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# Paraquat Training, Licensing, and Application Requirements[1]

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## Introduction

Paraquat dichloride, more often called "paraquat," is a contact herbicide used widely in agriculture as a desiccant and for weed control. It can be used to remove foliage in cotton before harvest or as a broad spectrum weed control both preemergence and postemergence on a multitude of crops: peanuts, tomatoes, and many others. The acute toxicity of paraquat, 3–5 mg/kg LD50, is one of the lowest LD50—and therefore among the most toxic—pesticides used in agriculture. This toxicity prompted additional labeling, training, and safety precautions to be added over the years. This publication will review the unique licensing, training, and application requirements related to this active ingredient and ensure compliance with all the rules. This publication is intended for farmers and county faculty who work with farmers utilizing paraquat in their agricultural production systems.

## Who Can Use It?

Paraquat is classified as a Restricted Use Product (RUP). This normally means that only licensed applicators, or those under the direct supervision of a licensed applicator, can purchase or use that product. However, due to the acute toxicity risk associated with paraquat, the U.S. Environmental Protection Agency (EPA) has added unique restrictions and removed the direct supervision allowance for paraquat. This means that every person handling, applying, or otherwise working with paraquat MUST be a licensed applicator. For more information about getting and keeping a license in Florida, see: https://edis.ifas.ufl.edu/publication/PI292.

## Training

In addition to requiring all purchasers, handlers, and applicators to possess a pesticide license, all operators must also complete a specific training module before paraquat products can be used. Paraquat product labels list product specific, or label mandated, training; to purchase or use paraquat, one must be licensed and have proof of having completed the required training course. The training can be completed by watching a qualified video (https://npsec.us/paraquat) or attending in-person training utilizing EPA approved materials. This is a very specific training; simply attending a CEU class that discusses paraquat is not enough. The course/video must (1) review the implications of the paraquat human health mitigation decision and (2) cover the most pressing risks and mitigations associated with paraquat, including:

1. the acute toxicity of paraquat, through multiple routes of exposure.
2. a reminder that all pesticides, including paraquat, must be kept in their original container.
3. the effects of paraquat misuse and the symptoms that are associated with exposure, up to and including death.

1. This document is PI295, one of a series of the Pesticide Information Office, UF/IFAS Extension. Original publication date July 2023. Visit the EDIS website at https://edis.ifas.ufl.edu for the currently supported version of this publication.

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4. what must be done in the case of an accidental exposure, particularly accidental ingestion.

Paraquat specific training must be completed every 3 years; and a record of training must be maintained and presented at time of purchase or during any inspections by Florida Department of Agriculture and Consumer Services (FDACS).

## New Containers and Additional Mitigation

The most significant risk of paraquat exposure occurs during mixing and loading. Fully concentrated paraquat can splash, drip, or spill during these processes, and the EPA has implemented appropriate measures to prevent this. The new measures require that paraquat be restricted to "closed loop containers." These containers cannot be tipped and poured; they require a special adapter to transfer the herbicide from the container to the spray tank. These closed loop containers make it difficult to transfer paraquat to unapproved containers—something forbidden by the label but directly addressed in the EPA's rationale for requiring these changes. Syngenta has a webpage dedicated to paraquat (https://www.syngenta-us.com/herbicides/gramoxone-sl-3.0) that provides further guidance and useful safety information. Additionally, that site has a helpful video about the closed loop packaging and how to use it (https://youtu.be/duP0ThvnEAM). To further reduce risk of exposure, the EPA also added the following stipulations to paraquat usage:

- No more than 350 acres can be treated by a single applicator from aerial equipment in a 24-hour period (except for cotton desiccation).
- For aerial applications, do NOT apply within 50–75 feet of a residential area.
- No human flaggers are allowed for aerial application.
- Paraquat cannot be applied using pressurized handgun or backpack spray equipment.
- Alfalfa applications are limited to one pound of paraquat cation per acre per year.
- An enclosed cab is required for application if more than 80 acres treated in 24 hours. For areas of 80 acres or less, an enclosed cab or PF10 respirator is required.
- There is a mandatory 7-day restricted entry interval (REI) for cotton desiccation.
- All crops, other than cotton desiccation, have a 48-hour REI.

All this information is found on the product labels. However, old products, produced before these restrictions were in place, may have different labeling requirements. Regardless of the label on the container, ALL paraquat uses must now comply with these new restrictions. If a facility has old AND new products, you MUST ensure that all users are licensed, trained, and following the most up-to-date restrictions.

Paraquat is unique among pesticides in that it has more rules and regulations associated with it. Anyone using paraquat must be licensed, go through a paraquat specific training every 3 years, and utilize the closed loop container system. Applicators must keep records of their training and stay up to date with the label for any relevant changes. By reading the label, being licensed, and paying attention to all trainings, this product can be utilized in the safest manner possible.