

More low impact insecticides (cont.)

- **Boric acid**
 - Good for cockroach control, but should never be left where children or pets can reach. Boric acid is not toxic to touch, but in high doses can be toxic to swallow.
 - Light, barely visible, residues are best for controlling cockroaches.
 - Used as an active ingredient in some cockroach and ant bait products.
- **Diatomaceous earth**
 - Can control pests if kept dry and used in dry environments. Try dusting pet beds for flea control, and in walls and other dry locations for ant and cockroach control.
- **Botanical (plant-based) insecticides**
 - Plants make their own insecticides, some of which we use too. Check the labels of these products to compare toxicity. Just because a pesticide comes from a plant doesn't mean it's safe for people.
 - Botanical pesticides generally break down quickly when exposed to sunlight, air and water. This keeps them relatively safe for many beneficial insects.
 - Look for products containing pyrethrins, neem extracts, mint oils and citrus oils.
- **Attractants and repellents**
 - Sometimes the best way to manage pests is to repel them, or attract them elsewhere (like to a trap).
 - DEET, lemon oil of eucalyptus, and picaridin are the leading mosquito and tick repellents today.
 - Attractants are often added to sticky traps to make them more effective.

Tip:

"Sticky traps" can help you catch and identify household pests. In some cases they can even help control pests. Look for sticky traps (sometimes called roach hotels) in your local hardware, grocery or do-it-yourself pest control shop.

FOR MORE INFORMATION

Lots of useful information is available from Texas AgriLife Online. Check out the following resources:

- **<http://Agrilifebookstore.org>**
A great site with hundreds of Extension publications on topics ranging from water conservation to pest management. Try browsing the House and garden insect section, or search on a pest of interest.
- **<http://insects.tamu.edu>**
A diverse site devoted to all things insect. The home for the department of entomology at Texas A&M University.
- **<http://Citybugs.tamu.edu>**
A north-Texas based site with an eclectic assortment of information on pests missed by other sites.

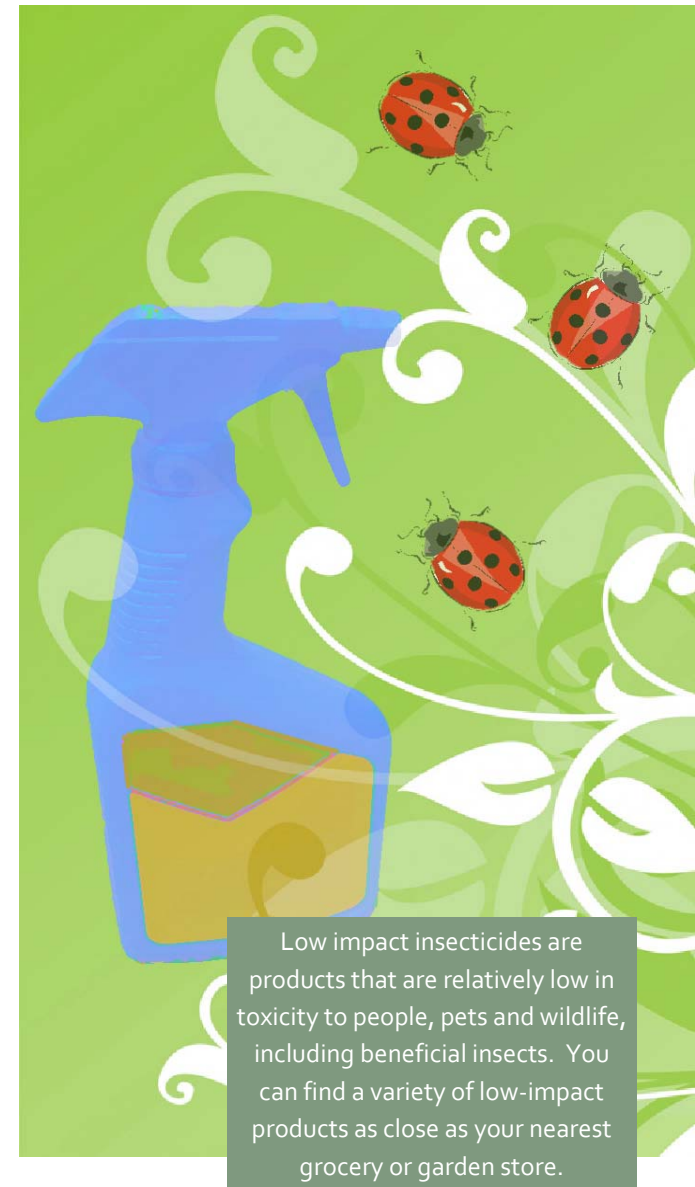
What's the difference between an insecticide and a pesticide?

Pesticides are chemical tools designed to kill, repel or prevent any kind of pest. Insecticides are a special kind of pesticide designed especially for insect control.

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Low impact insecticides are products that are relatively low in toxicity to people, pets and wildlife, including beneficial insects. You can find a variety of low-impact products as close as your nearest grocery or garden store.

Low-Impact Insect Control for Everyone

What is low-impact pest control?

It's hard to be green when pests are driving you crazy. That seems to sum up our popular attitude about pests and pesticides. *Some* of us are willing to resort to almost any means to get rid of scary and pesky bugs, but many pests *can* be controlled with very little risk to us or the environment. By combining low risk pesticides with non-chemical control measures, we soften our impact on the environment and control pests at the same time.

Pesticides aren't the answer to all pest problems. In fact, we often don't need pesticides to keep insects and other pests at bay. The best low-impact approach is called integrated pest management, or IPM. It provides a way to use fewer pesticides along with other effective tactics to keep pest numbers manageable.

IPM starts with identifying the pest, then looking for sanitation or other non-chemical ways to make the environment less attractive to pests. Excluding the pest from your home or garden is next. Finally, IPM encourages use of the least-toxic products that will control the pest. Put all these things together and you've got low-impact pest control!



Examples of low impact insecticides

• Insecticide soaps and horticultural oils

- These products kill smaller, soft-bodied arthropods like mites, aphids and scales. But they only kill when sprayed directly on the pest.
- Horticultural oils are sometimes called dormant oil, Volck oil, summer oils or ultrafine spray oils.
- Store bought versions of these products are generally safer to plants (plus they come with instructions!).
- Soaps and oils are among the cheapest and safest pesticides for the garden.

• Microbe-based products

- These products consist of, or are derived from, bacteria and other microbes.
- Microbe-based products, like *Bacillus thuringiensis* and spinosad, are generally safe for people and selective for pests.
- Caution: Even the low toxicity product spinosad can be harmful to bees. It's best to spray flowering plants in the evening to minimize risks to bees and other pollinators.

• Insect growth regulators (IGRs)

- These products are usually man-made copies of hormones that are found in insects. They can affect insects by disrupting egg laying or interfering with normal growth. They are generally harmless to people and pets.
- Examples of IGRs include methoprene (flea and fire ant control), hydroprene (mosquito control), and halofenozide (caterpillar and white grub control).

• Baits

- Because baits are fed on by pests, the amount of pesticides needed to kill is very small. In many cases, baits can eliminate the need for potentially more hazardous sprays.
- Cockroach bait stations and liquid ant baits can provide excellent control of these pests.
- Fire ant baits should be scattered over the whole yard and not placed in piles around ant mounds for best control.
- Some baits, like fire ant, slug and rodent baits can be toxic to pets unless label directions are followed carefully.

Not all insecticides are created equal. In themselves, insecticides do not have to be harmful to the environment. Some insecticides on shelves today are very low in toxicity to people and highly selective for certain insects. This allows us to control pests safely and preserve beneficial insects.



Some of the smallest insects in the garden should be your best friends. Predatory pirate bugs, parasitic wasps, predator flies and even beneficial mites and thrips are common in most gardens, and in many cases do a better job of controlling pests than the better-known lady beetle.

Home grown lady beetles are best!

Mother Nature does a good job of delivering lady beetles to our front step when they are needed. Repeated research studies show that store-bought lady beetles rarely stay around long enough to control your pests—though they may help someone on the *other* side of town!

