

# Pest control technical note – European wasps

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Wasps belong to the Order Hymenoptera. They are a diverse group of insects: in Australia alone there are over 12,000 species, ranging from the tiny diapiiid wasps, which are barely visible to the naked eye, to the spider wasps and cicada-killer wasps, capable of taking large prey. Most wasps have carnivorous larvae that feed on other insects and spiders. The adults provide food for them by capturing prey or by laying the egg on or near the food source, which might be an egg, larva or pupa of another insect.

The European wasp (*Vespula germanica*) is native to parts of Europe, Asia and North Africa. It is an introduced species and therefore does not have natural predators in Australia to keep numbers of these wasps low. In Europe, the cold winters ensure that only the Queen wasp can live, but the warmer climate of Australia means the entire nest can survive.

European wasps are a pest because they are far more aggressive than native wasps. Lack of predators and warmer weather conditions mean that the European wasp is an increasing problem in Australia. This insect likes to live around humans because of the ready supply of food and drink, particularly of the sweet varieties.

## Appearance

Characteristics of the European wasp:

- Similar in size and shape to a bee
- 12mm – 16mm in length (a queen is about 20mm long)
- Bright yellow body with black triangle-shaped markings
- Yellow legs
- Two long black antennae
- Wings folded when at rest.



## Life cycle

Each nest usually lasts one year but in warmer climates the nest may survive and expand. In Winter the males die off and the newly fertilised queen hibernates to build a new nest the following spring.

The queen lays **eggs** in the cells of the nest and the larva hatch from each egg in about 6-8 days. The larvae are tended to by the queen for a number of weeks.

The **larva** grows in a series of stages (instars). Five instars are completed before the larva encases itself in a cocoon. The total larval development time is 9-22 days, depending on the temperature and availability of food.

When fully fed, the larva spins a cocoon within its cell using silk secreted by its salivary glands. Inside the cocoon this larva/**pupa** develops into an adult, this takes 7-9 days. They become the first batch of workers that take over the construction of the nest and rearing of the larvae while the queen lays eggs.

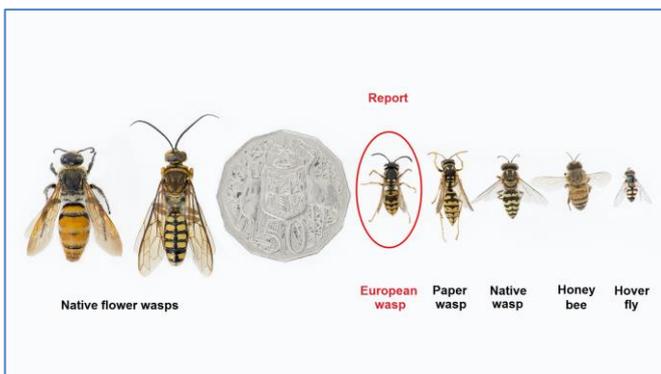
In order for the colony to survive, the **adult** workers must perform a large number of tasks both inside and outside the nest. Workers start as nurse wasps, they then progress to collecting nesting materials and fluids and finally to foraging for solid food for the larvae; the older wasps guard the nest entrance. Worker wasps live for a number weeks.

Towards the end of the season, in Autumn, the worker wasps build larger cells in which the next generation of several hundred queens and males is reared. When fully developed, these individuals mate and fly off to start new nests. In Europe the nest then disintegrates, but in Australia's warm climate the nest can continue to grow over a number of seasons. This can result in giant and potentially dangerous nests of over 100,000 wasps.

## Difference between European wasps and native wasps

There are many harmless and beneficial native wasp species which are commonly mistaken for European wasps. In particular the European wasp and the native yellow paper wasp are very similar in size.

Native wasps, including paper wasps, are considered beneficial because they assist in pollination by feeding on nectar, and they control pest populations, such as caterpillars, by feeding them to their larvae. Paper wasps, however, should not be allowed to develop in or near the home because they may attack if they feel their nest is threatened.



As the picture above shows, paper wasps are longer and thinner than European wasps and they have orange-brown antennae (European wasps have all black antennae). Paper wasps back legs dangle down during flight and they are often seen hovering around bushes, over lawns and around water sources. European wasps on the other hand have legs that are held close to their bodies during flight and they fly very quickly and generally do not hover.

The great majority of Australian wasp species don't live in colonies, being solitary and nesting in the ground or

in a crack or crevice, and they don't attack humans. If the nest is safely out of reach it should be left alone.

Paper wasp nests are usually above ground and are golf ball to side plate size while European wasp nests are rarely seen and can be the size of a basketball or larger.

The diagram below shows the difference between European wasp nests and paper wasp nests.



European wasp

Paper wasp

## Difference between European wasps and honey bees

Honey bees are sometimes mistaken for wasps because both insects are capable of giving painful stings. While there are a number of characteristic similarities between bees and wasps (outlined in the table below) critical differences can be seen in their behaviour and where they live.

European wasps are much more aggressive, they are attracted to food and drink, do not die when they sting and can sting repeatedly. Bees are attracted to the pollen on flowers and bees that aren't in farms live in trees while wasps live in round papery nests in hidden away locations.

## Differences between bees and wasps

Characteristic	Bee	Both	Wasp
Stinger	Honeybee workers: stinger is pulled from bee's abdomen and bee dies  Other bees: live to sting again	Have backward-pointed barbs on stinger to penetrate victim	Small barbs; stinger can be removed from victim; wasp lives to sting again
Body	Rounder body, usually appears hairy	Narrow junction between thorax and abdomen	Usually slender and smooth
Legs	Hairy	-	Few hairs
Food	Feed on pollen and nectar	-	Predators or parasites of other insects, or scavengers

Bees play an essential role in the balance of nature, especially through the pollination process. Pest control operators should refer bee complaints or enquiries to a bee keeper or the Victorian Apiarists Association, phone: (03) 9317 7142.

Similarly, bee keepers, who are not licensed to use pesticides, should refer any wasp enquiries or complaints to a licensed pest control operator in the event that they are not able to physically remove the nest.

## How to locate the nest

European wasps make their nests from chewed wood pulp and saliva giving the nest walls a distinctive papery look. Nests constructed of mud are not European wasp nests. Nests are usually built in sheltered locations.

About 80% of European wasp nests will occur in the ground with the remainder usually found inside buildings. Nests will often resemble footballs.

In order for a wasp nest to be controlled the nest must first be located. The European wasp may forage for food up to half a kilometre away from its nest. You might need to seek the cooperation of neighbours to locate the nest.

European wasps can be tracked back to their nest by placing food (for example meat or pet food) in a visible outdoor location. Once it has located the food source, the wasp will fly virtually in a straight line back to its nest. If necessary, keep relocating the food source until you see the wasp fly into its nest.

Places you are most likely to find a wasp nest:

### In the ground

- Any concealed site
- Holes dug in the ground
- Around the base of trees or along hedges
- Within retaining walls
- In rockeries
- In rubbish heaps or under disused rubbish (for example: old dog houses or pieces of furniture)
- In an uncovered compost heap or grass clippings.



### Above the ground

- In the roof
- In the wall cavity
- In sheltered parts of a building.



## Chemical treatment

The best method of wasp control is to locate the nest, or nests, in the surrounding area and eradicate them using an insecticide registered for the purpose. It is recommended that treatment of the nest occurs early in the morning or at night when wasps are less active.

When dealing with European wasps it is important to wear protective clothing and a bee veil. Be aware that a torch/ head torch without a red filter may attract wasps. You can cover a torch's light with red cellophane secured with a rubber band.

## Discourage wasps

The following advice can be provided to people experiencing a wasp problem:

- Do not leave fallen fruit or food scraps lying around the yard
- Avoid leaving uneaten pet food or dog bones outside
- Make sure rubbish bins have tight fitting lids
- Keep compost covered at all times
- Keep swimming pools covered when not in use
- Cover exposed food at picnics and barbeques
- Don't drink out of cans or bottles, use clear containers or a straw.

## Symptoms of a wasp sting

Symptoms of stings will vary from person to person depending on their tolerance. The majority of people

without allergies to insect stings will show only minor symptoms during and after a wasp sting.

A wasp can call other colony members using a scent chemical (pheromone) to help defend the nest from a potential threat. Unlike honeybees, which have a barbed stinger and can only sting once, European wasps can sting multiple times. The stinger contains several toxins, which may cause hypersensitive or allergic reactions in some people.

### Minor Symptoms

The initial sensations of a wasp sting can include sharp pain or burning at the sting site followed by a raised welt around the perimeter. A tiny white mark may be visible in the middle of the welt where the stinger punctured the skin. Usually the pain and swelling recedes within a few hours of being stung. The sting usually causes far more discomfort than a bee sting.

### Major Symptoms

Larger local reactions to wasp stings can include extreme redness and swelling that increases for one or two days after being stung and subsides on their own, over the course of a week or so. If symptoms persist, it is recommended to seek further medical advice.

A small percentage of people will experience anaphylaxis from wasp stings. For any life threatening symptoms such as anaphylactic shock immediately call emergency services on 000.

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