CONTROLLING WASPS
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Hornets, yellow jackets, Polistes, mud daubers, and the cicada killer—all are wasps: a group of beneficial insects that attack and destroy harmful insects found around homes and in gardens.

Hornets and yellow jackets kill such pests as house flies, blow flies, and caterpillars. Polistes kill corn earworms, armyworms, and other garden pests.

But wasps can attack people as well as insects. Hornets, yellow jackets, and Polistes may sting you if you go near their nests. Mud daubers and cicada killers usually will not sting unless you touch them or get them caught in your clothes.

If wasps build their nests too close to your house or in bushes where children play, you should destroy the nests.

NESTS

Wasps can be identified by the nests they build and where they build them.

Hornets, Polistes, and mud daubers build nests above ground. Hornets and Polistes nest in trees and shrubbery and under eaves. Mud daubers nest under eaves and porch roofs and behind shutters; they do not nest in trees and shrubbery.

Yellow jackets usually build their nests in the ground but sometimes build them above ground. Cicada killers nest in the ground.

Hornets and yellow jackets build football-shaped paperlike nests. Polistes build paperlike nests that resemble a honeycomb. Mud daubers

WASP STINGS

When a wasp stings, it injects a venomous fluid under the skin. The venom causes a painful swelling that may last several days. In some people, a wasp sting can result in severe illness or death.

If the victim has a history of hay fever or asthma or other allergy, call a doctor immediately. Occasionally, reactions may be severe or even fatal. An allergy specialist may advise hyposensitization for persons allergic to stings. If the victim has no allergy and has mild reaction to a wasp sting, follow instructions in a first-aid manual.
build clay- or mud-cell nests. Cicada killers dig holes, about 1/2 inch across, in sloping ground and pile the excavated soil beneath the opening.

Hornets, yellow jackets, and Polistes abandon their nests in the fall. The old nests are not reused and usually disintegrate or are torn apart by birds or squirrels. These insects are perpetuated by the hibernating queens. Mud daubers and cicada killers overwinter as resting larvae in their nests.

HOW WASPS DEVELOP

Wasps pass through four stages in their development—egg, larva, pupa, and adult.

Hornets, Yellow Jackets, and Polistes

Hornets, yellow jackets, and Polistes are social wasps and their colonies develop in much the same way. Adult females of these wasps are of two kinds or castes:
1. Queens—fertile females that lay eggs.
2. Workers—sterile females that feed the larvae (immature wasps).
   (Workers may lay eggs without mating if the queen dies before the end of the season.)

In the fall, new queens and males leave their nests and mate. The males die shortly after mating, but the queens hibernate in cracks of rocks, under bark of trees, in buildings, or in the ground.

In spring, the queen comes out of hibernation and starts building a nest. She collects wood or vegetable fiber from trees and woody plants, chews it into a paperlike substance, constructs a comb that consists of a few shallow cells (later enlarged into a nest), and lays an egg in each cell. She does not lay any more eggs until her first brood develops. The eggs hatch into larvae in 2 or 3 days.

Larvae depend on adults for food. The queen feeds freshly killed insects to larvae of her first brood, all of which are workers. The workers feed the larvae of subsequent broods.

The larvae are fully grown in 12 to 18 days; then they spin silken cocoon caps over the cells and change to pupae.

The pupae change into adults in about 12 days and emerge from the cells.

After her first brood matures, the queen resumes egg laying. A hornet or yellow jacket queen may lay as many as 1,500 eggs; a Polistes, several hundred. Most of the eggs produce workers.

As soon as they appear, workers take complete charge of nest life. They enlarge the nest by building additional cells and care for the larvae.

Mud Daubers

Mud daubers are solitary wasps. Each female constructs her own clump of mud cells. There is no worker caste.

In spring, young adults come out of their nests (where they have overwintered as resting larvae) and mate. Each of the females then starts to build a mud- or clay-cell nest.

First she builds a cell. Next, she catches about 20 immature spiders, paralyzes each with her sting as she catches it, and stores it in the cell. Then, she lays an egg on one of the
spiders and caps the cell with clay. She repeats this until she has built 6 to 20 cells (one nest). She may then build a second nest in another location.

When her nest is finished, she leaves it and does not return. The larvae hatch from the eggs and begin feeding on the paralyzed spiders. In a few days they spin cocoons and change to pupae. The pupae change to adults in about 2 weeks.

One to three generations of mud daubers can develop each year; the number depends on the section of the country.

**Cicada Killers**

In early summer, adult cicada killers also come out of their nests (where they have overwintered as resting larvae) and mate. The fertilized female then digs a long tunnel in the ground, at the end of which she digs a large oval cell. Then she hunts for a cicada, paralyzes it by stinging, and places it in the cell. She may lay an egg on this cicada, or she may bring in another one before laying an egg. She seals the cell with soil and then digs another cell, which she provisions in the same way.

A completed nest may contain about 16 cells. When the eggs hatch, the larvae feed on the cicadas.

**CONTROL WITH INSECTICIDES**

You can destroy wasps by applying insecticides to their nests. Treat the nests at night, when there is less danger of being stung.
The kind of insecticide application needed to kill wasps depends on where the nest is located. Effective insecticides include carbaryl, fenthion, propoxur, lindane, malathion, and methoxychlor. Follow directions on the insecticide container.

Nests Above Ground

Treat these nests with any of the above mentioned insecticides. Treatments directed into the opening of the nest will usually kill the wasps within 24 hours.

Nests in the Ground

Treat these nests with an insecticide dust that contains 5-percent carbaryl. A few puffs of dust directed into the opening of the nest will usually kill the wasps within 24 hours. Apply the dust with a household hand duster. Put a shovelful of moist soil over the nest hole after the treatment to prevent the wasps from escaping.

Nests in the Home

Hornets or yellow jackets sometimes nest in the walls of the home. They reach their nests through knot-holes or cracks in the outside walls. You may see these wasps coming and going during daylight hours. Locate the knothole or the crack they are using and treat with any of the insecticides labeled for this use. Do not plug the opening after treatment. The wasps will carry the insecticide into the nest and contaminate and kill other wasps in the nest.

USE OF PESTICIDES

This publication is intended for nationwide distribution. Pesticides are registered by the Environmental Protection Agency (EPA) for countrywide use unless otherwise indicated on the label.

The use of pesticides is governed by the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended. This act is administered by EPA. According to the provisions of the act, “It shall be unlawful for any person to use any registered pesticide in a manner inconsistent with its labeling.” (Section 12(a) (G))

EPA has interpreted this section of the act to require that the intended use of the pesticide must be on the label of the pesticide being used or covered by a Pesticide Enforcement Policy Statement (PEPS) issued by EPA.

The optimum use of pesticides, both as to rate and frequency, may vary in different sections of the country. Users of this publication may also wish to consult their Cooperative Extension Service, State agricultural experiment stations, or county extension agents for information applicable to their localities.

The pesticides mentioned in this publication are available in several different formulations that contain varying amounts of active ingredient. Because of this difference, the rates given in this publication refer to the amount of active ingredient, unless otherwise indicated. Users are reminded to convert the rate in the publication to the strength of the pesticide actually being used. For example, 1 pound of active ingredient
equals 2 pounds of a 50 percent formulation.

The user is cautioned to read and follow all directions and precautions given on the label of the pesticide formulation being used.

Federal and State regulations require registration numbers. Use only pesticides that carry one of these registration numbers.

USDA publications that contain suggestions for the use of pesticides are normally revised at 2-year intervals. If your copy is more than 2 years old, contact your Cooperative Extension Service to determine the latest pesticide recommendations.

The pesticides mentioned in this publication were federally registered for the use indicated as of the issue of this publication. The user is cautioned to determine the directions on the label or labeling prior to use of the pesticide.

NOTE: Some States have restrictions on the use of certain pesticides. Check your State and local regulations. Also, because registrations of pesticides are under constant review by the U.S. Environmental Protection Agency, consult your county agricultural agent or State Extension specialist to be sure the intended use is still registered. Suggestions for insect control are limited to uses in and around the home and do not apply to food handling establishments.

BEES

Many people confuse bees with wasps. Although related, these insects are not the same. Bees feed pollen and nectar to their young; wasps feed insects to their young.

Bees are beneficial insects that pollinate fruit trees and other plants; without bees many plants would bear no fruit.

The most commonly known bees are the honey bee, the bumble bee, and the carpenter bee.

If you are stung by a honey bee, scrape the bee's stinger out of the wound immediately. Don't pull it out; if you do, you will force poison into the wound. If you do not remove the stinger, poison will continue to pump into the wound for several minutes.

Bumble bees, carpenter bees, and wasps withdraw their stingers from the skin after stinging.

The insects shown on the opposite page are much enlarged, except for the cicada keller, which is slightly reduced.