

Pesticide Labeling

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Introduction

In the United States, the regulatory authority over pesticide registration and labeling lies with the US Environmental Protection Agency (EPA), and that authority is given under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). A pesticide is defined as a product intended for preventing, destroying, repelling, or mitigating any pest—or is intended for use as a plant regulator, defoliant, or desiccant. The most common classes of pesticides are insecticides, herbicides, and fungicides. Other classes of pesticides include plant growth regulators (PGRs) and anti-microbial products.

Before a pesticide is registered by the EPA, the registrant must conduct and submit a battery of tests to determine the characteristics of the pesticide. Those studies are then used to assess the potential risks associated with the intended uses of the pesticide, and to determine if the product can be used with reasonable certainty that such use will not cause unreasonable adverse effects on man and/or the environment. Testing conducted on a pesticide includes studies which are intended to: understand the toxicology in mammals (from both short- and long-term exposures); understand the fate of the pesticide in the environment (in soil, water, and air); determine the potential for ecological toxicity (to birds, fish and other aquatic organisms, and non-target plants); and, for certain pesticides, determine the potential for residues of the pesticide on food and/or animal feed commodities. The EPA then uses the results from this battery of tests to perform various risk assessments to determine if the pesticide can be used without producing unreasonable adverse effects on man or the environment.

The Product Label

The pesticide label provides the user and/or applicator with instructions on intended use of the product; important precautions which are to be followed when preparing for use, using, storing, or disposing of the product; personal protective equipment (PPE) to be worn when mixing/loading/ applying the product and, if applicable, to be worn when re-entering areas where the pesticide has been applied. Pesticide labeling includes the written, printed, or graphic matter on or attached to pesticide container or wrapper, plus any labels (such as Supplemental Labels) or other written matter which accompany the pesticide.

The pesticide label is developed utilizing data on the efficacy of the pesticide (including use sites, target pests,

application rates, and retreatment intervals) and on the characteristics of the pesticide (including chemical properties and potential for toxicity). The EPA has defined various elements that must be included on all pesticide labels (such as the EPA Registration Number; the EPA Establishment Number which indicates where the pesticide was produced; storage and disposal information; identification of the active ingredient(s) in the pesticide; and a portion of the Environmental Hazards statement). Pesticides are classified as either General Use (also referred to as “Unclassified”), or Restricted Use products. A Restricted Use product is one which, upon review by the EPA, was determined to exceed specific hazard criteria set out in FIFRA (for example, because of high toxicity to aquatic organisms or because of high toxicity to mixers/loaders/applicators). Restricted Use products are intended for sale to and use only by Certified Applicators or persons under their direct supervision, and only for those uses covered by the Certified Applicator’s certification.

The language for other sections of the label is determined by data specific to a given pesticide. An example of this would be PPE. If eye irritation testing showed that the pesticide could cause eye injury, the PPE would include protective eyewear. If acute skin tests showed that the pesticide could be toxic via dermal exposure or cause skin irritation, the PPE could include coveralls worn over a long-sleeved shirt, socks, chemical resistant footwear, and chemical resistant gloves.

Another example of product specific label language can be found in the Environmental Hazards section. Groundwater advisories on pesticide labels are based on the environmental fate properties of the pesticide and/or detections of the chemical in groundwater. In the case of a newly registered pesticide active ingredient, the groundwater advisory statement is required if laboratory studies indicate that the chemical may leach (i.e., pass down through the soil after application) and the chemical may be persistent (that is, a half-life in water of greater than 30 days and/or a half-life in soil of greater than 14 days). Groundwater advisory statements may also be triggered by detections in a reliable, publicly available groundwater monitoring program.

The “signal word” on a pesticide label provides an indication of the potential toxicity of the product following exposure to mixers/loaders/applicators. Products which are highly toxic (Toxicity Category I) carry the DANGER signal word, and may also require the skull and crossbones logo and the designation “POISON” if highly toxic via the oral,

dermal, or inhalation route of exposure. Products which are moderately toxic (Toxicity Category II) carry the WARNING signal word, and products which are slightly toxic (Toxicity Category III) carry the CAUTION signal word. PPE required by the label is intended to address or mitigate the potential for harmful exposure during use of the pesticide.

Directions for Use

The directions for use (DFU) section of the pesticide label provides the user with information on where the product can be used (i.e., site(s) of application); the pest(s) which the product will control or suppress; the application methods that can be used (for example, ground or aerial application); the rate of the product to be applied; the time between each application of the product (if multiple applications are permitted); and the maximum number of applications, and/or maximum amount of product that is permitted in a given period of time. More detailed descriptions of the application sites may also be provided in the DFU section. For example, the DuPont™ MATRIX® SG Herbicide label provides detailed information on use for rangeland, for the specific purpose of restoration of that rangeland, as follows:

A restoration management program that includes MATRIX® SG herbicide may be used when rangeland has become severely infested with invasive weed species, and deteriorated to where it is no longer suitable for grazing or forage production. To reclaim these lands, the invasive weed species must first be controlled to either allow native grasses to reestablish or to be replanted where practical with other desirable perennial grasses. The grasses must be allowed time to reestablish before grazing or forage production is resumed. A typical restoration management program will take one to two years.

Do not graze treated sites or cut for forage or hay for a minimum of 1 year after application in order to allow newly emerged grasses sufficient time to become established. Where practical, fencing or other measures are to be used to prevent early grazing of re-established sites to help promote active grass restoration.

Other sections of the label provide information for the mixer/loader/applicator which is intended to support proper use of the product. These sections generally include Spray Drift Management, which gives the user information on items such as droplet size, spray pressure, and temperature inversions; and Tank Mixtures, which provides information on the pesticide's compatibility, or incompatibility, in mixtures with other pesticides, adjuvants, or surfactants.

Mandatory and Advisory Statements

When reading a pesticide label, it is important to be able to distinguish between mandatory statements and advisory statements on that label. A mandatory statement provides

directions for use that must be followed. For example, "Do not apply directly to water," and "Do not apply when wind speed exceeds 15 miles per hour." Advisory statements provide the user with information which helps ensure proper use of the product. For example, "Chemical resistant gloves provide the best protection for mixers," and "Directing the spray mixture at the base of the tree will help minimize foliage contact and injury to the tree." Specific examples of mandatory and advisory statements can be found on the DuPont™ Perspective® Herbicide label.

Mandatory: *Do not apply when the soil is frozen or covered with snow. Do not use on lawns, walks, driveways, tennis courts, or similar areas.*

Advisory: *This product may be used as part of an Integrated Pest Management (IPM) program that can include biological, cultural, and genetic practices aimed at preventing economic pest damage.*

Other Regulations Governing Pesticide Use

While the label is the primary document which provides mixers/loaders/applicators with information for the proper use of the pesticide, other laws and regulations exist which must be followed. Examples of such laws include the Clean Water Act, which might require the issuance of a National Pollutant Discharge Elimination System (NPDES) permit for certain applications (such as mosquito control products), and the Endangered Species Act, which might require additional precautions and restrictions (such as a buffer zone) when using the pesticide in the proximity of endangered or threatened species. Additionally, all pesticide products must be registered in the state(s) in which sales and/or use is intended. In some cases, the state may designate a product as restricted use in that state even though the product might not be classified as Restricted Use by the EPA.

Conclusion

A pesticide label is not a "stale" document, rather it is continuously being updated and improved. While the registrant and the EPA share responsibility for the process of registering the pesticide, it is imperative that the land owner/manager and the applicator choose the proper pesticide for the desired pest control, the use site, and the conditions at the use site—both at the time of application and post-application. Before using any pesticide product, it is important to carefully read the entire label—even if you have used the same product in the past. If you do not understand the label or require clarification, contact the local sales representative for the pesticide, or your local Extension agent or pest control advisor.