Ants

Although ants are annoying when they come indoors, they can be beneficial by feeding on fleas, termites, and other pests in the garden. While spraying chemicals inside the house might seem effective, doing so won't prevent more ants from entering your home. Because most ants live outdoors, focus efforts on keeping ants from entering buildings. Combine several methods such as caulking entryways, cleaning up food sources, and baiting when necessary. Avoid using pyrethroids (e.g., bifenthrin and cypermethrin), especially on hard surfaces such as driveways or sidewalks or around the foundation of buildings. These products pollute waterways.

Make your house less attractive to ants.

- Caulk cracks and crevices that provide entry into the house.
- Store food attractive to ants in closed containers.
- Clean up grease and spills.
- Ant-proof kitchen garbage pails with sticky barriers such as petroleum jelly under the lip and place pet dishes in a moat of water.
- Remove or manage sweet food sources next to your house such as aphid-infested bushes and ripened fruit on trees.
- Keep plants, grass, and organic mulch at least a foot away from the foundation of buildings to reduce ant foraging and nesting.

When ants invade your house:

- Sponge up invading ants with soapy water as soon as they enter.
- Plug up ant entryways with caulk.
- Take infested potted plants outdoors and submerge pots in a solution of insecticidal soap and water.
- Clean up food sources by wiping up spills or placing food in tight-fitting containers.
- Rely on outdoor baits to control the ant colony.
- Insecticide sprays shouldn't be necessary.
- If you hire a pest control company, ask them to use baits and spot treatments rather than perimeter treatments or monthly sprays.

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How baits work:

Pesticide baits work by attracting worker ants who then take the product back to the nest where the entire colony, including queens, can be killed. The pesticide must be slow acting so workers won't be killed before they get back to the nest.

How to use baits:

Place baits near ant trails and nest openings. Prepackaged or refillable bait stations or stakes are the safest and easiest to use. Active ingredients in baits may include boric acid/borate, fipronil, avermectin, or hydramethylnon. Liquid borate (0.5-1% borate in sugar water solution) baits in refillable bait stations are best for severe Argentine ant infestations. Replace baits when empty and reposition them, or try a different bait product if ants don't appear to be taking it. It can take 5 to 10 days to see fewer ants.

See www.ipm.ucanr.edu/ants for more details.

Argentine ant; actual size is 1/8 of an inch.

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Aphids

Almost every plant has one or more aphid species that occasionally feed on it, but low to moderate numbers of aphids usually aren't damaging to gardens or landscape trees. Although aphids can curl leaves and produce sticky honeydew, they rarely kill plants and you usually can wash them off with water. When aphid numbers get high, natural enemies frequently feed on them, eliminating the need for pesticides. When pesticides are necessary, use less toxic products such as insecticidal soaps and oils.

Aphids are common in your garden because:

- Aphids like lush new growth so don't over fertilize. Use organic or slow-release products.
- Aphids build up on flowering plums, roses, tulip trees, crape myrtles, apples, and many vegetables. Expect aphids when you grow these plants.
- Ants protect aphids from their natural enemies. Keep ants off plants to help beneficials do their job.

To reduce aphids:

- Prune out infested leaves and stems.
- Knock aphid populations off plants by shaking the plant or spraying it with a strong stream of water.
- Protect seedlings with covers or aluminum foil mulches.
- Wait for hot weather; most aphids are heat-intolerant and will be gone by mid-June.

Protect aphids' natural enemies:

- Lady beetles (lady bugs), both adults and larvae;
- Lacewings;
- Syrphid fly larvae;
- Soldier beetles; and
- Parasitic mini-wasps that turn aphids into crusty mummies.

Beneficial insects such as lady beetles and lacewings will come into your garden naturally when aphids are abundant. Protect these good bugs by avoiding the use of insecticides that can be toxic to a broad variety of insects.

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If insecticides seem necessary, use the safest products.

- Use nonchemical pest control methods first to manage aphid populations. However, if you feel insecticides are necessary, choose less toxic products.
- Insecticidal oils and soaps are the safest products. When properly used, these materials solve most problems.
- Oils and soaps work by smothering aphids, so apply these products thoroughly. Don't apply them to drought-stressed plants or when it is very hot. A few plants are sensitive to these products.
- Apply insecticidal soaps, soap-pyrethrum mixtures, or neem oils on vegetables or small bushes such as roses.
- Narrow range horticultural oils—such as supreme or superior oils—are appropriate for larger trees.
- Oils and soaps don't kill aphids hidden within curled leaves. Prune these out. Systemic insecticides can kill hidden aphids, but they are much more toxic and might kill honey bees and parasites on flowering plants.

See *Pest Notes: Aphids* at www.ipm.ucanr.edu for more details.

Green peach aphid colony.

A healthy aphid is flanked by mummified aphids killed by parasitic wasps.

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Leaf-feeding Caterpillars

Caterpillars, the larvae of butterflies and moths, damage plants by chewing on leaves, flowers, shoots, and fruit and sometimes by boring into wood. Caterpillars in fruit or wood can be difficult to manage: they are hidden most of their life and can cause serious damage even when numbers are low. However, many plants, especially perennials, can tolerate substantial leaf damage, so a few leaf-feeding caterpillars often aren't a concern. Handpicking and natural enemies often provide sufficient control.

Early detection and removal prevent excessive damage.

- Look for feeding holes, excrement, webbed or rolled leaves, caterpillars, eggs, and natural enemies.
- Prune off rolled or webbed leaves, and handpick caterpillars from plants, destroying the insects by crushing them or by dropping them into soapy water.

Caterpillars have many natural enemies.

- Beneficial insects and other organisms often prevent caterpillar numbers from rising to damaging levels.
- Most caterpillar species have several species of parasitic wasps or flies that attack them. Look for parasite cocoons next to caterpillars, darkened caterpillar eggs, or exit holes in dead caterpillars.
- General predators include birds, assassin bugs, lacewings, predaceous ground beetles, and spiders.
- Naturally occurring diseases caused by viruses, bacteria, or fungi often kill caterpillars.

Less toxic insecticides are available:

- Use insecticides only when damage is becoming intolerable, nonchemical methods haven't worked, and smaller caterpillars are present. Avoid insecticides that can kill beneficial insects, and don't treat butterfly garden plants, because you'll kill the caterpillars that will become butterflies.
- *Bacillus thuringiensis* subspecies *kurstaki* (Btk) is a microbial insecticide that kills only caterpillars. It's safe to use near bees, beneficial insects, and wildlife. Caterpillars must feed on treated leaves to be affected. Because it's most effective on small, newly hatched caterpillars and breaks down rapidly, treatment timing is critical.
- Spinosad is a safe microbial-based insecticide, but it can have some negative impacts on beneficial insects.

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Some common leaf-feeding caterpillar species:

Beet armyworm *is a common pest on vegetables and flowers. Yellowstriped armyworm is similar but dark with yellow and orange stripes.*

*A **parasitic wasp** lays her egg in an armyworm. The egg will hatch into a larva that will feed inside the armyworm and kill it.*

Tobacco hornworm *on tomato. Note its excrement on the leaf below.*

*The **western tussock moth** feeds on many ornamental and fruit tree species.*

*Leafrollers, such as this **fruittree leafroller,** feed inside leaf rolls secured with silk and, when disturbed, often drop to the ground, hanging from a silken thread.*

*The **cabbage looper** has three pairs of prolegs in the back and a reduced number in the middle, causing it to move in its typical looping pattern.*

Fall webworms *feed in groups within silken tents. Many tent caterpillars create similar nests. Prune these out and destroy them.*

*Egg cluster and newly hatched larvae of the **redhumped caterpillar.** As these larvae mature they will develop a bright red hump just behind their head.*

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Snails & Slugs

Snails and slugs rank among our most despised garden pests. These slimy mollusks emerge from hiding at night and chew holes in leaves and flowers of many succulent garden plants and fruit. Slugs and snails are similar in structure and biology, except slugs lack the snails' external spiral shell. Management requires a vigilant and integrated approach that includes eliminating moisture and hiding spots, trapping, setting up barriers, and handpicking. Baits can be helpful but by themselves don't provide adequate control in gardens that contain plenty of shelter, food, and moisture.

How do you know snails and slugs are causing damage?

- You might not observe these pests at first, because they feed at night and hide during the day. Go out at night or in the early morning to view them in action.
- Other pests can cause holes in leaves, flowers, and fruit. Look for the shiny, slimy trails slugs and snails leave behind.

What must be done to reduce snails and slugs?

- Remove daytime hiding places—ivy, weedy areas, debris, and boards.
- Regularly remove snails from shelters you can't eliminate such as low ledges on fences, undersides of decks, and meter boxes.
- Place traps in your garden and dispose of trapped snails and slugs daily.
- Reduce moist surfaces by switching to drip irrigation or sprinkling in the morning rather than later in the day.
- Consider snail-proof plants such as impatiens, geraniums, begonias, lantana, nasturtiums, and many plants with stiff leaves and highly scented foliage such as sage, rosemary, and lavender.

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How can I manage snails and slugs without using pesticides?

- Make sure the garden is mollusk-free before planting. Then erect a copper barrier around it. Use a 4- to 6-inch wide band of copper, buried an inch below the soil and bent over at the top or attached around the edge of a raised bed.
- Place your garden in the sunniest spot possible. Remove garden objects or adjacent plants or ground cover that can serve as shady shelter. Reduce moist surfaces as much as possible.
- Build a trap using a 12- by 15-inch board raised off the ground by 1-inch runners. As mollusks collect under the board, scrape them off and destroy daily.

What about baits?

- Baits won't be very effective unless you also remove shelter, food, and moisture.
- Metaldehyde baits are especially poisonous to dogs and birds. Metaldehyde also loses its effectiveness rapidly in sunlight and after rain or irrigation.
- Iron phosphate baits are safe for use around dogs, children, and wildlife.
- Irrigate before applying bait and apply in the evening on warm days when mollusks are active.
- Scatter, don't pile, bait around sprinklers and in moist, protected areas where mollusks travel.

See *Pest Notes: Snails and Slugs* at www.ipm.ucanr.edu for more details.

Use a board that is raised off the ground about an inch to trap snails daily.

Slugs and their damage.

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Weeds in Landscapes

Nothing disturbs tidy gardeners more than a weed filled flower or landscape bed. Weeds will invade any bare or thin area in a landscape. Prevent invasions in new beds with good site preparation. Keep weeds out with an integrated program that includes competitive plants, mulches, and hand removal. Be particularly vigilant about removing aggressive perennial weeds. You should rarely need herbicides in established landscape plantings.

Before and right after you plant:

- **Prepare the site and control existing weeds.**
  - **Dig out weeds or remove by hand. Follow up by irrigating then removing newly emerged weed seedlings right before planting.**
  - **Solarize the soil if conditions allow.**
  - **If necessary, use glyphosate or other systemic herbicides for difficult-to-control perennial weeds.**
- **Evaluate your soil and amend if needed. Make sure new soil comes from a reputable source and doesn't contain weed seeds.**
- **Establish new plantings as quickly as possible to cover bare areas and shade out weeds.**
- **Consider drip irrigation in permanent plantings.**
- **Apply mulches.**

Mulch is the key to weed-free landscaping.

- **Mulches prevent weed seed germination by blocking sunlight. Be sure to properly apply mulch and replenish it to maintain its effectiveness.**
- **Organic mulches (e.g., wood chips, bark chips, compost): Attractive but must be replenished. Choose a medium-sized mulch (¾ inch) and maintain it at an adequate depth (3 to 4 inches).**
- **Natural inorganic mulches (e.g., sand, gravel, pebbles): More stable than organic mulches, but difficult to keep clean.**
- **Landscape fabrics: Porous and long lasting; vary in how long they remain effective. Cover with organic mulch.**
- **Black plastic: Not preferred since it can restrict air and water movement and promote root rots.**

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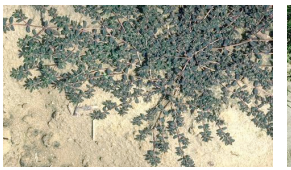
When weeds invade your landscape:

- **Remove small weeds by hand before they flower and set seed.**
- **Use a dandelion knife or similar tool to dig up and destroy all roots and underground parts of perennial weeds without disturbing the soil.**
- **Use shallow cultivation or hoeing to remove annual weeds from ornamental plantings.**
- **Consider devices such as string trimmers for large landscapes.**
- **Apply mulch to weed-free areas to prevent further invasions, and regularly remove new weeds as soon as they emerge.**

When are herbicides necessary?

- **In general, existing landscape plantings don't need herbicides; hand weeding and mulching usually provide adequate control.**
- **Use herbicides for special-problem situations before establishing new plantings or for difficult-to-control perennial weeds.**
- **Herbicides can injure desirable plants in the landscape, so use these products with great care.**

See *Pest Notes: Weed Management in Landscapes* at www.ipm.ucanr.edu for more details.



spotted spurge

bermudagrass

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