

## **Principles of Pest Control**

Q. What is the first thing you should do when you detect the presence of a pest that you think you may need to control?

A. Identify the pest to be sure you know exactly what the problem is.

Q. How can pest identification help you develop a good pest control strategy?

A. Identification of the pest allows you to determine basic information about it including its life cycle and the time that it is most susceptible to being controlled.

Q. Describe pest monitoring and explain how it can be important to pest control strategy.

A. Monitoring is checking or scouting for pest in an area to determine what pests are present, how many of each kind of pest are in the area, and how much damage they are causing. Monitoring is important to many pest control strategies, because it helps determine if the threshold has been reached and whether control measures have been effective.

Q. Define “integrated pest management” (IPM) and list several possible control tactics that may be used in an IPM strategy.

A. Integrated pest management is the combining of appropriate pest control tactics into a single plan to reduce pest and their damage to an acceptable level. Pest control tactics may include: host resistance, biological control, cultural control, mechanical control, sanitation, and chemical (pesticide) control.

Q. What can you do to keep the pest you trying to control from becoming resistant to the pesticides you use?

A. Pest resistance can be reduced by using IPM and rotating the types of pesticides used.

## **Pesticide Labeling**

Q. Explain the differences between the terms “label” and “labeling.”

A. The label is the information printed on or attached to the pesticide container. Labeling includes the label itself, plus all other information you receive from the manufacturer about the product when you buy it.

Q. What do the words “Restricted Use Pesticide” tell you about the pesticide product?

A. “Restricted Use Pesticide” means that the product has been shown to be likely to harm people or the environment if it is not used correctly. It may be purchased and used only by certified applicators and those under their direct supervision.

Q. Name and explain the meaning of the signal words and symbols you may see on a pesticide product.

A. “Caution” indicates that the pesticide product is slightly toxic or relatively non toxic. “Warning indicates that the pesticide product is moderately toxic. “Danger indicates that the pesticide product is highly toxic. “Poison and the skull and crossbones indicates that the pesticide product is highly toxic as a poison, rather than as a skin or eye irritant.

## Formulations

EC = Emulsifiable Concentrate

WP = Wettable Powder

### **Pay particular attention while reading to areas concerning drift and sprays.**

Q. What is a pesticide formulation?

A. A pesticide formulation is the mixture of active and inert (inactive) ingredients that forms a pesticide product.

Q. What is the difference between active ingredients and inert ingredients?

A. Active ingredients are the chemicals in a pesticide product that control pests. Inert ingredients are the chemicals in a pesticide product that are added to make the product safer, more effective, easier to measure, mix, and apply, and more convenient to handle.

Q. If you had a choice of either a wettable powder formulation or a granular formulation for a particular pest control task, which would be best if drift were a major concern?

Which would be best if you need the pesticide to stay on a surface that is not level, such as foliage?

A. The granular formulation would be the best choice in the first situation, because granules have a much lower drift hazard than wettable powders. Granules do not stick to non-level surfaces, so the wettable powder would be the best choice in the second situation.

## Pesticides in the Environment

Q. Name some ways that careless pesticide handling could lead to point-source pollution.

A. Ways that careless pesticide handling could cause point-source pollution include, for example:

1. Mismanagement of wash water and spills produced at equipment cleanup sites.
2. Improper disposal of containers, water from rinsing containers, and excess pesticides.
3. Failure to correctly clean up leaks and spills at pesticide storage sites.
4. Spilling pesticides while mixing concentrates or loading pesticides into application equipment.

Q. What is a “sensitive” area? Give four examples of sensitive areas that you must be especially careful to protect when you are handling pesticides.

A. Sensitive areas are sites or living things in environments that are easily injured by a pesticide. Some examples of sensitive areas are: places where pesticides might get into ground water or surface water; homes, schools, playgrounds, hospitals, and other places where people are present; places where there are animals – endangered species, bees, other wildlife, livestock, pests; places where crops, ornamental plants, or other sensitive plants are growing and areas where food or feed is processed, stored, or served.

Q. List three routes by which pesticides can move offsite.

A.

1. In air, through wind or through air currents generated by ventilation systems.
2. In water, through runoff or leaching.
3. On or in objects, plants, or animals (including humans) that move or are moved offsite.

Q. What factors influence whether in pesticide will move offsite in the air?

A.

1. Droplet or particle size.
2. Height and direction of release.
3. Whether the pesticide tends to form vapors.

Q. What kinds of damage can some pesticides cause to surfaces?

A. Surfaces may become pitted or marked, be corroded or obstructed, or be left with a visible deposit.

## **Special Environmental Concerns Protecting Ground Water and Endangered Species**

Q. What are some factors that determine whether pesticides will reach ground water?

A. The factors include: practices followed by pesticide users; presence or absence of water on the surface of the site where the pesticides are released; chemical characteristics of the pesticides; type of soil in the site where the pesticides are released; location of the groundwater – its distance from the surface and the type of geological formations above it.

Q. How can you help to prevent pesticides from reaching ground water?

A. Avoid using more pesticide than the labeling directs; avoid application methods that present special risks; keep pesticides from back-siphoning into your water source; locate pesticide storage facilities at least 100 feet from wells, springs, sinkholes, and other sites that directly link to ground water; locate mix-load sites and equipment-cleaning sites at least 1200 feet from surface water or from direct links to ground water or take precautions to protect those sites; dispose of unused pesticides, pesticide containers, and equipment and container rinse water correctly.

Q. What types of soil slow the movement of pesticides into groundwater? What types permit rapid movement?

A. Soils that are fine-textured and contain organic matter slow the downward movement of water containing pesticides. Coarse, sandy soils generally allow water to carry pesticides rapidly downward.

## **Harmful Effects and Emergency Response**

Chronic effects are illnesses or injuries that appear a long time, usually several years, after exposure to a pesticide.

Q. Explain acute effects, delayed effects, and allergic effects.

A. Acute effects are illnesses or injuries that may appear immediately after exposure to a pesticide (usually within 24 hours). Delayed effects are illnesses or injuries that do not appear immediately (within 24 hours) after exposure to a pesticide or combination of pesticides. Allergic effects are harmful effects that some people develop in reaction to pesticides that do not cause the same reaction in most other people.

Q. Name four signs or symptoms of pesticide poisoning and two signs or symptoms of irritation effects from pesticides.

A. Pesticide poisoning may cause nausea, vomiting, diarrhea, and/or stomach cramps; headache, dizziness, weakness, and/or confusion; excessive sweating, chills, and/or thirst chest pains; difficult breathing; cramps in your muscles or aches all over your body. External irritants may cause redness, blisters, rash, and/or burns on skin, and swelling, a stinging sensation, and/or burns in eyes, nose, mouth, and throat.

## **Personal Protective Equipment**

Q. What legal responsibility do you have for wearing the personal protective equipment that the pesticide labeling list for your handling situation?

A. By law, you must wear at least the personal protective equipment listed on the labeling for the handling task you will be performing. You are allowed to wear additional or more protective equipment.

Q. What should you do with a coverall that has highly toxic pesticide concentrate spilled on it?

A. Dispose of the coverall. It cannot be adequately cleaned

Q. What should you do when you are finished using your respirator for the day?

A.

1. Discard any masks, filters or respirators that cannot be reused.
2. Take off the prefilters and cartridges or canisters. Discard them or, if still useable, replace their caps and seal them in an airtight container, such as a zip-closable plastic bag.
3. Wash the respirator body, face piece, and any reusable filters. Soak them for at least 2 minutes in a mixture of 2 tablespoons of chlorine bleach in a gallon of hot water. Rinse thoroughly. Dry thoroughly or hang them in a clean area to dry.
4. Store the respirator and any reusable cartridges, canisters, filters, and prefilters in an airtight container in a area where they are protected from dust, sunlight, extreme temperatures, excessive moisture, and pesticides or other chemicals.

Q. How will you know what to replace dust/mist masks, prefilters, and dust/mist-filtering and vapor-removing canisters and cartridges?

A.

1. Change dust/mist masks, cartridges, and prefilters immediately if you have trouble breathing. They usually need to be changed at least every 8 hours.
2. Change vapor-removing canisters or cartridges immediately if you smell, taste, or feel irritation from pesticide vapors. Change them whenever any “service life indicator” tells you that you should, or after the time limit set by the manufacturer. Otherwise, replace them after about 8 hours of use.

## **Pesticide Handling Decisions**

Q. List some consequences of the incorrect use of pesticides.

A.

1. Incorrect use can result in wasted material, failure to control the pest, and damage to the target site.
2. Misused pesticides can cause immediate as well as long-term harmful effects to humans, to other living things, to property, and to other parts of the environment.
3. Misused pesticides can result in fines as well as legal actions charging you with liability for damages.
4. Pesticides are expensive. Using them incorrectly can be costly.

## **Mixing, Loading, and Application**

Q. What should you do with an empty pesticide container?

A.

1. If containers are rinsable, rinse them as soon as they are empty.
2. Return all empty pesticide containers to the pesticide storage area to the container holding area when you finish your task.
3. Crush, break, or puncture empty containers that can not be refilled, reconditioned, recycled, or returned to the manufacturer.
4. Dispose of containers in accordance with labeling directions and with any laws or regulations that apply.

Q. What are three ways to help you decide whether you can safely mix two pesticides together for application?

A.

1. Check the pesticide labeling. It may list the pesticides (and other chemicals) known to be compatible with the formulation.
2. Get a compatibility chart, which may be available from several sources.
3. Test a small amount of the mixture before mixing large quantities of the pesticides together.

Q. What should you do with rinsate that you create when you clean your pesticide equipment?

A. Collect the rinsate. Reuse it, if possible, or dispose of it as excess pesticide.

Q. Why should you keep records of pesticide applications?

A.

1. Records can establish proof of proper use.
2. Good records can save you money by improving your pest control practices and your efficiency.
3. Records can help you reduce pesticide mistakes or misuse.
4. Good records can help you reduce carryover by buying only the amount of pesticides you will need

## **Applying the Correct Amount**

Q. Why is it so important to apply the correct amount of pesticide to the target site?

A. If you apply too little pesticide, you may not fully control the pest. Overdosing may cause damage or injuries, leave illegal residues, and cause you to be fined, or to be liable for damages.

Q. Why is it important to calibrate some types of pesticide application equipment?

A. Many types of pesticide application equipment must be calibrated so that the correct amount of pesticide will be released to the target site.

## **Transportation, Storage, Disposal, and Spill Cleanup**

Q. What precautions should you take when you transport pesticides in a vehicle?

A.

1. Never carry pesticides in the passenger section.
2. Never allow children, other passengers, and pets to ride with pesticides.
3. Never transport pesticides with food, clothing, or other things meant to be eaten or in contact with people or animals.
4. Never leave your vehicle unattended when transporting pesticides in an unlocked trunk compartment or open-bed truck.
5. Consider transporting highly volatile pesticides in separate trips from other chemicals.

Q. If you have excess pesticide materials that are still usable, what can you do with them?

A. Apply them to a site listed on the labeling; find someone else who can legally use them; return them to the dealer, formulator, or manufacturer.

Q. If you have pesticide wastes (other than empty containers) what can you do with them?

A. Dispose in a hazardous waste landfill or pesticide incinerator, or store until disposal is possible.

## **Important information not found in study material.**

What type of spray nozzle is the least corrosive?

You can increase pesticide flow through spray nozzles by increasing pressure.

Smaller droplets through spray nozzles increase the risk of drift.

Banding is the practice of spraying around an area to keep pest outside.  
You will also need to know who can fine/sue you for improper usage and/or chemicals drifting onto adjacent properties.