

Questions & Answers About Pesticides

The Need for Pesticides

Why do we use pesticides?

Pesticides (the generic term for insecticides, herbicides and fungicides) control weeds, insect pests and fungal and other diseases. The benefit of pesticides lies in their ability to manage a pest (weed, insect or disease) problem that potentially could become out of control and could endanger your health or the health of your family, pets and plants, or threaten the quality of your home, lawn, school or business.

Professional Applicators

Who are professional applicators?

Professional applicators are people trained to apply or direct the application of pesticides as part of their jobs, generally for a fee. Professional applicators are those who apply pesticides to property other than their own.

What type of license or certification is required to apply pesticides?

There are two types of pesticides: general use pesticides and restricted use pesticides. General use pesticides are those purchased by the public in garden centers and retail outlets, which can be applied by homeowners without special training, just by following directions on the product label. General use pesticides are also applied by professional applicators, although professionals may have a greater choice of products or quantities from which to choose and more sophisticated application equipment.

Restricted use pesticides can be applied only by certified applicators or individuals operating under the supervision of certified applicators. To become certified, professional applicators must demonstrate, through testing, practical knowledge of pests related to the category of certification for which the individual is applying.

These minimum standards for certification are established by the U. S. Environmental Protection Agency (EPA) and each state's lead agency for pesticides is responsible for enforcement. A state may establish more stringent requirements for certification, according to needs within that particular state. Generally, it is the Cooperative Extension Service that is responsible for training and testing pesticide applicators. Training classes are usually offered in individual counties throughout a state. Certified applicators must also renew their training regularly by attending approved continuing education programs.

Professional Products

Do professional applicators use products that are different than those used by the homeowner?

Most people are surprised to find that the pesticides regularly used by professionals are often the same as general use products available to homeowners. Licensed professionals may occasionally use restricted-use products (materials not available to the general public) to solve pest problems that are not responsive to general use products and which may require more sophisticated application technology. These few restricted-use products require extra care and precaution by those who handle the concentrated material when preparing application mixes. Therefore, only certified applicators may purchase and use or supervise the application of restricted-use products.

Are there risks associated with pesticide use?

How safe are the pesticides used by professionals and homeowners?

If pesticides are handled and applied with care according to label directions, they do not represent an unreasonable risk to people, non-target organisms or the environment. Each pesticide has met the safety testing standards set by EPA.

What can I do to minimize any risks to me or to my family?

The simplest way to minimize risk is to read the entire product label and follow all instructions, especially protective clothing requirements. Be sure to store all pesticides securely and out of the reach of children and pets. Regardless of whether you or a professional applies the pesticide, keep people and pets away from the treated area immediately following application.

If the product requires that you stay off or away from the treated area after application, it will be stated on the label. Although many products used on home lawns have no specific reentry recommendations prescribed by the product label, a good rule of thumb is to stay off a treated area until it has thoroughly dried or settled (for granular products) following pesticide application.

Do pesticide applications harm dogs and cats?

No, not if label instructions are followed. All pesticides are carefully tested before they can be registered by the EPA and are sold. Part of this testing includes determining possible effects on non-target organisms, such as pets.

When can pets return to pesticide-treated areas?

If there are any requirements regarding when pets can return to treated areas, these instructions will be on the label. Remember, some pesticides are developed and formulated for use on pets.

Are golfers at risk from pesticides when playing on a golf course?

No. There is no scientific evidence that golfers face any health risks from the pesticides used to maintain golf courses. Once a liquid or dry product is applied and the turfgrass is dry or the product has been watered in, there is very little chance of exposure to golfers or others who enter the area.

How do we know that these products aren't harmful to humans or wildlife?

The pesticide industry is one of the most highly regulated industries in the United States. Before a product is registered by the EPA, it must be rigorously tested for human health and environmental safety. This process can take up to 10 years and involve up to 120 different tests and studies. Today, manufacturers may invest as much as \$150 to \$185 million or more in product safety testing before a new pesticide ever comes to the market. These safety tests are required, designed and reviewed by EPA scientists and are conducted according to EPA standards.

How can an insecticide control insects and not be harmful to people and pets?

It is a well-established medical and scientific principle that the amount of a substance used determines whether it is harmful. With pesticides, the amount of product needed to control insects is many orders of magnitude lower than an amount that would affect mammals, such as humans and pets. Remember, exposure alone does not equal risk or harm.

Do pesticides cause cancer in people exposed to low doses of pesticides over a period of time?

No. As used, pesticides do not cause cancer. Before a pesticide product can be registered and marketed, it must first be evaluated as to its potential risks, including any risk of causing cancer. Only products determined by EPA to have met the Agency's rigid testing requirements can be registered by the EPA. There is no specialty pesticide on the market known to cause cancer in humans.

The American Medical Association's Council on Scientific Affairs states that there is only conjectural evidence at best that pesticides may be carcinogenic. Dr. Bruce Ames, University of California at Berkeley, states, "There is no convincing evidence from either epidemiology or toxicology that pesticides are of interest as causes of human cancer."

Does use of aquatic herbicides present a problem with fish, swimmers and drinking water quality?

No, the testing requirements for registration of an aquatic herbicide are even more restrictive than those applied to products for use on crops and ornamentals, because EPA recognizes the added sensitivity of aquatic ecosystems and the diversity of water uses. The label provides information on the chemical compound(s) comprising the active ingredient(s) of the herbicide, directions for correct use on target plant species, warnings and use restrictions. Selection of the appropriate herbicide requires consideration of the temporary restrictions on water use that may

be required following treatment. The label will specify timing of any use restrictions to assure protection of people, animals and the environment.

Regulation of Pesticides

Who regulates pesticides and their uses?

EPA is the primary pesticide regulatory agency. Under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), all products that contain pesticides must be registered with EPA before they can be lawfully sold or distributed. EPA registration means that pesticide registrants have submitted required scientific research data concerning the risks associated with the use of the pesticide, that EPA has reviewed the data and that EPA finds the data acceptable. In fact, it is illegal for EPA to grant registration to any pesticide product until the Agency is satisfied, by scientific data, that the product can be used safely.

Before EPA approves the use of a pesticide product, it must make a finding, based on sufficient scientific data, that the product can be used safely according to the proposed use instructions. Any new information that comes to light subsequently on possible or actual adverse effects of the product, whether to health or the environment, must be reported promptly to EPA. Furthermore, EPA must reevaluate the safety finding each time a new use is approved or a change is made to the use instructions for the product.

The Federal Trade Commission (FTC)

The FTC has regulatory powers covering advertising in any medium, whether transmitted orally or in written form. The FTC requires that all advertising materials and claims, including sales presentations, must be scientifically accurate and not deceptive to the consumer.

State Governments

The designated state agency is usually the Department of Environmental Protection or Conservation or the Department of Agriculture. Virtually all states require licensing, testing and certification before a company can apply pesticides commercially. Many states also regulate pesticide advertising within their borders. The designated state agency also registers all pesticides to be used within the state. Pesticide companies and most professional applicators have stringent product stewardship programs to ensure the responsible use of their products. As a consumer, as with any contractor, make sure your professional applicator is properly certified and licensed. Each product must meet the EPA testing standards.

Are EPA registrations a statement of product safety?

EPA registrations are granted only after exhaustive review of the test data required for the registration process. As part of the registration process, a product label is developed. When the label is followed, the product can be used without unreasonable risk to the applicator, the public and the environment.

Are product labels adequate to allow users to use the products safely?

Product labels provide adequate information to the users about how to use these products safely. The U.S. EPA also has an ongoing Label Improvement Program that allows the Agency to require new labeling information or to require updates and revisions that make the label as user friendly as possible.

Testing Products

How extensively tested are pesticides?

Pesticide production is one of the most highly regulated industries in the United States. Before a product is registered by the EPA, it must be rigorously tested for potential human health and environmental effects. This process can take up to 10 years and involves up to 120 different tests and studies.

Today, manufacturers may invest \$150- 185 million or more in product testing before a new pesticide ever comes to the market.

Most pesticides have registrations for multiple uses, many include uses on various food crops. This means even more testing has been done to satisfy the requirements of multiple registrations.

Are pesticides fully tested before they are used?

Yes. And, the process of pesticide registration is ongoing. Even though a pesticide is fully tested at the time it is registered, this is not the end of the process. As science advances, testing abilities change, and as new tests are developed, it is necessary to upgrade the information base on pesticides. In addition, it is not uncommon for additional tests to be required by EPA to maintain a registration or to register a product for additional uses.

The public should not be alarmed to hear that additional tests are performed for products already on the market. Rather, they should be reassured that the registration process is an ongoing effort to ensure that the information supporting the registration is always state-of-the-art.

Movement of Pesticides from Application Site

What is the likelihood that pesticides applied to lawns will get into groundwater?

There is very little likelihood that pesticides applied to lawns will end up in groundwater. Well-managed turf prevents runoff into water. In studies at The Pennsylvania State University for the U.S. Geological Survey, researchers found that the impact of well-managed turfgrass on water quality is so positive that the potential for water pollution from lawn pesticides and fertilizers is considerably less than other urban pollutants not associated with well-managed turfgrass areas.

An Ohio State University study found that thatch and other underlying soil residues retained nearly all the applied pesticides during the first two weeks after application. Residues in the soil were less than one part per million over 34 weeks of sampling. This means virtually all the

applied pesticide was staying in the thatch layer and surface residues rather than moving into underground water.

Presence of pesticides in well water is minimal. There are no known reported cases of adverse health effects from pesticide-contaminated water. Even in areas where pesticide use is most heavily concentrated, the presence of pesticides in wells has been found to be minimal or nonexistent.

“Present” does not mean harmful. Advances in analytical chemistry have made it possible to detect the presence of substances at levels never thought possible. The ability to detect chemicals at parts per million has virtually been replaced by measurements at parts per billion, parts per trillion and parts per quadrillion. As a comparison, a part per million is analogous to one second in 12.5 days, part per billion is analogous to one second in 32 years, and a part per trillion is analogous to one second in 32,000 years. To find a substance present in water has more to do with the ability to detect its presence, not a determination of risk.

Isn’t the wind drift a problem with pesticide application?

Drift is a concern only if proper precautions are not taken by the applicator.

Two types of drift may cause chemicals to move off target. Particle drift occurs when the wind scatters small spray droplets off the intended application site. Vapor drift occurs when chemicals evaporate and move with air currents to other sites. Vapor drift is not common among specialty products. In either case, an applicator should be aware of wind conditions that could cause drift..

If pesticides are applied to my lawn, is there risk to people in my house?

Even if there was drift or tracking, the amount of pesticide that could get into the house is very low.

In addition, maximum exposure is at the site of application, the lawn. The maximum application rates for the lawn has already been determined through required EPA testing, including the determination that this maximum rate of application will not result in unreasonable risk to humans.

Any amount of product that might get into the house will be far less than the amount allowed on the lawn. Therefore, any potential risk will be far less, or non-existent.

Notification of Pesticide Application

How can I find out when pesticide applications have been made or will be made?

Upon request by the customer, professional applicators should voluntarily provide information to the homeowner regarding the pesticides used and the application schedule. Most companies will provide copies of product information at the time of sale or upon request. If you have not received such information, ask your professional.

Some states require posting following application. Several states offer a registry, which is a listing of persons who wish to be notified when adjacent properties will be treated with pesticides. Even in areas where a registry does not exist, good professional companies are willing to provide notification to individuals upon request.

Integrated Pest Management

What is IPM, and how does it work?

Integrated pest management (IPM) is a continuous system of controlling pests (weeds, diseases, insects or others) in which pests are identified, action thresholds are considered, all possible control options are evaluated and selected control(s) are implemented. Control options—which include biological, chemical, cultural, manual and mechanical methods—are used to prevent or remedy unacceptable pest activity or damage. Choice of control option(s) is based on effectiveness, environmental impact, site characteristics, worker/public health and safety, and economics. The goal of an IPM system is to manage pests and the environment to balance benefits of control, costs, public health and environmental quality. IPM takes advantage of all appropriate pest management options.

IPM System Components

IPM systems rely on accurate determination of optimum control timing and selection of appropriate method(s). Implementation requires current comprehensive information on pests and control options. As a system, IPM programs include a series of three steps:

1. **Monitor the site for presence of pest.** Critical components of monitoring include accurately identifying the pest, the presence of the pest, level of infestation and acquiring knowledge of requirements and life cycles of the pest.
2. **Determine the action threshold below which the pest can be tolerated.** Action thresholds are determined by factors such as severity of the problem caused by the pest, health or property concerns related to the pest, and user needs for the site where the pest is found.
3. **Initiate preventive or curative action to avoid surpassing the established threshold by selecting the appropriate control method(s):** biological, chemical, cultural, manual, mechanical. The selected method(s) of protection must balance considerations of economics, efficacy, worker/public health and safety, and potential hazards to property and the environment. Following applications, the continuous IPM process begins again.

IPM in Schools

Pests pose serious risks to children's health in schools. At the same time, the use of pesticides in schools can be challenging because of heightened concerns and misinformation. It is important to remember pesticides can be used safely and responsibly to control pests such as insects, rodents and weeds as part of a balanced integrated pest management program.

Cockroaches, ants, wasps, head lice and rats are the pests most commonly found in schools, and they do more than disrupt the learning environment. These pests pose increasing health and safety risks to children. Children, just by nature of their size, are more vulnerable to vector-borne diseases (carried by insects) because their immune systems are still developing. Consider some of the problems with pests in the school environment:

- Cockroaches can live and breed by the thousands in classrooms and cafeterias. They carry germs from filthy surfaces to cafeteria tables and classroom desks. Cockroaches are the leading cause of asthma incidents in urban youth. The more children are exposed to cockroaches, the more allergic they become.
- Mosquitoes carry deadly diseases. West Nile Virus, a deadly encephalitis virus that is transmitted to people, birds and horses by virus-carrying mosquitoes, is rampaging across the country. The number of cases of West Nile Virus continues to escalate as the spread of the disease marches across the country and into Canada. The CDC reported that for the year 2004 there were 2539 total human cases of West Nile virus reported in the United States. Of these, 100 were fatal.
- Rats and mice are often found living in and under school buildings. Rodents contaminate stored food with their droppings and urine, and spread the deadly hantavirus pulmonary syndrome (HPS), an infectious disease. The American Lung Association reports that “[a]s of September 2004, a total of 379 laboratory-confirmed cases of HPS have been reported in the United States, including 32 retrospectively identified cases that occurred before 1993. Thirty-six percent of all reported cases have resulted in deaths.”
- Fire ants build their nests and routinely forage on school grounds, lawns, parks and even in schools, homes, health care facilities and nursing homes. These nests often contain more than 100,000 ants. During recess and physical education classes, children are often stung when they step into nests while playing. Fire ants can inflict hundreds of painful stings to children. Scientists reported at the 2005 Imported Fire Ant Conference that 80 human deaths have been attributed to anaphylactic shock from bites. Five of these deaths occurred in nursing homes. More than half of the U.S. population, including children, are allergic to poison ivy, poison oak and poison sumac. Contact with each of these plants causes severe skin irritation, intense itching and burning, as well as blistering. A Wisconsin school district banned the use of herbicides to control poison ivy and other weeds. The decision was later reversed when a student had to undergo a 22-day course of steroids to treat a poison ivy rash. Other weeds, such as crabgrass and dandelions, can cause injury when children trip over them on playgrounds and sports fields.

These types of problems have caused schools to implement pest management programs. Many are turning to Integrated Pest Management or IPM.

Communication Is Key

To be effective, a pest management team has to establish clear lines of communication and designated roles of responsibility. Often, the school board sets the overall pest management policy, provides funding and monitors the results. It is important that the school board have an understanding of IPM. Sometimes school boards are pressured to completely eliminate the use of pesticides by activists politically opposed to pesticides. School boards try this approach, only to discover that the judicious use of pesticides is needed to economically and effectively

control pest populations found in and around schools. Extensive research and solid science show pesticides pose little or no risk to the health of children or adults when used according to label instructions. Thus, pesticides are an essential component of successful IPM.

Establishing a Program

In addition to effective communications, an IPM program must include a written policy and a knowledgeable coordinator. A written policy is essential. IPM is doomed to fail without broad understanding and commitment by all stakeholders, including faculty, staff, board members and parents. A written policy helps to gain consensus and provides continuity.

Once a policy is in place, a staff person should coordinate the overall program. Whether the entire program is implemented internally or the majority of services are contracted to a pest control professional, it is critical to have a knowledgeable person on staff.

Success of IPM in schools is also dependent upon full cooperation of administrators, faculty, maintenance/custodial staff, parents and students.

RISE is the national association representing the manufacturers, formulators, distributors and other industry leaders involved with specialty pesticide and fertilizer products used in turf, ornamental, pest control, aquatic and terrestrial vegetation management and other non-food/fiber applications.

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