Garden pests - they're here to stay.
But so are we.



SOME Pests


Tomato
hornworm


Gopher


Flea beetle


SNAIL
SLUG


Grasshopper


SQUASH BUG


STINK BUG


Aphids


Deer

Some Solutions…

A quick word on **pesticides**…

What Are Pesticides, Really?

Pesticide is a broad term that covers different chemicals used for the control of pests, weeds, and plant diseases. Keep in mind - these do not ONLY kill pests/weed/plant disease. Another term to think of is *"biocide"* → chemicals that kill living things.

- Insecticides → insects
- Rodenticides → rodents
- Herbicides→ weeds
- Fungicides→fungal diseases

The worst pesticides include Atrazine, Flupyradifurone, Hexachlorobenzene, Glyphosate, Methomyl, and Rotenone. Based on WHO data, they are particular hazards b/c of: (1) bioaccumulation; (2) persistence in water, soil/ sediment; (3) toxicity to aquatic organisms; and (4) toxicity to bees/ ecosystem services. (impactful ninja)

Pesticides affect human health

Glyphosate (used for weeds - herbicide) is linked to kidney toxicity, an increased risk for non-Hodgkin's lymphoma, fatty liver disease, endocrine disruption, and changes to the microbiome in agricultural communities

Pesticides affect domestic pets

Rodenticides are one of the top causes of accidental pet poisonings. Rodenticide is incredibly toxic and can cause organ failure, seizures, and death.

Pesticides affect pollinators

Neonicotinoids treat corn, soy beans, canola, and other widely grown crops here in the US. These pesticides have been linked to the dramatic decline of pollinators and wildlife. In fact, in 2017, U.S. beekeepers reported losing an unsustainable 33 percent of their hives in just two years.

Common names of neonicotonoids - "acetamiprid," "clothianidin," "dinotefuran," "imidacloprid," or "thiamethoxam."

Pesticides affect groundwater

Even if the US banned all pesticide usage today, it would likely take decades for these dangerous chemicals to work their way out of the groundwater supply.

Pesticide affect wildlife

Studies show that pesticides threaten 80% of our threatened wildlife

Let’s talk some pesticide alternatives…

- Physical Barriers
- Plant Diversity
- Cultural Control
- Beneficial Insects
- Muscle Control

Physical barriers…

Cover your beds with garden mesh - when the seeds/transplants FIRST go in…

- Added benefit of helping to keep moisture in AND providing some shade coverage.

Line beds with chicken wire (for gophers)

Add fencing to prevent deer and rabbits from entering your garden.

Plastic owls can be used for birds, squirrels and even rabbits.

Plant Diversity…

Plant diversity is key because each plant does something to create a healthier environment inside of your garden space. Flowers attract pollinators and other beneficial insects, fragrant herbs deter pests, leafy greens shade the soil, and legumes fix nitrogen into the soil.

Consider these categories:

- Herbs
- Flowers
- Season
- Size

Flowers and herbs can be planted on the perimeter, since some are trap plants and some repel pests. They also attract pollinators.

Plant with seasons in mind. Consider when plants will die back - so that new ones will fill in to provide shade (as an alternative to mulch - which can shelter pests and disease)

Plant your larger plants in the middle, medium size plants, then smallest plants on the outside. This helps your garden breath and can prevent fungal issues.

Cultural Control

Soil health: Healthy soil produces heartier plants that bounce back and have natural pest resistance.

Plant Diversity: Flowers attract pollinators and other beneficial insects, herbs deter pests, leafy greens provide shade, and legumes fix nitrogen into the soil.

Plant Rotation: Grow plants that belong in your climate and work in the soil that you have, during the right growing season, and remove once they are spent. DON'T GROW IT IF YOU DON'T EAT IT.

Proper Watering: Properly watered gardens are healthier gardens. Water from the bottom, in the morning - this gives plant time to draw up moisture in the heat of the day. .

Trap Plants…

A trap crop is basically a decoy to attract pests that would otherwise attack your garden crops.

Marigolds prevent nematodes from attacking tomatoes	**Dill** draws hornworms from your tomatoes.	**Radishes/nasturtiums** “trap” flea beetles
Nasturtiums/calendula to trap aphids	**Collard greens** to attract cabbage worms from your plants	**Blue hubbard squash** on the perimeter to trap squash bugs, cucumber beetles and squash vine borer.

Beneficial insects

Pollinators

Bees: anise hyssop, basil, snapdragons, lavender, bee balm, echinacea, catmint, sunflowers, borage, and zinnias

Butterflies : milkweed, echinacea, yarrow, butterfly bush, calendula, and zinnias.

Moths: Like plants that release fragrance in the evening, like dianthus, honeysuckle, and jasmine.

Other pollinators:

- Flies
- Lacewings
- Ladybugs
- Moths
- Wasps
- Hummingbirds*
- Bats*

Predators

- Assassin bugs
- **Ladybugs**: alyssum, calendula, cilantro, cosmos, dill, fennel, feverfew, marigolds, milkweed, mint, nasturtiums, parsley, sunflowers, tansy, yarrow
- Praying mantises
- **Green lacewings**: coreopsis, daisies, asters, and flowering dill.
- Beetles
- Hoverflies
- Minute pirate bugs
- Birds*
- Spiders**

Parasitoids

- Braconid wasps
- Trichogramma wasps
- Tachinid flies

*not insects, but still pollinators

Muscle control

- Keep the garden cleaned up - reduce where pests can hide and reproduce.
- Inspecting your garden can also help you locate pest eggs and nests.
- **Squash bugs**
  - Turn over large leaves to find the tiny eggs - scrape them off!

Chemical Treatments

- Chemical pesticides kill the good bugs right alongside the bad bugs. Even organic and "safe" sprays like Neem oil can have a negative impact on beneficial insects.
- Monterey B.t, an organic product that consists of Bacillus thuringiensis, a soil-dwelling bacterium that kills caterpillars but has no effect on honey bees or birds.
- Keep in mind that just because a treatment is organic, doesn't mean it won't still have some type of negative impact on something other than the pest you're hoping to kill.

Homemade Pest Sprays

Dish Soap Spray -Aphids, mealybugs, spider mites, thrips, and whiteflies)

Ingredients:

- 1–2 teaspoons Dr. Bronner's castile soap (or another mild liquid soap without bleach, degreasers, or detergents added)
- 1 quart water

Instructions: Mix gently before use.

How to Use:

- Spray directly onto soft-bodied pests.
- Reapply every 3 to 5 days as needed for continued control. These soap sprays only work when wet.
- After a few applications, spray the plants down with water to rinse off any remaining soap residue.

Tomato Leaf Spray - Aphids, mites, caterpillars, and other chewing insects (though not tomato hornworms, unfortunately)

Tomato leaves contain natural compounds (solanine and tomatine) that help deter many soft-bodied pests and chewing insects. This simple spray uses those compounds to protect your plants without synthetic chemicals.

Ingredients:

- 2 cups chopped tomato leaves
- 4 cups water (divided)

Instructions: Soak chopped tomato leaves in 2 cups of water overnight. Strain, then dilute with the remaining 2 cups of water.

How to Use:

- Spray on the affected plants in the early morning or evening.
- Repeat every few days as needed.

Note: Avoid spraying crops in the nightshade family (like

Homemade Pest Sprays

Hot Pepper Spray - Rabbits, deer, aphids, beetles, mites, whiteflies, caterpillars, ants, and other chewing insects

Ingredients:

- 2 tablespoons hot pepper sauce or chili/cayenne powder
- A few drops of Dr. Bronner's castile soap
- 1 quart of water

Instructions: Mix all ingredients together and let the mixture steep overnight.

How to Use:

- Spray on affected plants, avoiding eyes and skin contact (gloves are a great idea!).
- Apply weekly or after signs of new infestations.
- Use in the early morning or evening to prevent leaf burn.

White Oil Spray - Aphids, mealybugs, thrips, mites, and scale insects

Ingredients:

- 1 cup vegetable oil
- 1 tablespoon Dr. Bronner's castile soap
- 1 quart of water

Instructions: Combine 1 cup of vegetable oil with 1 tablespoon of soap and mix well to create the oil-soap concentrate. When ready to use, add 2 to 8 teaspoons of this concentrate to 1 quart of water and stir thoroughly to dilute.

How to Use:

- Spray the diluted mixture thoroughly on the affected plants in the early morning or evening.
- Use as needed to control infestations.

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Common herbicides whose active ingredient is glyphosate (or contain glyphosate formulations):

- Roundup (many formulations/brands sold under the Roundup name)
- Ranger
- Rodeo (for aquatic and industrial use)
- Accord (industrial/forestry formulations)
- Touchdown
- Glyphomax / Glyfos / Glyfosate (generic/generic-market names)
- AquaMaster (aquatic formulations)
- Credit (some regional brands)
- Roundup Ready-to-Use (ready-to-spray consumer versions)
- Various store-brand or generic “glyphosate” concentrates (sold as “glyphosate 41%,” “glyphosate 360 g/L,” etc.)

Many manufacturers sell glyphosate under different trade names and generic labels; the active ingredient listing on the product label will read “glyphosate” (often as an isopropylamine, ammonium, or potassium salt).

Common U.S. brand names for neonicotinoid pesticides

- Imidacloprid: Merit, Admire (regional/retail formulations), Provado, Bayer Advanced Lawn & Garden Ready-to-Use (contains imidacloprid in some formulations)
- Clothianidin: Poncho (seed treatment), Belay (some turf/ornamental uses)
- Thiamethoxam: Cruiser (seed treatment), Actara, Flagship (turf/ornamental products may contain thiamethoxam)
- Acetamiprid: Assail, TriStar (some professional formulations carry acetamiprid)
- Thiacloprid: (Less common/since restricted) — Calypso (used in some specialty labels; availability limited)
- Dinotefuran: Safari, Zylam, Vendetta (pet and professional/home pest control products may use dinotefuran)
- Nitenpyram: Capstar (veterinary flea treatment for pets)