restricted for use and you need an applicator's permit. To obtain a permit, you need to apply to the LA County Agriculture Department, take classes and pass an exam. When you obtain this permit, you can purchase restricted materials for your own or professional use.

Be aware that you can have an allergic reaction to a pesticide. I have an adverse reaction to the insecticide *Mavrik* and will not use it.

Pesticides can be used safely if you take the appropriate precautions. In the end, our roses (and family) will benefit.

*Reprinted from the September 1997 issue of Rose Ecstasy, bulletin of the Santa Clarita Valley Rose Society, Kitty Belendez, Editor.*