

Introduction

Herbicide rates are for broadcast application unless specified differently in the table heading for each crop. Conversion tables are provided to aid in converting large volumes, such as quarts and gallons, to ounces, tablespoons and teaspoons.

Rates of soil-applied herbicides vary according to soil type because soils can affect herbicide activity. The lower rate is for sandy loams (light), intermediate rate for silt loams (medium) and the higher rate for clay loam and clay (heavy) soils. In some instances, the same rate may be suggested for both medium and heavy soils.

Herbicides should be applied in enough water to assure an even distribution over the area treated. That amount may vary from 5 to 40 gallons per acre on a broadcast basis. Wettable powder formulations require at least 50 mesh screens throughout the spray system and nozzle tips with a capacity of 0.2 gallons per minute (GPM) or larger. Considerable agitation is necessary to keep wettable powders in suspension.

Tanks made of aluminum, fiberglass or other corrosion-resistant materials will reduce the amount of nozzle clogging. Some herbicides may not be used in unlined steel tanks. Be sure that the water used as the spray solution is free from trash and other foreign material, particularly mud or soil particles.

Correct calibration is of utmost importance. Excess rates may cause injury to the applied crop, injury from excess residue to succeeding crops and increased herbicide costs. Less than recommended rates can result in unsatisfactory weed control and could possibly encourage resistance development in the weed populations being managed. Read the label and know that you are applying only the recommended amount.

Every herbicide has a rain-free (rain-fastness) time requirement to achieve proper efficacy. Herbicide labels should be consulted prior to application to determine the rain-free time requirement.

Handle Pesticides Safely

- Read the pesticide label prior to purchasing, mixing and applying the pesticide to ensure that the user has the correct product for the job and that the user knows how to use the product safely and correctly.
- Follow label directions.
- Observe safety precautions on the pesticide label, such as “Keep out of Reach of Children.”
- Wear personal protective equipment that is listed on the label when performing pesticide handling tasks. The label will list the minimum amount that an applicator should wear.
- Do not eat, drink, use tobacco products, or go to the bathroom while handling pesticides. Be sure to wash your hands before doing any of the listed tasks after handling pesticides.
- Mix only the amount of pesticide you need. Do not store diluted pesticide for later use.
- Always store pesticides in their original containers. Never store pesticides in containers that can be confused for food or drink.
- Avoid mixing or applying pesticides near wells or open water.
- Refer to the pesticide label under “Directions for Use” for more information on how to use the pesticide safely and correctly.
- At the completion of pesticide applications, the applicator should triple rinse the spray container and puncture it to make it unusable for any future use.

Restricted Use Pesticides

Some of the pesticides or certain uses of pesticides in this publication may be classified for restricted use. Those pesticides with restricted use labels will contain information regarding these restrictions. Be sure to read all labels thoroughly. It is illegal to use any pesticide in a manner that is inconsistent with the label directions. It is unlawful for a noncertified applicator to use a pesticide that has been classified with restricted uses. Information on pesticide applicator certification programs may be obtained from the LSU AgCenter.

If herbicides are handled or applied improperly or if unused portions are not disposed of safely, they may be injurious to humans, domestic animals, desirable plants and fish or other wildlife and may contaminate water supplies. Use pesticides only when needed and handle them with care. Follow the directions and heed all precautions on the container label. Please consult Safety Data Sheets (SDS) for herbicides to determine toxicity information prior to use.

Herbicide Labels

State and federal agencies regulate herbicide use through the issuance of herbicide labels, which are the directions for herbicide use and have the effect of federal law. Each herbicide is identified under various “sections” or parts of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). FIFRA is the federal law that addresses, among other things, how a herbicide may be used. Contained within FIFRA are the sections that deal with specific situations. Herbicide users should understand three different types of labels, each addressed by a specific section of FIFRA.

Section 3: The most comprehensive registration granted. This registration shows the United States Environmental Protection Agency has reviewed and approved all required information to support all uses listed on the product label.

Section 24[c]: Granted by the state under federal regulation and often called a “special local need” label. A 24[c] label applies only to the state or states that issue the label and is issued for a specific use pattern for crops or sites already approved under a Section 3 label. This label has a time period of use (usually five years), which may be renewed.

Section 18: A state will petition the U.S. EPA for an emergency exemption label to control a specific weed problem not adequately addressed by any Section 3-labeled herbicides that poses a threat to crop production. Before determining issuance of a Section 18 label, each Section 18 petition is scrutinized by the U.S. EPA. If the label is issued, the herbicide use is very clearly defined. If the U.S. EPA does not approve the Section 18 petition, the state may issue a crisis exemption and allow use of the herbicide. In all cases, Section 18 labels are temporary and expire within one year of issuance.

Worker Protection Standard (WPS)

The Environmental Protection Agency (EPA) Agricultural Worker Protection Standard (WPS) is aimed at reducing the risk of pesticide poisoning and injury among agricultural workers and pesticide handlers. Pesticide applicators must comply with this rule when using agricultural use pesticide products that reference the Worker Protection Standard, 40 CFR 170. In 2015, the EPA made major revisions to the Worker Protection Standard (WPS).

The LSU AgCenter has worked to provide an updated WPS Train-the-Trainer program that has been approved by the EPA. In Louisiana those employers that want to train their own workers and handlers must be a certified applicator and go through the new WPS Train-the-Trainer program with the LSU AgCenter. All workers and handlers must now be trained on an annual basis. If you went through a WPS Train-the-Trainer program prior to November of 2016 then you will have to attend a new WPS Train-the-Trainer program. Once you have completed that program WPS Trainer will be added to the back of your pesticide certification card and you will then be able to go to your normal recertification meeting to have that category recertified.

Training dates and locations can be found at <https://www.lsuagcenter.com/pesticide>

If you would like to participate in a WPS Train-the-Trainer Program, please email bgueltig@agcenter.lsu.edu.

As part of the revised rules there are a few things that need to be pointed out.

- Pesticide workers and handlers must be trained every 12 months.
- Workers and handlers must be trained by using EPA-approved training materials.
- WPS Trainers must go through the new EPA approved Train-the-Trainer Program (see information above).
- No longer using the card system for records of training. You must maintain the following information:
 - Trained worker’s printed name and signature.
 - Date of the training.
 - Information identifying which EPA-approved training materials were used.
 - The trainer’s name and qualification to train.
 - The worker or handler employer’s name. The LSU AgCenter has created a form that you are welcome to use. You may download the training verification form for WPS at the LSU AgCenter’s PSEP webpage: www.lsuagcenter.com/pesticide.
- Records of training (for workers and handlers) must be maintained for two years.
- The following information must be properly displayed at a central location:
 - New safety poster: <https://npsecstore.com/collections/posters>.
 - Application records.
 - Emergency medical contact information.
 - SDS (safety information).
- When using a pesticide that requires a respirator, employers must:
 - Have an employee medically evaluated by a physician or other licensed health care professional.
 - Have employee go through an annual fit test for each type of respirator required by the pesticide product label.
 - Have the employee participate in annual training on how to properly use the respirator(s).
 - Maintain records for two years of the completion of the above requirements.

The How to Comply Manual is a great reference guide and can be ordered at <https://npsecstore.com>.

To get more information about the WPS revised rule, you will need to refer to the final rule at <https://www.epa.gov/pesticide-worker-safety/agricultural-worker-protection-standard-wps>.

Where to get updated information:

- <http://www.lsuagcenter.com/pesticide>.
- *The How to Comply Manual* is a great reference guide and can be ordered at <https://npsecstore.com>.
- Get the newest pesticide safety poster at <https://npsecstore.com>.
- Get EPA approved training materials at <https://www.pesticideresources.org>.

Paraquat Training Requirements

Paraquat Dichloride, also known as paraquat, is a widely used product in Louisiana in many of the state's commodities. Since 2000, 17 deaths have been caused by accidental ingestion of paraquat in the U.S. Many of these deaths resulted from people illegally transferring the pesticide to beverage containers and the victim later mistaking it for a drink.

To assist in preventing these tragedies, product manufacturers will be required by the Environmental Protection Agency (EPA) to have new label requirements that emphasize paraquat toxicity and supplemental warning materials. Also, the new labels will restrict the use of paraquat products to certified applicators only. Companies were required to have the newly labeled product on the market after November 14, 2019.

The new label requirements require anyone handling paraquat to be a certified applicator and require handlers to complete a training module for certified applicators using paraquat. This training was developed by paraquat manufacturers as part of the EPA's 2016 risk mitigation requirements and has been approved by the EPA. The training covers paraquat toxicity, new label requirements and restrictions, consequences of misuse, and other important information.

Paraquat is a restricted use pesticide for use **only by a certified applicator**. This new restriction applies to mixing, loading, and applying paraquat, as well as other pesticide handling activities.

Applicators that are using this product, with the new label, will be required to be a certified pesticide applicator and must take an EPA approved training course. In addition to this training, applicators will be required to take a 15-question exam and score 100%. The certification awarded for this product-specific training will be good for three years once an applicator has completed this training and passed the exam.

The training is only available online at this time and is produced by the product manufacturer. The training can be found online at <http://usparaquattraining.com>.

Once applicators have completed the required training and testing for the product, they will receive a certificate documenting completion of the requirement. It is the applicator's responsibility to save that documentation. Applicators will need this documentation and current certification with the Louisiana Department of Agriculture and Forestry (LDAF) in order to purchase paraquat products.

In summary, when purchasing the newly labeled product:

- Product may ONLY be mixed, loaded, or applied by a certified applicator who has successfully completed the paraquat-specific training before use.
- Application "under the direct supervision" of a certified applicator is NO LONGER allowed.
- Training must be repeated every three years.
- Training is only available online currently at the following link: <http://usparaquattraining.com>
- Applicators should maintain their own certification records.

For more information on how to become a certified applicator in Louisiana, please contact the LSU AgCenter Pesticide Safety Education Program. <https://www.lsuagcenter.com/pesticide>

For more information from the EPA:

<https://www.epa.gov/pesticides/paraquat-certified-applicator-training-prevent-poisonings-now-available>

Summary

Different types of labels allow herbicide use under varying conditions. It is important for herbicide users to understand this part of the herbicide registration process, the results and how those results affect herbicide use. Much more information is available at these internet sites: **U.S. EPA Office of Pesticide Programs** (<https://www.epa.gov/pesticides>), **FDA Food and Drug Administration** (<https://www.fda.gov>). In addition, herbicide labels and MSDS sheets can found at <http://www.cdms.net/LabelsMsds/LMDefault.aspx>, <http://www.agrian.com/home> or the herbicide manufacturer's website.

Disclaimer: The information given here is for educational purposes only. References to commercial products, trade names, or suppliers are made with the understanding that no endorsement is implied and that no discrimination against other products or suppliers is intended. Additionally, references to commercial products do not guarantee or warrant the standards of those products.

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