

U.S. DEPARTMENT OF AGRICULTURE

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CONTROLLING WASPS

HOME AND GARDEN BULLETIN NO. 122

CONTROLLING WASPS

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.

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.

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 build clay- or mud-cell nests. Cicada killers dig holes, about $\frac{1}{2}$ 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, which lay eggs.
2. Workers—sterile females, which feed the larvae (immature

wasps). (Workers may lay eggs without mating if the queen dies before the end of the season.)

In the fall, 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.



MA 14309, MA 14334, MA 14368

Wasp nests: A, Mud dauber; B, *Polistes*; C, Bald-faced hornet.

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 spring, 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 needed to kill wasps depends on whether the nest is (1) above ground or (2) in the ground.

Nests Above Ground

Apply an emulsion or suspension spray to wasp nests that are in trees and shrubbery or on your house. You can prepare an emulsion spray by mixing a chlordane, DDT, or dieldrin emulsifiable concentrate with water; a suspension spray, by mixing a DDT or chlordane wettable powder with water (see chart).

Nests in the Ground

Treat these nests with an insecticide dust that contains 5 or 10

GUIDE FOR MIXING SPRAYS

| Insecticides and some of the forms in which they may be purchased | Amount of purchased product to mix with 1 quart of water |
|---|--|
| DDT | |
| 25-percent emulsifiable concentrate. | 6 ounces. |
| 50-percent wettable powder. | 6 level table- spoons. |
| CHLORDANE | |
| 45-percent emulsifiable concentrate. | 2 ounces. |
| 40-percent wettable powder. | 3 level table- spoons. |
| DIELDRIN | |
| 15-percent emulsifiable concentrate. | 1 ounce. |

percent of DDT, 5 or 6 percent of chlordane, or 1 percent of dieldrin.

A few puffs of dust directed into the opening of the nest will usually kill the wasps within 24 hours. Apply dusts with a household hand duster. Put a shovelful of moist soil over the nest hole after the treatment to prevent the wasps from escaping.

PRECAUTIONS

Pesticides used improperly can be injurious to man, animals, and plants. Follow the directions and heed all precautions on the labels.

Store pesticides in original containers—out of reach of children and pets—and away from foodstuff.

Apply pesticides selectively and carefully. Do not apply a pesticide when there is danger of drift to

other areas. Avoid prolonged inhalation of a pesticide spray or dust. When applying a pesticide it is advisable that you be fully clothed.

Chlordane and dieldrin can be absorbed directly through the skin in harmful quantities. When working with these insecticides in any form, take extra care not to let them come in contact with the skin.

After handling a pesticide, do not eat, drink, or smoke until you have washed. In case a pesticide is swallowed or gets in the eyes, follow the first aid treatment given on the label, and get prompt medical attention. If a pesticide is spilled on your skin or clothing, remove clothing immediately and wash skin thoroughly.

Dispose of empty pesticide containers by wrapping them in several layers of newspaper and placing them in your trash can.

It is difficult to remove all traces of a herbicide (weed killer) from equipment. Therefore, to prevent injury to desirable plants do not use the same equipment for insecticides and fungicides that you use for a herbicide.

NOTE: Registrations of pesticides are under constant review by the U.S. Department of Agriculture. Use only pesticides that bear the USDA registration number and carry directions for home and garden use.

BEES

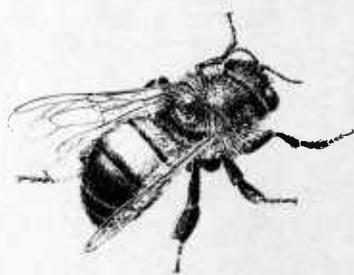
Many people confuse bees with wasps. Although related, these insects are not the same. Bees feed pollen and nectar to their young; wasps feed insects to their young.

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.



MA 14523

Honey bee. Enlarged.

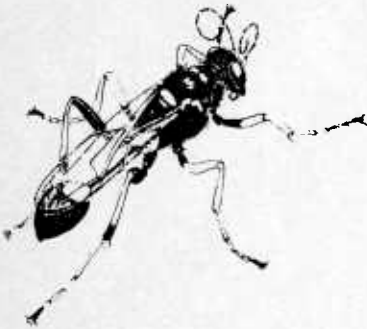
The insects shown on the opposite page are much enlarged, except for the cicada killer, which is slightly reduced.



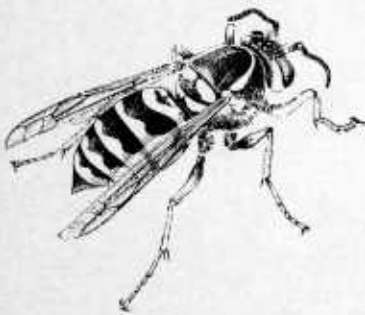
BALD-FACED HORNET



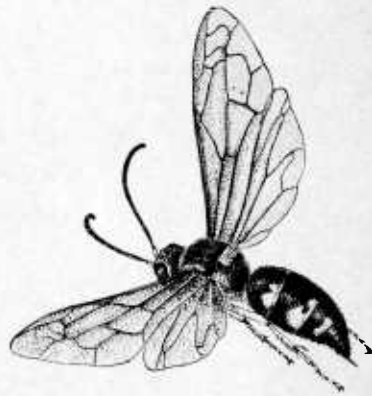
POLISTES



MUD DAUBER



YELLOW JACKET



CICADA KILLER



Use Pesticides Safely

FOLLOW THE LABEL

U.S. DEPARTMENT OF AGRICULTURE

Prepared by

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