

Ants - Fire

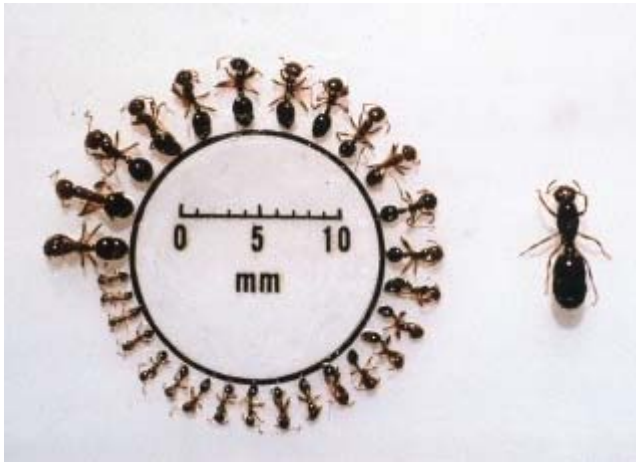


Photo shows a mound treated with Andro - a procedure I do not recommend. Here's the three-step organic program that actually works to control this man-made problem.

1. Drench mounds with Liquid Fire Ant Control formula - orange oil, molasses, and compost tea mixture.
2. Treat the site with beneficial nematodes. These are living organisms and must be used before the date deadline on the package.
3. Go organic and use the entire basic program. The biodiversity of microbes, insects, and other animals is the best long term control.

Liquid Fire Ant Control - mix one part compost tea, 1 part molasses, and one part orange oil. Mix at 4-6 ounces of the concentrate per gallon of water for treating fire ant mounds.

Alternative Fire Ant Program by Michael Bosco

Preventative maintenance

There are steps that can be taken to reduce the competitive edge of fire ants and as part of an overall organic program to control fire ants.

1. Increase biodiversity. Fire ants are more of a problem in new neighborhoods than in older neighborhoods, where there is a more stabilized ecosystem. When fire ants are forced to compete they become less of a problem. We must do our part to encourage nature.

2. Treating the lawn spring and fall with nematodes. Treat after sunset and follow-up with ½ inch of irrigation. Nematodes are live microscopic worms and need to be applied at the highest recommended rate and in a manor to ensure their survival.

Individual Mound Treatment

3. Treat individual mounds with 1-1/2 ounces of citrus and a few drops of soap as a wetting agent per gallon of water. Treat each mound with one gallon of diluted mixture.

Large area Treatment Program or Bad Infestations

4. When large areas have bad infestations of fire ants, the next step up from the nematodes and citrus drench is applying baits on the whole property at 1-1/2 lb. per acre and one teaspoon of bait per mound. The baits we recommend are the ones containing abamectin because it is derived from a soil microorganism. At low concentrations abamectin acts as an insect growth regulator and when used on individual mounds it is a stomach poison. Baiting should be done in the spring and fall during times of active ant foraging. Test the timing and the bait's palpability by applying a small amount to individual mounds and watch for a quick uptake. For mounds along sidewalks, house foundations etc. bait is normally required to get effective control, because the ant colony is protected under the concrete.

5. The next step up from the abamectin baits is the chemical growth regulators. These products do not kill ants, they obstruct their life cycle. This process is slow and should be looked at as a low toxic method to decreasing fire ant populations on large properties over a period of several months. Extinguish is a product that has demonstrated good results. As with most baits it is best used in the spring and fall when ants are actively foraging.

Ants & Grits

Abamectin is the natural product of a fungus, *Streptomyces avermitilis*, and is commercially available for killing mites and other insects including but not limited to ants and roaches. See Fire ants or the specific ants you have.

Grits for Ant Control

We have found that corn grits work better than orange oil. Use the regular or quick grits, not the instant grits.

The latter have already been expanded. If in doubt, check the weight on the box and the quick grits will be at least twice as heavy for the same volume as the instant grits.

We find that the quick grits work much better than the orange oil which has the tendency to kill grass. The grits kill all of the ants within 1 to 2 days while the orange oil may not. For that matter, grits works just as fast as most pesticides. But, the ants may come back as they will continue to hatch. In that situation, just apply more grits.

As far as the dried molasses and beneficial nematodes, ours were doing fine until late August. Before then if a mound started, the ants would die out within 3 or 4 days. But, with the hot, dry weather I believe the we have lost some of our nematodes near the surface. Some mounds do die, but some get large and have required the grits.

My wife claims she like to listen to the ants going pop.

David Griffith, Plano

Here is my take on why grits or cornmeal can inhibit Fire Ants.

Fire Ants vary their diet seasonly. Typically they go after proteins more in the Summer(worms or dead bugs or

meats or animal oils, etc.). In the Fall and Winter, they diet more on carbohydrates. This is when starches (grains) are more appealing to their diet.

Probably what makes the cornmeal (or the cornmeal nature of grits) more effective in inhibiting Fire Ants is that they feed this to substance to their larvae in order to break it down into a digestible food source for the adult Fire Ants. Their food source normally is based upon a type of fungal breakdown in concert with their young. This is inhibited by the cornmeal. The antifungal nature of the cornmeal/grits upsets this feeding cycle where the adults can not obtain their final food product (a fungus-based food secreted via the larvae). Essentially, the Fire Ants start to starve because their primary food source isn't happening -- it has been "infected" as a result of the antifungal activities of the grits or cornmeal.

Some of the details of this cycle might be rough around the edges on my rendition, but this is probably why people find success with grits this time of year. In the summer, grits will probably be less effective.

I am no Scientist, but I do a lot of research along with experimentation in the real world.

Tom Theimer
October 2005

Ants - Pest Control

We have several species of ants in the garden and sometimes in the house. Most of the ants other than fire ants are beneficial in the garden. Some in the house are easier to control than others. If you have the kinds of ants that need controlling, I can help you. There are several non-toxic ant controls that are cost effective and easy to use.

Most ants in the garden are either beneficial or just a nuisance. The three most troublesome in north Texas are odorous ants, fire ants and various carpenter ants. Fire ants are best controlled with mound drenches of citrus-based products. There are now commercial products but the formula for a homemade version available here on the web site Beneficial nematodes and going totally organic is the rest of the fire ant program that really works. Odorous ants, similar to carpenter ants, are best controlled with Abamectin baits. Sugar ants and other house ants can be controlled in the house with baking soda, cinnamon dust, tansy leaves, citrus oil sprays or baits made from sugar with a little bit of boric acid. My most recent tip is black pepper also seems to work. If you have ants and other troublesome insects in the attic – dust with a mix of cinnamon and natural diatomaceous earth. Hot pepper dusts or liquid sprays also work.

Member tip:

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Aphids

Common names: Aphid, Plant Louse, Greenbug, Ant Cow

Scientific name: Order Homoptera, family *Aphididae*, many species

Size: Adult--approximately 1/10"

Identification: Small soft-bodied insects of all colors, pear-shaped, with long legs and antennae. The most common color is green, but many species are black, red, yellow, or bluish. Adults are winged and wingless; they usually have a pair of tubes (cornicles) sticking out of the upper end of the abdomen. These tubes spray an oil or waxy fluid on enemies. Aphids also produce a sticky honeydew excretion that ants love; whitish skin casts are left after molts. Some species like the woolly aphids are covered with a waxy white coating.

Biology and life cycle: In general, eggs are laid in fall and hatch in spring. Nymphs feed in masses by sucking plant sap. These aphids are mostly females that give birth to live young. Sometimes a generation of winged aphids appears and migrates to a new host plant where they feed and produce more wingless females. A generation of true males and females appears in late summer or early fall when temperatures start to drop. These aphids mate, and the females lay eggs that overwinter and hatch the following spring to start the process all over. During warm weather, aphids may go through a complete generation in less than two weeks. They have an incomplete metamorphosis.

Habitat: You name it. Most ornamental and fruit crops. Foliage of plants, especially the underside of leaves and stems on tender new growth.

Feeding habits: Aphids normally feed in groups on leaves or stems. They pierce foliage or tender stems and suck plant juices, causing leaf curling and stunted growth. The digested sap is excreted as the honeydew commonly seen shining on foliage. Some feed on roots.

Economic importance: Aphids reduce the health of stressed plants even further, roll or turn foliage yellow (reducing photosynthesis), and ultimately kill plants. On the positive side, they help to eliminate unfit plants. Some aphids are vectors of disease organisms like viruses.

Natural control: Plant adapted varieties and encourage natural biodiversity, healthy plants, and beneficial insects such as ladybugs, green lacewings, hover flies, praying mantids, and braconid wasps. Avoid feeding plants heavy amounts of nitrogen.

Organic control: Strong blasts of water, garlic-pepper tea, liquid seaweed, and the release of ladybugs and green lacewings. Citrus oil spray can be used for heavy infestations. Biological sprays are also now available. Plant oil products will also work.

To control aphids, plant adapted varieties, encourage biodiversity especially beneficial insects such as ladybugs, lacewings, hover flies, and predatory wasps. Avoid heavy amounts of fertilizers. Spray infested plants with strong blasts of sugar water and release ladybugs. Garlic-pepper tea, Garrett Juice with garlic, neem, and citrus oil based sprays will also help.

Insight: Aphids, one of the most prolific insects, are considered one of our biggest pests. There are over 200 species. They may produce up to fifty generations per year. Some species produce several generations without mating. The females can lay eggs or give live birth, and those already have within them developing embryos for the next generation. The young can be born with or without wings. It all depends on whether they need to migrate away from a natural enemy or to a better food supply. The life cycle varies widely between different species and may

even vary within the same species in different geographical locations.

With all of their life-sustaining abilities, you would think that aphids would soon destroy all vegetation. But they don't. They have lots of natural enemies in the insect world; more important, healthy, well-grown, and adapted plants have immunity to them. Heavy applications of nitrogen fertilizer will actually attract aphids.

Bacterial Blight

A plant disease that causes dark-green water spots that turn brown and may die leaving a hole in the leaves of tomatoes, plums and several ornamental plants. Control includes healthy soil, baking-soda spray, and biological healthy soil. Drenching the soil with neem can also help

Bagworm



Scientific name: Order Lepidoptera, family Psychidae, *Thyridopteryx ephemeraeformis*

Size: Adult--up to 1", bag--1/4" to 1 1/2", larva--3/4" to 1"

Identification: Larvae hang in bags from twigs of trees. Bags are camouflaged with pieces of twigs and leaves from the host plant. Adult male is a black moth. The bag has a small opening at the narrow lower end that serves as a waste exhaust port. A wider opening at the top allows the larvae to crawl out and feed.

Biology and life cycle: Newly hatched bagworm larvae make conical bags that they carry upright as they move. Adult females are grublike, have no wings or eyes, and are nearly hairless. The rarely seen male adult is a small flying moth. It has clear wings and feathery antennae and is sooty black. The female lays eggs in the bags in the fall, then goes through the lower opening and drops to the ground and dies. Larvae hatch and lower themselves on silk threads and attach on limbs where they start building their own silk bags.

Habitat: Ornamental trees and shrubs like arborvitae, junipers, fruit trees, and many others.

Feeding habits: Eat foliage starting on the upper part of the plant. They live in and feed on willow, cedar, cypress, some pines, boxelder, locust, sycamore, maple, sumac, persimmon, and other ornamentals and fruit trees.

Economic importance: Defoliation of ornamental plants.

Natural control: Wasps, birds, and several insect parasites and predators.

Organic control: Bt (*Bacillus thuringiensis*) products sprayed in the spring. Hand picking the rest of the year is by far the best technique. Plant oil products will also work.

Insight: Texas has several recorded species of bagworms. Since the female doesn't have wings or ever leave the bag, it is somewhat of a mystery how bagworms get dispersed. While the larvae are attached to single strands of silk thread after hatching, they may be blown a distance by the wind. The silk thread could get caught on an animal such as a bird and be carried a distance.

Defoliating insects that attack several tree species. Hand remove bags then apply The Sick Tree Treatment. Once the bags has firmly attached to the plant, the only solution is to pull them off and toss into the compost pile. When the female worms are pulling the bag around and feeding in the spring, spray with Bt products with 1 ounce of molasses per gallon of spray and release trichogramma wasps.



Bagworm cases

Beneficial Nematodes

Beneficial nematodes should be used for soil-borne pests. Overall broadcasting is best. Spot treating helps if the budget dictates. In an organic program one treatment a year is usually enough. No, they do not hurt the beneficials. Apply per the label instructions for the control of fleas, ticks, grubworms, termites, fire ants and roaches. Beneficial nematodes are just one of the beneficial microbes that exist in healthy soil. That's why they seem to control more pests than they are supposed to.

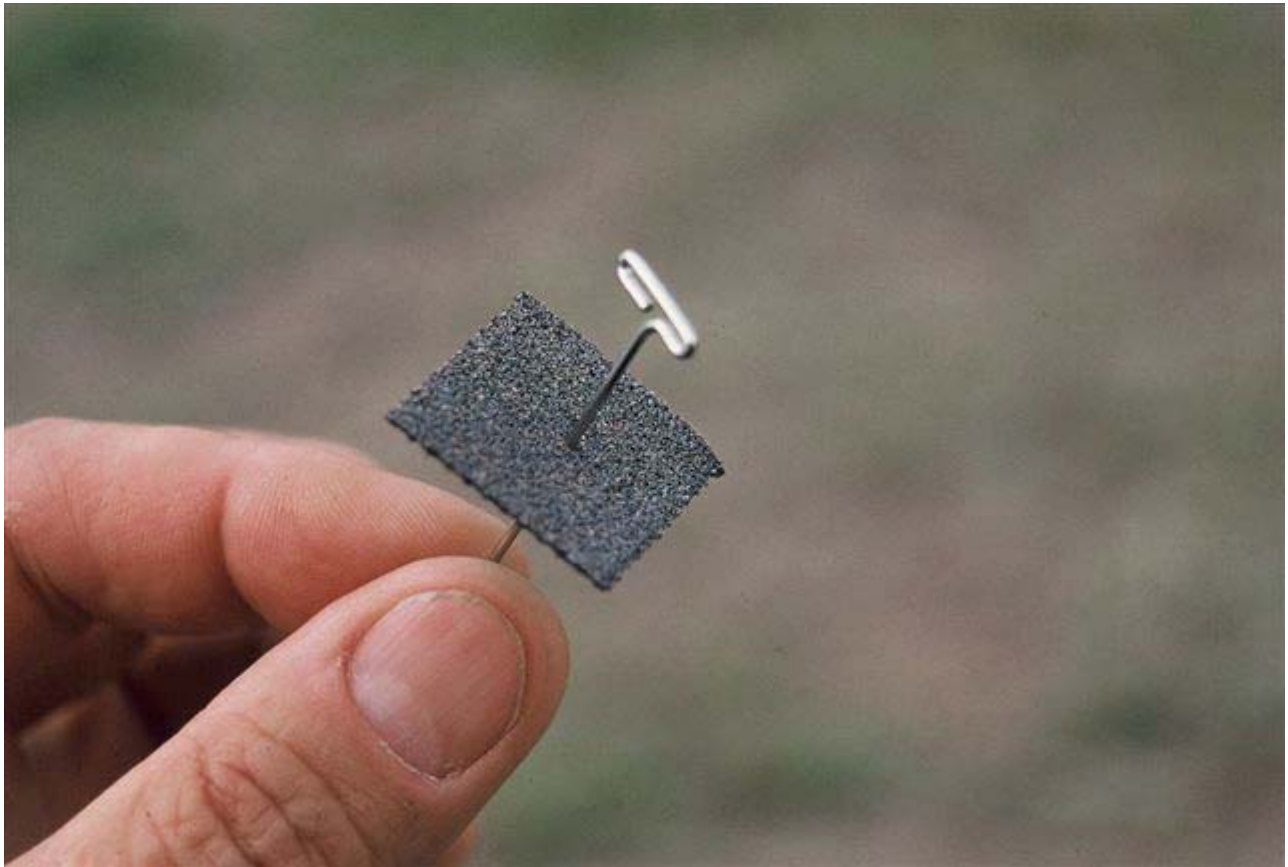
Root knot nematodes: Many nematodes are beneficial, but there are those that will attack ornamental trees, garden plants, and lawn grass. Controls include increasing the organic matter level in the soil, using organic fertilizers, and applying products that increase microbial activity. Cedar flakes applied to the soil surface will also help. You can also use a citrus oil drench or citrus peeling pulp tilled into the soil prior to planting or used around existing plants.

Black Spot

Common name of fungal leaf spot that attacks the foliage of plants such as roses. There is usually a yellow halo around the dark spot, then the entire leaf turns yellow and ultimately die. Best controls include selection of resistant plants and the use of baking soda spray. Severe cases cause leaves to drop. Plant resistant cultivars, and compost all dropped leaves and trimmings. Mulch bare soil to prevent dirt and spores from being splashed up onto plants. Apply horticultural cornmeal to the soil and spray Garrett Juice with potassium bicarbonate.



Trichogramma Wasps

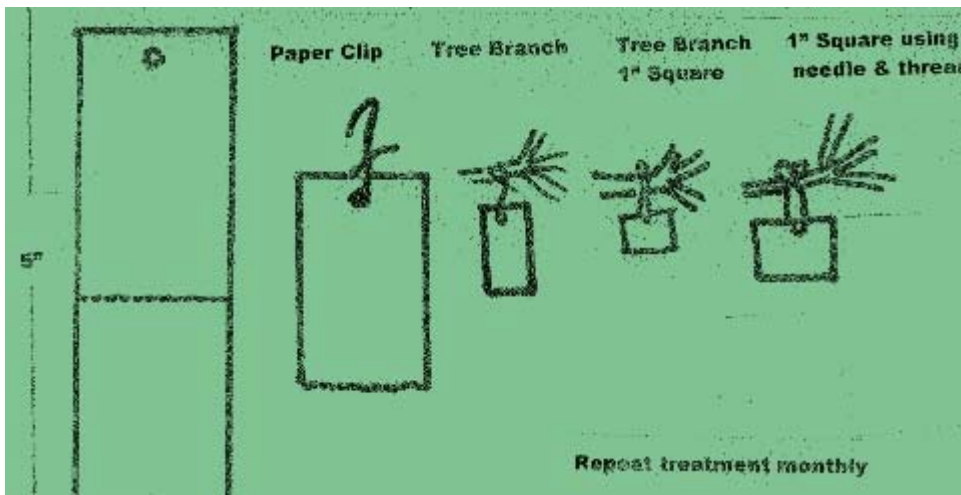


Moth eggs that contain trichogramma eggs are glued to the black strips or small cards. On the strips there are holes punched at each end of the strip and perforations in the middle of the strips so that it may easily be torn into two pieces. There will also be loose black or gray eggs inside the bag but they will not move. There are enough trichogramma eggs on one strip to treat 25 pecan trees. This will vary from brand to brand.

Under good lighting, watch to see if there is movement in the bag. When the Trichogramma start to hatch you will see tiny insects moving inside the bag. Remember the loose eggs will not move. A magnifying glass is needed to be sure you are seeing movement.

A wire or paper clip or needle and heavy thread are needed to attach the strip (or a 1-inch piece of the strip) to the tree.

At dusk or at night, take the unopened bag outside to the trees on which you wish to place the Trichogramma. If you have more than five pecan (or other) trees in your yard, cut the strip into five one-inch pieces. Hang these pieces in the trees on the south side of the tree (so the wind will blow the trichogramma into the tree). Pierce the strip with one end of the paper clip. Do not slide it over the paper because you will knock off trichogramma eggs. The strips can be cut into five one-inch pieces if you desire. The strips or small cards can also be put in containers with holes punched in the lids. Place in shady locations to prevent excessive heat. The tiny wasps normally hatch in 24-48 hours.



At this time of the year

Webworm



Webworms on elderberry



Webworms on mulberry



Common names: Fall Webworm, Webworm

Scientific name: Order Lepidoptera, family Arctiidae, *Hyphantria cunea* (Fall webworm)

Size: Adult--1/2" to 1", larva--1" to 1 1/8"

Identification: These caterpillars are pale yellow or beige, black-spotted, and covered with hairs. Adults are pure satiny white to dusty brown moths. The larvae form loose, dirty white webs on terminal tree growth from spring through fall. They eat the foliage within the web.

Biology and life cycle: Pupae overwinter in cocoons in the soil or tree bark. Adults emerge in early summer to lay eggs in large masses on the undersides of leaves. Eggs hatch after a few days and larvae feed as a group for about four to six weeks in mid-summer. White or pale yellow cocoons form in July. Can be several generations a year.

Habitat: Pecan, ash, willow, persimmon, hickory, apple, walnut, mulberry, and other deciduous trees.

Feeding habits: Larvae eat outer foliage of trees, especially pecans. They eat fast and furious and create an ugly mess in the foliage of trees.

Economic importance: The damage to trees ranges from unsightly entangled webs and partial defoliation to complete defoliation which can badly stress trees.

Natural control: Protect the wasps, the birds, and the assassin bugs because they eat webworms. Tear webs with a fishing pole or pole pruning saw to allow the native wasps to control the pest. Release trichogramma wasps as new foliage emerges in the spring or later if weather is allowing additional hatchings.

Organic control: Spray *Bacillus thuringiensis* or plant oil products, always at dusk, as a last resort – just on the plants under attack. Use one tablespoon of molasses per gallon of spray. Catch larvae in sticky tree bands. Active worms can also be killed with any of the citrus-based sprays. Spinosad products can also be helpful.

Insight: We have noticed an increase in this pest in direct relationship to the popularity of chemical lawn care companies and the use of aerosol wasp-killer sprays. Killing the beneficials has given the webworms a free rein

Webworms and all other larvae of moths and butterflies can be controlled, if they need to be, with safe organic techniques. Webworms, tent caterpillars, loopers, green worms, sod webworms, army worms, leaf rollers and other caterpillars can be killed effectively with a spray of any of the Bt (*Bacillus thuringiensis*) products. For the best control, add 1-2 ounces of molasses per gallon of spray. Even better is to prevent them from becoming a problem in the first place by releasing Trichogramma wasps.

I discovered that an ideal tool for delivering water based solutions for webworms is a "Super Soaker", one of the high powered super water guns. It is accurate and can deliver a steady stream up to about 40 feet. I used it to get to web worms high up in my pecan trees where I could not reach them with a pole. Cost of the generic model was about \$6.00. A.J., Eules

Ladybugs



Ladybugs are highly beneficial in the garden, aphids are their favorite meal. Ladybugs can and do bite. I learned the hard way years ago doing what I thought was a clever shtick for a magazine shoot. Little tip for you. Bad idea to release a bag of ladybugs on your neck so they can easily crawl down inside your shirt. Tender neck skin is their favorite attack zone!.

Common names: Lady Beetle, Lady Bird Beetle, Ladybird, Ladybug

Scientific name: Order Coleoptera, family Coccinellidae. Twospotted Lady Beetle--*Adalia bipunctata*. Ninespotted Lady Beetle--*Coccinella novemnotata*. Twicestabbed Lady Beetle--*Chilocorus stigma*. Convergent Lady Beetle--*Hippodamia convergens*. Ashygray Lady Beetle--*Olla abdominalis*. Asian Lady Beetle--*Harmonia axyridis*.



Lady beetle eating aphid. Photo by Scott Bauer, Agriculture Research Service

Size: Adult--1/16" to 3/8", larva--1/2"

Identification: Adults are shiny round beetles with short legs and antennae. Heads are hidden beneath the front of the thorax. Adult beetles come in many colors--black, red, orange, yellow, or gray. Larvae are dark gray or black with yellow, orange, or white side markings. They look like small alligators with three pair of distinct legs. Short spines on each segment. Eggs are yellow ovals laid in clusters.

Biology and life cycle: Complete metamorphosis. Development from egg to adult may take only two or three weeks. Adults can live from several weeks to months. Adults over-winter and lay eggs on tree bark, foliage, or stems in the early spring. Females lay from 200 to 1,000 eggs over a three-month period. Typically four larvae instars over a twenty-day period; travel as far as 40 feet in search of prey. Last instar attaches to leaf and forms a

pupa that is yellow-orange to black. Pupal stage lasts three to twelve days.

Habitat: Hedgerows, under leaf litter, under rocks, and in other protected places. Many vegetable and ornamental crops. Field crops and forests.

Feeding habits: Feed on aphids, mites, and other soft-bodied insect pests. Unfortunately, the imported Asian or harmonia lady beetles like the taste of ripe plums and peaches and will eat the fruit if something else provides an opening.

Economic importance: Great control of aphids and other small troublesome insect pests. Can be stored in refrigerator for several weeks. Release about 1,500 beetles per 1,000 square feet in the home garden.

Natural control: Very few enemies. They don't taste good. You don't believe it? Try one.

Organic control: None needed; should be encouraged.

Insight: Ladybugs are the most popular and most universally known of all the beneficial insects. There are several hundred species in North America, and all are beneficial. The most common native varieties are orange with black spots, gray with black spots, and black with two red spots. The black and gray varieties are arboreal and usually seen in trees. All ladybugs should be protected. The *Hippodamia convergens*--orange with black spots and converging white lines on the pronotum (shield behind the head)--is the most available commercially.

For ladybugs to thrive and reproduce, they need flowering plants for a nectar and pollen source. Legumes such as peas, beans, clover, and alfalfa are especially good, but all flowering plants can help. Temporary artificial food can be made by diluting a little honey with a small amount of water and mixing in a little brewer's yeast or bee pollen. Smear small amounts of this mixture on small pieces of waxed paper and fasten these to plants. Replace these every five or six days or when they become moldy. Keep any extra food refrigerated between feedings. Discontinue when a ladybug population is established. Aphids are the ladybug's favorite real food. When using ladybugs indoors or in a greenhouse, screen off any openings to prevent their escape.

If you have noticed a very colorful ladybug on your roses or goldenrod or even on the walls inside your house, congratulations--the Asian lady beetle has found you. *Harmonia axyridis* looks a lot like our native convergent lady beetle but has large white splotches on the sides of its pronotum instead of the converging white lines of our native. They will range in color from yellow or tan to orange and deep red. Some have many black spots, others have none. They also seem to be shinier than our natives. They are aggressive, do a great job of cleaning up troublesome pests, and have naturalized across Texas. If you find a large cluster of these pretty friends on the wall of your bedroom next winter, scoop 'em up and remove them to the garden.