

Common Lawn Care Insecticides

What Insecticides Are Used?

Most Integrated Pest Management (IPM) methods use a combination of insecticides to control unwanted insect populations. This commonly results in effective insect management but exposes people and our environment to toxic mixtures of organophosphates and pyrethroids.

To learn more about specific insecticides used in lawn care, visit:
<https://www.epa.gov/mosquitocontrol/controlling-adult-mosquitoes>

Effects of Pyrethroid and Organophosphate Exposure on Human Health

Exposure to pyrethroid and organophosphate insecticides typically occurs through inhalation, dermal contact, and consumption of foods containing chemical residues.

Organophosphate exposure is linked to **neuropsychological damage** including: difficulties in memory and attention, decreased processing speed, impaired visual-spatial functioning, coordination, and executive functions (reasoning, planning, problem solving, inhibition and other frontal lobe controlled cognitive functions).

The EPA has classified pyrethroids as a **possible carcinogen** and suspected endocrine disrupter. Due to pyrethroids' targeting of the nervous system, dermal contact affects peripheral nerves leading to burning, itching, and/or dizziness. Inhalation can cause coughing, wheezing, difficulty breathing, vomiting, and nausea. Furthermore, peripheral nerve damage due to pyrethroid exposure can cause paraesthesia, or abnormal sensations. Additionally, hemorrhaging and oedema of the respiratory tract has been identified as an effect of pyrethroid exposure.

To learn more about effects on human health, visit:
<http://emedicine.medscape.com/article/167726-overview>
http://apps.who.int/iris/bitstream/10665/69008/1/WHO_CDS_WHOPES_GCDPP_2005.10.pdf

Toxic Free Mosquito Control

- ✓ Empty sources of standing water including: gutters, watering cans, jars, and saucers under potted plants
- ✓ Empty and clean birdbaths twice weekly
- ✓ Store sources where water could collect upside down (wheelbarrows, canoes, etc.)
- ✓ Fill holes in trees with sand or mortar
- ✓ Do not over-irrigate lawns and fields
- ✓ Secure pool covers tightly
- ✓ Seal rain barrels and openings to water tanks
- ✓ Remove leaf piles frequently
- ✓ Reduce amount of English Ivy
- ✓ Keep grass cut and bushes trimmed
- ✓ Clear branches, trash and leaves from catch basins at road corners, street gutters, and drains
- ✓ Fill ornamental ponds with fish that eat mosquito larvae

Effects on Non-Target Insects

Pyrethroids have been found to have high acute toxicity in fish and aquatic invertebrates even at extremely low concentrations. Pyrethroids act as a neurotoxin to insects and are found to be **highly toxic to bees** and to disrupt reproductive patterns in beehives.

Exposure to organophosphates affects the nervous system in non-target organisms by altering the concentration of the neurotransmitter, acetylcholine. At sub-lethal doses, organophosphates have been linked to changes in behavior, paralysis, immunoincompetence, convulsions, and reproduction difficulty. Bioaccumulation of pyrethroids and organophosphates has been detected in commercial fish.

To learn more about effects on non-target organisms visit:
http://www.ukmarinesac.org.uk/activities/water-quality/wq8_21.htm
<http://npic.orst.edu/factsheets/pyrethrins.pdf>

Insect Repellent Tips

- Do not use sunscreen/repellent combinations
- Apply repellents containing pesticides, like DEET (a neurotoxin), to clothing instead of directly on skin.
- Wash off repellent from skin and clothing after applying and coming indoors – the Centers for Disease Control have recently endorsed Oil of Lemon Eucalyptus (OLE) based repellents to be **as effective as** DEET.
- Use oils or lotions rather than sprays to prevent inhalation
- Do not apply repellents to broken skin

To learn more about repellents visit:
https://www.cdc.gov/malaria/resources/pdf/fsp/repellents_2015.pdf

Toxic Free Repellent Alternatives

Herbal Insect Repellent

15 drops lavender oil
15 drops tea tree oil
10 drops citronella oil
10 drops eucalyptus oil
10 drops cedar wood oil

In a one-ounce plastic squeeze bottle, mix these with your favorite unscented skin oil (olive oil works fine). Not recommended for pregnant women. Keep out of eyes. Try a small amount on your wrist first to check for skin sensitivities. Experiment with other ingredients to develop your own blend!



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