After studying this chapter, you should be able to:

• Explain how and why pesticides are regulated in the United States.

• Discuss the importance of knowing and following federal laws and regulations related to pesticide use.

• State why certain pesticides are classified as restricted use.

• Distinguish between restricted-use and general-use pesticide classifications.

• Explain the importance of maintaining accurate records of pesticide applications and employee training.

THE NEED FOR REGULATION

Pesticides are hazardous substances that can cause serious harm if used improperly. However, they also provide important socioeconomic benefits when used correctly. Pesticides are regulated to utilize their benefits while protecting public health and welfare and preventing harm to the environment. Federal and state pesticide laws and regulations control the labeling, sale and distribution, storage, transportation, use, and disposal of pesticides in the best public interest. Except for human and veterinary drugs, few other chemicals sold in the United States are required to undergo such extensive regulatory review and testing before being registered and marketed.

This chapter addresses the requirements of federal laws and regulations only. States, tribes, territories, and some local jurisdictions may have their own legal requirements concerning pesticides that may be more restrictive than federal law. You are responsible for learning about and complying with all such requirements before making any pesticide application. Ignorance of the law is never an excuse for noncompliance or violations.
The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) is the federal law or statute that regulates the production, transportation, sale, use, and disposal of pesticides. FIFRA is administered by the U.S. Environmental Protection Agency (EPA). Congress originally enacted FIFRA, amended it considerably in 1972, and then again in 1975, 1978, and 1988.

FIFRA provides the overall framework for the federal pesticide regulatory program. Under FIFRA, EPA is responsible for registering or authorizing pesticide products for sale, distribution, and use in the United States. Pesticide registration decisions are based on a detailed assessment of the potential effects of a product on human health and the environment when used according to its labeling directions. This EPA-approved labeling has the force of law.

Although it is a violation of federal law to use any pesticide registered by EPA in a manner inconsistent with its labeling, FIFRA Section 2(ee) excludes several use situations and application procedures. Unless specifically prohibited by the labeling, FIFRA allows:

- A pesticide to be applied to control a target pest not specified on the label if the pesticide is applied to a crop, animal, or site specifically listed on the labeling (e.g., interior of a home, food-handling establishments, exterior ornamental plants, corn, and tomatoes).
- Any method of application.
- A pesticide to be applied at a dosage, concentration, or frequency less than that specified on the labeling (except in the case of termiticides labeled for preconstruction treatments).
- A pesticide-fertilizer mixture.

Realize that if you exercise any of the Section 2(ee) exclusions under FIFRA, you alone are responsible for any consequences resulting from such an application.

FIFRA also gives EPA the authority to:
- Impose civil and/or criminal penalties on any person who misuses a pesticide or commits any of the other unlawful acts listed in FIFRA Section 12.
- Stop the sale or use of any pesticide.
- Issue removal orders and seize products to keep them out of the market if it determines the products pose an unreasonable risk.
- Reevaluate older pesticides to ensure that they meet more recent safety standards.
- Implement programs to require the certification of applicators of restricted-use pesticides (RUPs).
- Protect agricultural workers and pesticide handlers from occupational pesticide exposure.

All pesticides are classified according to their potential hazards under...
the circumstances in which they are to be used. The two main classifications are **restricted use** and **unclassified use**. Unclassified-use pesticides are commonly referred to as **general-use pesticides**. It should be noted, however, that EPA has officially classified very few pesticides as general use. Most pesticides that might be expected to fit into the general-use category currently remain unclassified. Normally, general-use pesticides have a lower toxicity than RUPs and so are less likely to harm humans or the environment. The general public can buy general-use pesticides without special permits or restrictions.

Generally, EPA classifies a pesticide as restricted use if it exceeds one or more human health toxicity criteria or based on other regulatory standards. EPA may also classify a pesticide as restricted use if it meets certain criteria for hazards to nontarget organisms or ecosystems. Still another reason for the restricted-use classification is a determination by EPA that a product (or class of products) may cause unreasonable harm to human health and/or the environment without such restriction. The restricted-use classification designation must be prominently placed on the top of the front panel of the pesticide product labeling.

Some pesticide active ingredients may be listed in both use categories depending on the formulation, the application method, and the intended uses. For example, an emulsifiable concentrate formulation of a certain insecticide used on fruit trees might be classified as restricted use if it contains a high percentage of active ingredient (e.g., 70%). However the same chemical with a low percentage of active ingredient (e.g., 5%) in a granular formulation used to treat turf insects might be regarded as a general-use pesticide.

RUPs may be sold only to **certified applicators** or their authorized representatives. A certified applicator is an individual who has been recognized (certified) by the state, tribe, territory, or agency responsible for regulating pesticides as being competent to use or supervise the use of RUPs. There are two types of certified pesticide applicators: private and commercial. **Private applicators** are defined as certified applicators who use or supervise the use of any RUP for the purpose of producing an agricultural commodity (e.g., field and forage crops, fruit, vegetables, nursery stock, Christmas trees, greenhouse plants, and livestock) on their own property or property they rent or lease. **Commercial applicators** are individuals who use or supervise the use of any RUP for any purpose on any property except for those listed under the definition of a private applicator.

Only certified applicators or individuals under their direct supervision may mix, load, or apply restricted-use pesticides.

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**PESTICIDE REGISTRATION**

Except for minimum-risk pesticides, all pesticides distributed and sold in the United States must be registered by EPA. Pesticide registration is based on scientific data showing that these products will not cause unreasonable risks to human health, workers, or the environment when used as directed on the labeling. The process of registering a pesticide begins with the pesticide company (manufacturer or registrant)’s submission of an application package to EPA. EPA’s review of this application includes an assessment of the risks to human health and the environment that may be posed by the use of the pesticide. Based on this review, EPA may classify the pesticide as restricted use...
or general use—or the pesticide may remain unclassified.

Depending on the class of pesticide and the priority assigned to it, this review and decision process may take several years. Pesticides must be registered or exempted from registration by EPA’s Office of Pesticide Programs before they may be sold or distributed in the United States. Once registered, a pesticide may not legally be used unless the use is consistent with the approved directions for use on the pesticide’s labeling. FIFRA has several types of registration and exemption actions that enable pesticides to be used in the United States:

- Federal registration of pesticides under Section 3.
- Special local need registrations under Section 24(c).
- Emergency exemptions under Section 18.
- Exemption of minimum-risk pesticides from registration under Section 25(b).

These registration and exemption actions are discussed in more detail in Chapter 3, Pesticide Labeling.

EPA also plays a role in regulating devices used to control pests. A “device” is any instrument or contrivance (other than a firearm) intended to trap, destroy, repel, or mitigate any pest. A black light trap is an example of a device. Unlike pesticides, devices do not need to be registered. However, EPA does require the establishment producing the device to be registered. Devices are subject to certain labeling, packaging, recordkeeping, and import/export requirements.

**TOLERANCES**

Pesticides are widely used in producing food. These pesticides may remain in small amounts (called residues) in or on fruits, vegetables, grains, and animal feed. Before allowing the use of a pesticide on food crops, EPA sets a tolerance, or maximum residue limit. A tolerance is the amount of pesticide residue that may legally remain on or in treated crops and animals (and animal products, such as milk or eggs) to be sold for food or feed. Federal agencies monitor food and feed products for tolerance violations—such as when the residue exceeds the established tolerance. If residues are found to exceed the tolerance, the commodity will be condemned or subject to seizure by the government, and violators may be prosecuted.

In setting the tolerance, EPA must make a safety finding that the pesticide can be used with “reasonable certainty of no harm.” To make this finding, EPA considers:

- The toxicity of the pesticide and its breakdown products.
- How much of the pesticide is applied and how often.
- How much of the pesticide (i.e., the residue) remains in or on food by the time it is marketed and prepared.

Pesticide manufacturers must submit a wide variety of scientific studies for review before EPA sets a tolerance. These data are designed to identify possible harmful effects the chemical could have on humans (its toxicity), the amount of the chemical residue (or breakdown products) likely to remain in or on food, and other possible sources of exposure to the pesticide (e.g., through use in homes or other places).

A pesticide applicator cannot measure residues on crops or in livestock commodities because such
measurements require highly specialized equipment and techniques. But by following labeling instructions, you can be sure that products you have treated with pesticides have residues well below the tolerance level when put on the market. It is especially important to follow instructions on the correct application rate and the minimum number of days allowed between the pesticide application and harvest, slaughter, freshening, or grazing.

PESTICIDE LAWS

EPA is responsible for ensuring that each registered pesticide continues to meet safety standards to protect human health and the environment. These standards have become stricter over the years as EPA’s ability to evaluate the potential harmful effects of pesticides has improved. Therefore, the agency has embarked on several programs to reevaluate pesticides as the standards evolve.

Reregistration and Tolerance Reassessment

EPA has completed a one-time program to review older pesticides (those initially registered before November 1984) to ensure that they meet current scientific and regulatory standards. This process, called reregistration, considered the human health, environmental, and ecological effects of pesticides. It resulted in numerous actions to reduce risks of concern identified during the review. The conclusions of those reviews are called Reregistration Eligibility Decisions (REDs).

In addition to the reregistration effort, Congress passed the 1996 Food Quality Protection Act (FQPA) amendments to FIFRA. It also passed the Federal Food, Drug, and Cosmetics Act (FFDCA), which called for reassessing existing tolerances and tolerance exemptions to ensure that they meet the legal safety standard. Implementation of REDs and tolerance reassessment decisions, including the movement of revised labeling into the marketplace, has continued beyond the completion of the reviews in 2008.

Finally, FQPA mandated a new program: registration review. Under this program, EPA periodically reevaluates pesticides to ensure that products in the marketplace can still be used safely as policies and practices change. As the ability to assess risk evolves, registration review allows EPA to verify that all registered pesticides continue to meet the statutory standard of no unreasonable adverse effects.

Through these assessments, EPA has identified risks of concern for some uses. In many cases, these risks could be reduced to acceptable levels by changing the product labeling. Examples include use sites, application rates and methods, timing of harvest, restricted-entry intervals, and requirements for personal protective equipment (PPE). Changes in application rates, timing of application to crop harvest, or the removal of some uses can reduce crop residues, decreasing dietary exposure and risk. Labeling requirements for PPE, closed systems, and extended restricted-entry intervals may be established to protect agricultural workers and handlers. Limitations on applications in some soil types reduce the chance of groundwater contamination. EPA expects the implementation of revised labeling in the field to be a continuing process.

How do these processes affect you, the applicator? You must review each product’s labeling before application to check for recent changes and to ensure that you use the product according to the directions. Product labeling can change frequently. You can avoid misuse by making sure you are referencing the most current product labeling.

PESTICIDE REREGISTRATION

A USDA chemist prepares extracts of fruits and vegetables for analysis of pesticide residues.

The EPA uses data from the USDA on what food people eat and how much they eat, collected through the Pesticide Data Program.
A variety of actions by pesticide manufacturers, sellers, distributors, and users are considered unlawful acts under the provisions of FIFRA. These acts include:

- Distributing, selling, or delivering an unregistered pesticide.
- Making any advertising claim about a pesticide not included in the registration statement.
- Selling any registered pesticide if its content does not conform to labeling data.
- Selling an adulterated or misbranded pesticide.
- Detaching, altering, defacing, or destroying any part of a container or labeling.
- Refusing to keep records or permit authorized EPA inspections.
- Making a guarantee other than that specified by the labeling.
- Advertising an RUP without giving the product classification.
- Making an RUP available to a noncertified applicator (except as provided by law).
- Using a pesticide in any manner inconsistent with the labeling.

**Penalties**

Anyone who uses a pesticide in a manner inconsistent with its labeling directions and restrictions may be subject to civil and/or criminal penalties.

Generally, any registrant, commercial applicator, wholesaler, dealer, retailer, or other distributor in violation of FIFRA may be assessed a civil penalty. In determining civil penalties, EPA considers the size of the business, how the penalty may affect the ability of the firm to remain in business, and the gravity of the violation. Other considerations include any economic benefit realized by illegal profits or unfair gains. In cases involving only minor violations, EPA may issue a warning instead of assessing a penalty.

A knowing (intentional) violation by any registrant, applicant for registration, producer, commercial applicator of a restricted-use pesticide, or other person distributing or selling pesticides or devices is a criminal act. The penalty may include a fine and/or up to one year imprisonment. A knowing violation by a private applicator is a misdemeanor and will result in a fine and/or up to 30 days imprisonment.

Remember, you must use all pesticides exactly according to labeling directions—**the label is the law**!
Worker Protection Standard Regulation (40 CFR Part 170)

EPA’s Worker Protection Standard (WPS) is intended to reduce the incidence of occupational pesticide exposure and related illnesses and injuries among agricultural workers and pesticide handlers covered by the rule. The WPS requires employers to provide agricultural workers and pesticide handlers with certain protections. These include pesticide safety training, personal protective equipment, and decontamination supplies designed to prevent or reduce harm from occupational pesticide exposures. Owners and operators of agricultural establishments (such as farms, nurseries, and forest and greenhouse operations producing agricultural plants) and of commercial businesses hired to apply pesticides or to perform crop advising tasks on agricultural establishments must comply with the WPS. The WPS also requires employers to maintain certain records and to display specific pesticide safety information on the premises.

Certification of Pesticide Applicators Regulation (40 CFR Part 171)

As previously mentioned, EPA has the authority to classify certain products as RUPs and to require anyone applying or supervising the use of RUPs to become a certified pesticide applicator. To carry out this requirement, EPA has established standards for the certification of pesticide applicators and requirements for state, tribal, territorial, and federal agencies to establish pesticide applicator certification programs. Any such agency that wants to certify applicators to use RUPs must have an EPA-approved certification plan that describes how the certifying authority will carry out its credentialing program. This includes the requirements to become a certified applicator, recertification requirements, and the standards of competency for each category of applicator. At a minimum, all certification plans must meet federal standards and requirements.

All 50 states, as well as several tribes, territories, and federal agencies, have EPA-approved certification plans and pesticide applicator certification programs. Additionally, all 50 states have signed cooperative enforcement agreements with EPA that designate an agency within the state (i.e., the state lead agency) as the primary pesticide regulatory authority to enforce the provisions of FIFRA. In some situations, more than one state agency may be designated to enforce various parts of FIFRA. (For example, some states have structural pest control boards responsible for regulating the structural pest control industry.)

OTHER FEDERAL LAWS

Although FIFRA is the main federal law regulating pesticide use, the FFDCA is another statute that provides the EPA with regulatory authority for pesticides. Other federal laws cover certain pesticide-related activities, such as transportation, storage, disposal, protecting the safety of employees, and reporting accidents and spills. Applicators will encounter other laws and regulations that they must be aware of and obey. In some cases, the pesticide labeling will alert the applicator to these laws.

Federal Food, Drug, and Cosmetic Act

The FFDCA governs the establishment of pesticide tolerances for food and feed products. As discussed earlier, a tolerance is the maximum level of pesticide residues allowed in or on human food and animal feed. The EPA and the Food and Drug Administration are responsible for administering this act.

Food Quality Protection Act

The FQPA set a higher standard
for pesticides used on food. It established a single, health-based standard to be used when assessing the risks of pesticide residues in food or feed. This safety standard considers the aggregate risk from dietary and other nonoccupational sources of exposure, such as drinking water and residential lawn use (see Figure 2.1). In addition, when setting new or reassessing existing tolerances, the FQPA requires EPA to focus explicitly on exposures and risks to infants and children. This act also requires EPA to assume an additional safety factor to account for any uncertainty in data.

Other FQPA mandates require EPA to:

- Establish a tolerance only if there is “a reasonable certainty” that no harm will result from all combined sources of exposure to pesticides (aggregate exposures). The combined effects of human exposure to different pesticides that may act in similar ways on the body (cumulative exposure) must also be considered.
- Review all old pesticides to make sure that the residues allowed on food meet the new safety standard.
- Test pesticides for endocrine-disruption potential. Endocrine disruptors may be linked to a variety of sexual, developmental, behavioral, and reproductive problems.
- Distribute a brochure discussing pesticides on foods to supermarkets to better inform the public.

**Endangered Species Act**

The Endangered Species Act (ESA) is a federal law administered by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (jointly referred to as the Services). The ESA makes it illegal to kill, harm, or collect endangered or threatened wildlife or fish, or to remove endangered or threatened plants from areas under federal jurisdiction. It also requires other federal agencies to ensure that any action they carry out or authorize is not likely to jeopardize the continued existence of any endangered or threatened species, or to destroy or harm its critical habitat. Therefore, EPA must ensure that no registered pesticide use is likely to jeopardize the survival of any endangered or threatened species.

Each state pesticide regulatory agency is responsible for implementing the federal Endangered Species Protection Program in cooperation with EPA. Under this program, a pesticide product that might harm an endangered species carries a labeling statement instructing applicators to consult a county bulletin to determine if they must take any special precautions when using the product in a specific county. EPA is developing these county bulletins and making them available through the Internet-based “Bulletins Live!” system. Precautionary measures included in the bulletins may include buffer strips, reduced application rates, or timing restrictions. An applicator might also be prohibited from using the pesticide within the identified habitat.

**FEDERAL RECORDKEEPING REQUIREMENTS**

**Application Records**

The United States Department of Agriculture (USDA) administers the program that establishes federal recordkeeping requirements for private applicators. States establish pesticide recordkeeping requirements for commercial applicators. States may also establish private applicator recordkeeping requirements that exceed USDA’s. Both private and commercial applicators must be aware of the recordkeeping requirements for their industry.

Keeping appropriate application records not only meets the legal requirements but is also a wise practice because records:

- Are invaluable documentation in the event of a complaint or lawsuit.
• Help determine which pesticide treatments work, which do not work, and why.
• Help applicators plan future purchases so that they buy only the amount needed.
• Provide information needed by medical staff.
• Document the steps taken to protect farmworkers and the environment.
• Are used for federal and state surveys.

Training Records

Owners and operators of pesticide application businesses should consider keeping documentation of employee training in pesticide use and handling. Though not currently required by federal law, such documentation may be required in the future. Therefore, make sure you are aware of applicable training requirements. Your state, tribal, territorial, or federal pesticide regulatory agency may require written proof that employees received training on proper pesticide use when they were hired. In the case of the WPS, records document that the mandatory training requirements were satisfied. Consider including the following in your training records:

• Employee’s name and Social Security or work identification number.
• Date of the training.
• Materials used and source/provider of the training.
• Employee’s signature and the date signed.

SUMMARY

Federal pesticide laws and regulations are designed to protect the public and the environment from possible adverse effects of pesticides. It is your responsibility as an applicator to comply with these laws and regulations. FIFRA is the primary law that regulates how pesticides are produced, transported, sold, used, and disposed of. FIFRA also establishes the process for the registration and reregistration of pesticide products, and for the certification of pesticide applicators. All states, tribes, and territories must comply with FIFRA and its accompanying regulations. They may establish additional pesticide regulations more (but not less) restrictive than FIFRA.

The FFDCA regulates the tolerances (i.e., the maximum amounts of pesticide residue) that may remain in human food and animal feed. To set tolerance levels, EPA requires the review of many scientific studies to ensure the safety of food and feed products in the United States.

The FQPA has put in place even more stringent requirements to assess the risks of pesticide residues in food or feed. Under this standard, EPA must now consider the risk of aggregate (combined) pesticide exposures. These include exposure through diet, residential lawn and home uses of pesticides, and residues that may be found in drinking water. The standard also emphasizes the risk of pesticide exposure to infants and children. Under the FQPA, EPA must review all old and new pesticides to make sure the residues allowed on food and feed meet the new safety standard.

The ESA protects endangered or threatened species from harm, including pesticide injury. Pesticide products that might harm an endangered species must carry a statement instructing applicators to consult a county bulletin to determine if they must take any special measures to protect an endangered species when using the product.

All applicators must comply with recordkeeping requirements for RUP applications. Even though it is not a current federal requirement, maintaining employee training records is...
a good idea. Such records, which may eventually be required by the applicator’s state, tribal, territorial, or federal agency, document that the WPS safety training requirement has been met.
CHAPTER 2: FEDERAL PESTICIDE LAWS AND REGULATIONS

Write the answers to the following questions, and then check your answers with those in Appendix A.

1. Which statement about FIFRA is false?
   A. It provides the overall framework for the federal pesticide regulatory program.  
   B. It prevents states, tribes, and territories from creating pesticide use laws more stringent than federal regulations.  
   C. It allows applicators to deviate from the pesticide label under specific use situations.

2. Under federal law, which statement about trained and certified applicators is true?
   A. They may apply and/or supervise the application of restricted-use pesticides.  
   B. They must receive supplemental training before mixing RUPs.  
   C. They are exempt from obtaining county bulletins for the protection of endangered species.

3. What is the purpose of the pesticide registration and reregistration process?
   A. To control the flow of new pesticide products entering the marketplace.  
   B. To provide evidence that the pesticide will not cause unreasonable risks to human health or the environment.  
   C. To make sure the amount of pesticide residue remaining on food and feed crops is zero.

4. Which statement about federal pesticide regulation is true?
   A. To ensure future compliance, civil penalties are typically assessed against first-time violators.  
   B. Like pesticides, devices used to control pests must also be registered with EPA.  
   C. Approved pesticide labels have the force of law.

5. Which of the following criteria is used by EPA in establishing pesticide tolerances?
   A. Research data completely independent of the pesticide manufacturer’s.  
   B. The anticipated volume of product to be sold in any given year.  
   C. The toxicity of the pesticide and its breakdown products.

6. Under federal law, which of the following actions is unlawful and subject to civil or criminal penalties?
   A. Allowing a person under the direct supervision of a certified applicator to apply RUPs.  
   B. Detaching, altering, defacing, or destroying any part of a container or labeling.  
   C. Keeping inadequate records of employees who received training on the proper use of pesticides.

7. Which federal regulation requires employee training in the use of pesticides?
   A. Worker Protection Standard.  
   B. Pesticide Container and Containment Regulation.  
   C. Food Quality Protection Act.