



PESTICIDE USE REQUIREMENTS



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Overview

Pesticide Registration Process:

- Federal
- State
- 24(c) Special Local Need (SLN)





Overview

- Exempt Products
 - 25(b) materials
- What can I use on Cannabis?





Definitions





What is FIFRA?

The Federal Insecticide,
Fungicide, and
Rodenticide Act (*FIFRA*)

- Enacted by Congress in 1947; amended in 1972
- As of 1970, administered by the Environmental Protection Agency (EPA)





What is a pesticide?

- Any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any pest;





What is a pesticide?

- A plant regulator, defoliant, or desiccant
- In California this includes adjuvants and plant growth regulators





What is a pest?

- Any organism that is undesirable or may be harmful:
 - insect, rodent, nematode, fungus, weed.





DEPARTMENT OF PESTICIDE REGULATION (DPR) GUIDANCE

- DPR Enforcement Letter ENF-17-03
- Pesticide Use on Cannabis



PESTICIDE USE ON CANNABIS

Department of Pesticide Regulation

The following is being provided for informational purposes only and does not authorize, permit, endorse, or in any way approve the use, sale, cultivation, or any other activity associated with cannabis. Any such activity is subject to prosecution under federal law.

PESTICIDE REGISTRATION REQUIREMENTS

- Pesticides must be registered by both the U.S. Environmental Protection Agency (U.S. EPA) and the California Department of Pesticide Regulation (DPR) before they can be sold and used in California.
- There are no pesticides registered specifically for use directly on cannabis and the use of pesticides on cannabis plants has not been reviewed for safety or human health effects.
- Under California law, the only pesticide products not illegal to use on cannabis are those that contain an active ingredient that is exempt from residue-tolerance requirements; and
 - Registered and labeled for a use that is broad enough to include use on cannabis (e.g. unspecified green plants); or
 - Exempt from registration requirements as a minimum risk pesticide under FIFRA section 25(b) and 3 CCR § 6147. (FAC §§ 12973, 12995; 3 CCR § 6490.)

PESTICIDE USE REQUIREMENTS

- Before using any pesticide, ALWAYS read and follow the pesticide label. **The label is the law**
- If you apply pesticides to a field, you must obtain an operator identification number from the County Agricultural Commissioner and submit pesticide use reports to that office. (FAC § 11408; 3 CCR § 6622; 3 CCR § 6626.) Note: No operator identification number will be issued in any local jurisdiction that prohibits cannabis cultivation.
- U.S. EPA designates certain pesticide products as federally “Restricted Use” products when they determine those products may cause unreasonable adverse effects even when used as directed on the product labeling. Restricted Use pesticides are limited to use by certified applicators, or to those under the supervision of a certified applicator.
- DPR designates certain pesticide active ingredients as California “Restricted Materials” when they determine those pesticides are especially hazardous to human health or the environment. Restricted Materials require a permit issued by the County Agricultural Commissioner. Permits will not be issued for cannabis cultivation sites. (FAC § 14001, et seq.; 3 CCR § 6400.)
- Employers must protect their workers from exposure to pesticides. State law requires that employers follow the pesticide label and:
 - Provide required personal protective equipment;
 - Provide required training and access to pesticide labels and safety information; and
 - Properly store, handle, and dispose of pesticides.

(See Compliance Assistance Booklet; 3 CCR § 6670, et seq.; 3 CCR § 6700, et seq.; <http://www.cdpr.ca.gov/docs/enforce/cmplist/bkltmenu.htm> >.)

RODENTICIDE USE

- Rodenticides that require a California Restricted Materials permit cannot be used; and those that are designated as federally Restricted Use products can only be used by a certified applicator. See Above.
- There are some rodenticides labeled for below ground applications that are not designated as California Restricted Materials or federally Restricted Use pesticides that can be used if consistent with the label.
- The following rodent repellants may be used in and around cannabis cultivation sites consistent with the label: Capsicum Oleoresin, Putrescent Whole Egg Solids, Garlic

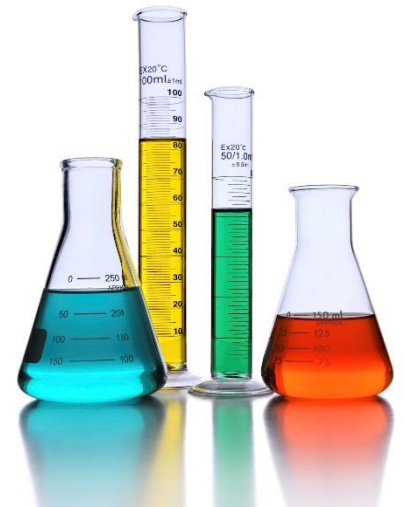
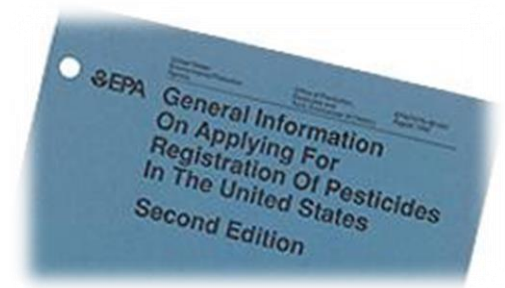


Pesticide Registration

Federal

The process in which the EPA examines:

- the ingredients of the pesticide;
- the particular site or crop where it is to be used;
- the amount, frequency, and timing of its use; and
- storage and disposal practices.

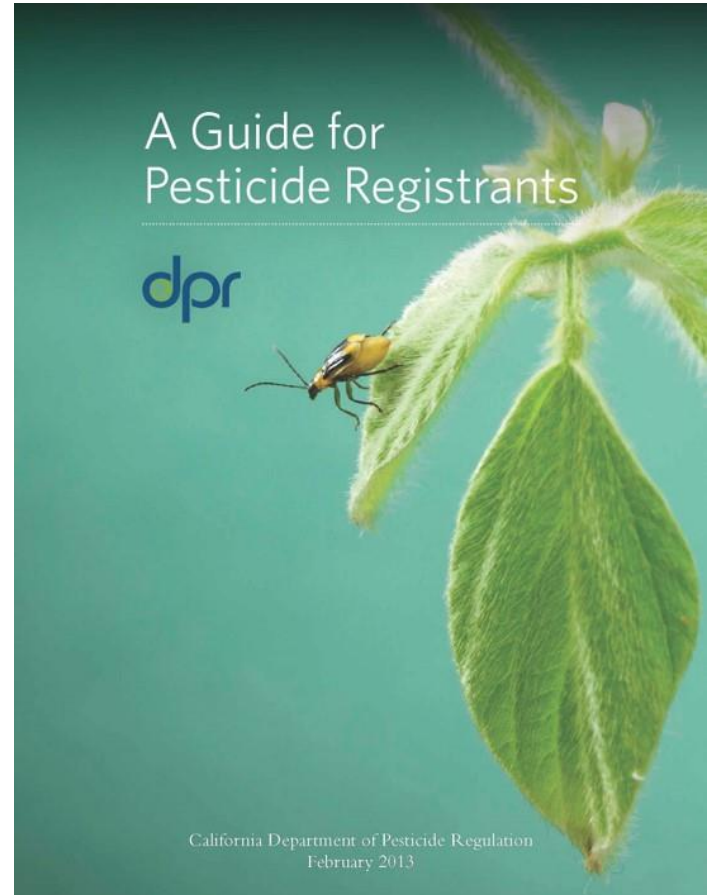




Pesticide Registration

State:

- California provides a guidance document for registrants similar to EPA's Label Review Manual.





Special Local Needs (SLN)

- Section 24(c)
- Allows states to issue a SLN for a need that cannot be addressed by a currently registered product.



FIFRA Section 24 (c) Special Local Need Label
FOR DISTRIBUTION AND USE ONLY IN THE STATE OF MICHIGAN
This label is valid until September 17, 2019 or until otherwise amended, withdrawn, canceled, or suspended.

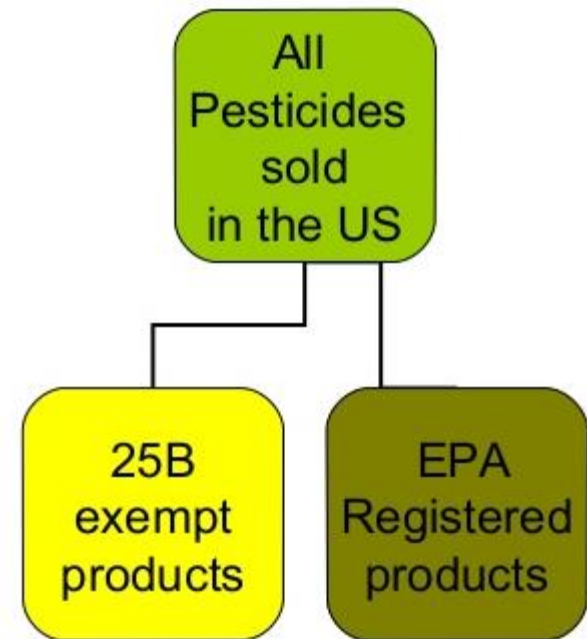
This label and the federal label for this product must be in the possession of the user at the time of pesticide application. Follow all applicable directions, restrictions, and precautions on this Supplemental label and the main EPA-registered label. It is a violation of federal law to use this product in a manner inconsistent with its labeling.



Understanding Pesticides

All products sold in US
with pesticide claims on
the label

- Must either be EPA registered or
- Exempt from registration under “Section 25B”





Exempt Products

- Minimum risk pesticides that meet certain criteria are exempt from federal registration under section 25(b) of (FIFRA).





List of 25 (b) products

Active ingredients that can be used for exemption

Castor oil (U.S.P. or equivalent)

Cedar oil

Cinnamon and cinnamon oil

Citric acid

Citronella and Citronella oil

Cloves and clove oil

Corn gluten meal

Corn oil

Cottonseed oil

Dried Blood

Eugenol

Garlic and garlic oil

Geraniol*

Geranium oil

Lauryl sulfate

Lemongrass oil

Linseed oil

Malic acid

Mint and mint oil

Peppermint and peppermint oil

2-Phenethyl propionate (2-phenylethyl propionate)

Potassium sorbate

Putrescent whole egg solids

Rosemary and rosemary oil

Sesame (includes ground sesame plant) and sesame oil*

Sodium chloride (common salt)

Sodium lauryl sulfate

Soybean oil

Thyme and thyme oil

White pepper

Zinc metal strips (consisting solely of zinc metal and impurities)



25 (b) products examples



Cinnamon



Rosemary oil For Spider Mites



Pesticide Use Requirements

Before using any pesticide:

- ALWAYS read the pesticide label.





Pesticide Use Requirements

Federally Restricted Use

RESTRICTED USE PESTICIDE

DUE TO (reason for restricted use classification)

For retail 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.

RESTRICTED USE PESTICIDE

Due to Hazard to Nontarget Organisms

For retail 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.

California Restricted Material

6400. Restricted Materials.

The director designates the pesticides listed in this section as restricted materials.

(b) Any pesticide used under an "Emergency Exemption" issued pursuant to section 18 of the Federal Insecticide, Fungicide, and Rodenticide Act (Title 7, United States Code, section 136p).

(e) Certain other pesticides:

Acreolin, when labeled for use as an aquatic herbicide



Pesticide Use Requirements

Federally Restricted Use

- Pesticides recognized by EPA as too dangerous for general use
- Requires a certified applicator to purchase and use

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Pesticide Use Requirements

B

CALIFORNIA RESTRICTED MATERIALS

This section is written in a quick reference format; refer to Title 3, California Code of Regulations (3 CCR) section 6400 for complete text.

Acrolein, labeled for use as an aquatic herbicide	Chlorpyrifos, labeled for the production of an agricultural commodity	Metam sodium, labeled for the production of agricultural plant commodities	Potassium n-methyldithiocarbamate (metam-potassium), labeled for the production of agricultural plant commodities
Aldicarb – unregistered	Dazomet, labeled for the production of agricultural plant commodities	Methamidophos – unregistered	Propanil (3,4-dichloropropionanilide)
All dust (except products containing only exempt pesticides)**	Dicamba*	Methidathion	Sodium cyanide
Aluminum phosphide		Methomyl††	

- California system designates certain pesticides as Restricted Materials based on potential hazards
- These materials require a certified applicator AND a California Restricted Materials Permit
- No California Restricted Material Permits will be issued for Cannabis cultivation



Pesticide Label Requirements

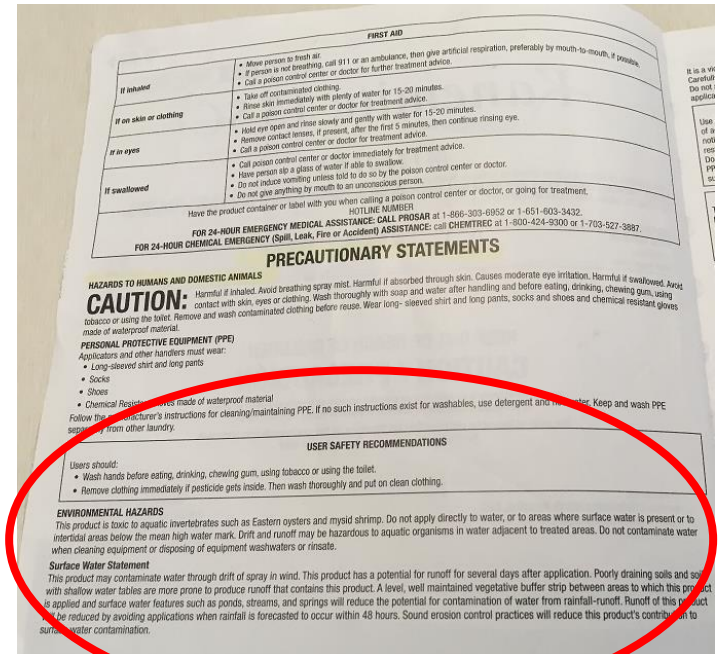
- Personal protective equipment (PPE) requirements
- Application method
- Application Rate





Pesticide Label Requirements

- Environmental Hazards
- Restricted Entry Interval
- Greenhouse Directions





Pesticide Label Requirements

- Danger & Warning Pesticides
- LD50 of <math><100</math> mg/kg/day



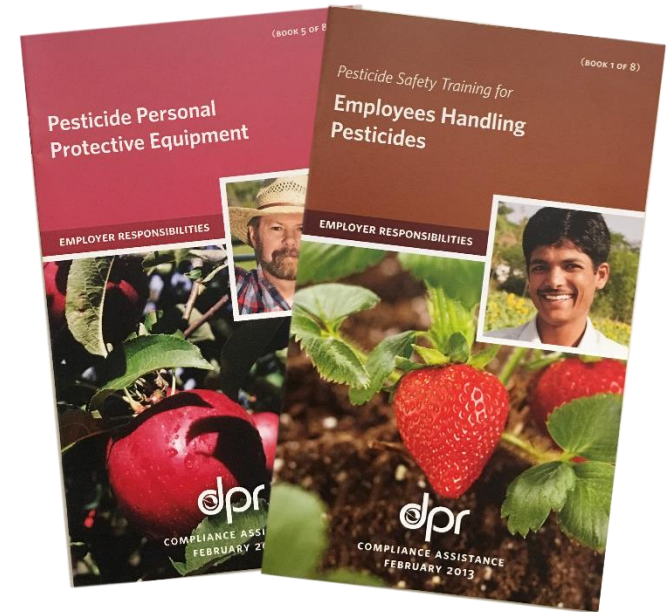
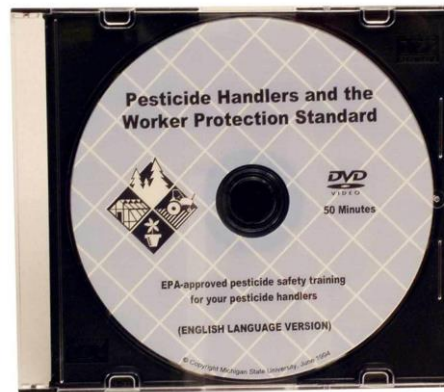
Where to Find LD₅₀ Values





Additional Requirements

- Required PPE must be provided by employer
- Pesticide Handler Training





Additional Requirements

- Pesticide Storage



www.cdpr.ca.gov

Pesticide

info

WHAT YOU SHOULD KNOW ABOUT PESTICIDES



**Buy less, lock it away,
and dispose with care**

Storing pesticides safely

Learn more with the Pest Control Handbook



Rodenticide Use

California Restricted
Materials:

- not allowed

Federally Restricted:

- certified applicator
required





Rodenticide Use

Rodent Repellants

- use consistent with the label



- BioControl



DPR PUBLICATION

- Legal Pest Management Practices
- <http://www.cdpr.ca.gov/docs/cannabis/index.htm>



LEGAL PEST MANAGEMENT PRACTICES FOR MARIJUANA GROWERS IN CALIFORNIA

Department of Pesticide
Regulation

PESTS OF MARIJUANA IN CALIFORNIA

Marijuana pests vary according to cultivar (variety), whether the plants are grown indoors or outdoors, and where the plants are grown geographically. The pests included in this review are preliminary and based on the following sources: a presentation given in 2013 by Whitney Cranshaw, an extension entomologist at Colorado State University, and a review article by John M. McPartland, a professor of family medicine at the University of Vermont. We also received input from Kevin Hoffman, Primary State Entomologist, California Department of Food & Agriculture (CDFA).

HOW TO INTERPRET THE TABLES

Table 1 lists active ingredients not illegal to use on marijuana and the pests that these active ingredients target.

These active ingredients are exempt from residue tolerance requirements¹ and either exempt from registration requirements² or registered for a use that's broad enough to include use on marijuana. Residue tolerance requirements are set by U.S. EPA for each pesticide on each food crop and is the amount of pesticide residue allowed to remain in or on each treated crop with "reasonable certainty of no harm." Some pesticides are exempt from the tolerance requirement when they're found to be safe. Some of these pesticides are bacterial-based insect pathogens (e.g., *Bacillus thuringiensis*) or biofungicides (e.g., *Bacillus subtilis*, *Gliocladium virens*).

Active ingredients exempt from registration requirements are mostly food-grade essential oils such as peppermint oil or rosemary oil.

Tables 2 and 3 list pests of marijuana grown outdoors and indoors, and **Table 3** shows pests arranged by the portion of the plant they attack. An explanation of the column labels for Tables 2 and 3 follow.

PESTS. The tables show the most likely pests in California based on Cranshaw's presentation and McPartland's list and gleaned from California-based web sites and blogs. Some pests that drew attention on several blogs (e.g., russet mites) may be worse during drought years. Many have cyclic population

fluctuations and others are mainstays of general greenhouse cultivation (e.g., whiteflies, thrips, and fungus gnats). We'll add weeds to this compendium when we have more information.

DAMAGE. For damage caused by greenhouse pests, we derived information from Cranshaw's presentation; for that of outdoor pests when there wasn't any overlap, McPartland's list was used and information from UC IPM for various crops. Accounts of damage by rodents is anecdotal.

PESTS NOT OFFICIALLY IDENTIFIED IN CALIFORNIA. Kevin Hoffman of CDFA notes that several marijuana pests in other states are not yet known in California. These pests would add to the russet mites, aphids, cutworms, budworms, borers, and flea beetles already in California. As more and more marijuana is planted throughout the state, collecting potential pests will enable entomologists to identify new species.

THE IMPORTANCE OF CORRECT IDENTIFICATION. It's essential to identify the potential pest, or you may launch a futile program for a mite or insect that isn't a pest. And likewise, you need to know the correct species or you may use the wrong management strategy. For accurate identification, take specimens to an entomologist.

HOW TO PRESERVE SPECIMENS FOR IDENTIFICATION. If the mite or insect specimen is hard bodied (e.g., beetles, moths) carefully place it in a small pill vial and cushion with crumpled tissue paper. If your specimen isn't yet dead, put it in a jar and place in a freezer overnight. Do not wrap specimens in tissue and seal them in plastic bags or you'll end up with smashed bug parts.

Place soft-bodied specimens (e.g., mites, leafhoppers, aphids, caterpillars) in a jar filled with rubbing alcohol. Include written information such as where on the plant you found the specimen, the general location of the plant, and date captured. Note original color and texture, since these will change once you immerse the specimen in alcohol. Also helpful are photographs of the specimen in its original habitat.

IPM PRACTICES. Most of these are standard practices for pests on hosts other than marijuana. For more detailed explanations, see information compiled by the

¹ 40 CFR (Code of Federal Regulations)

² under FIFRA section 25(b) and 3 CFR section 6147



AVAILABLE ACTIVE INGREDIENTS

ACTIVE INGREDIENT	PEST OR DISEASE
azadirachtin ^a	aphids, whiteflies, fungus gnats, leafminers, cutworms
<i>Bacillus subtilis</i> QST ^{a1}	root diseases, powdery mildew
<i>Bacillus thuringiensis</i> ^{a2} subsp. <i>aizawai</i> or <i>kurstaki</i>	moth larvae (e.g., cutworms, budworms, borer)
<i>Bacillus thuringiensis</i> ^{a2} subsp. <i>israelensis</i>	fly larvae (e.g., fungus gnats)
<i>Beauveria bassiana</i> ^{a3}	whiteflies, aphids, thrips
cinnamon oil ^b	whiteflies
<i>Gliocladium virens</i> ^{a1}	root diseases
horticultural oils ^a (petroleum oil)	mites, aphids, whiteflies, thrips; powdery mildew
insecticidal soaps ^a (potassium salts of fatty acids)	aphids, whiteflies, cutworms, budworms
iron phosphate ^a , sodium ferric EDTA ^a	slugs and snails
neem oil ^a	mites; powdery mildew
potassium bicarbonate ^a ; sodium bicarbonate ^a	powdery mildew
predatory nematodes ^a	fungus gnats
rosemary + peppermint essential oils ^b	whiteflies
sulfur ^a	mites, flea beetles
<i>Trichoderma harzianum</i> ^{a1}	root diseases



Pest Management Practices

Table 3. PEST MANAGEMENT PRACTICES FOR MARIJUANA GROWN INDOORS
(e.g., greenhouses, sheds, and grow rooms)

PEST	DAMAGE	IPM PRACTICES (monitoring; cultural, physical, mechanical, biological)	PESTICIDES
DISEASES			
powdery mildew <i>Sphaerotheca macularis</i>	Grow on leaves as white and gray powdery patches	<ul style="list-style-type: none"> Use fans to improve air circulation 	horticultural oil; neem oil; sodium bicarbonate, potassium bicarbonate; <i>Bacillus subtilis</i>
pythium root rots <i>Pythium</i> spp.	Attack root tips and worsens when plants grow in wet soil	<ul style="list-style-type: none"> Avoid hydroponic production or wet soil conditions 	Incorporate biocontrol agents into root-growing media (e.g., <i>Gliocladium virens</i> , <i>Trichoderma harzianum</i> , <i>Bacillus subtilis</i>)
MITES & INSECTS			
two-spotted spider mite <i>Tetranychus urticae</i> (and other Tetranychidae)	Suck plant sap; stipple leaves	<ul style="list-style-type: none"> Disinfest cuttings before introducing to growing area Release predatory mites 	neem oil, horticultural oil, sulfur
leafhoppers	Suck plant sap; weaken plants	<ul style="list-style-type: none"> Encourage natural enemies by planting nectar sources 	horticultural oil or insecticidal soaps for nymphs
whiteflies <i>Trialeurodes vaporariorum</i> , <i>Bemisia tabaci</i> , <i>B. argentifolii</i>	Suck plant sap; weaken plants	<ul style="list-style-type: none"> Hang up yellow sticky cards Use biocontrol: <i>Encarsia formosa</i> 	azadirachtin, <i>Beauveria bassiana</i> , cinnamon oil, horticultural oil
thrips <i>Heliethrips haemorrhoidalis</i> , <i>Frankliniella occidentalis</i> , <i>Thrips tabaci</i>	Stipple leaves and vector viruses	<ul style="list-style-type: none"> Hang up yellow or blue sticky cards 	
dark-winged fungus gnats (Diptera: Sciaridae) <i>Bradysia</i> spp.	Damage roots and stunt plant growth	<ul style="list-style-type: none"> Avoid overwatering Use growing media that deters gnat development Hang up yellow sticky cards Use biocontrol: soil-dwelling predatory mites 	<i>Bacillus thuringiensis israelensis</i> (BTI); predatory nematodes; azadirachtin soil drenches



Available Products



Ingredient: Sulfur

EPA Registration Number





Available Products

- Azadirachtin
- DPR lists 34 active products
- Label broad enough for use on cannabis

AZATIN® 0

BIOLOGICAL INSECTICIDE

EXEMPT PESTICIDE LABEL

INSECT GROWTH REGULATOR
FOR INDOOR AND OUTDOOR USE ON ORNAMENTALS, TURF (INCLUDING COMMERCIAL LAWNS), VEGETABLES, AND OTHER HORTICULTURAL CROPS

ACTIVE INGREDIENT:	
Azadirachtin	4.5%
OTHER INGREDIENTS:.....	95.5%
TOTAL:.....	100.0%

This product contains 0.39 lbs. (175 g) of azadirachtin per US gallon.

EPA Reg. No.: 70051-9-59807

If you have questions or comments regarding the use of this product, please call 1-800-356-4647.

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

Si usted no entiende la etiqueta, busque a alguien para que se la explique en detalle. If you do not understand this label, find someone to explain it to you in detail.

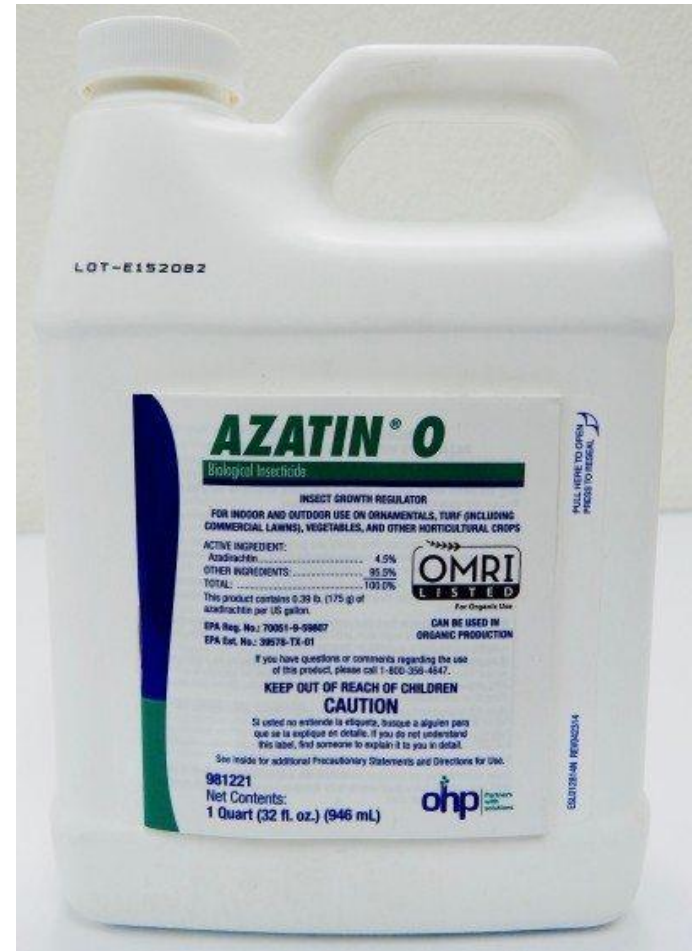


CAN BE USED IN ORGANIC PRODUCTION

EPA Est. No.: 39578-TX-01

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

CAUTION: Avoid contact with skin, eyes or clothing. Harmful if swallowed or inhaled. Avoid breathing vapors or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.





Questions?

*Thank
you*



ag.co.monterey.ca.us