National Bee Unit
FAQ 35

The Food and Environment Research Agency

Honeybee colonies & wasps

Honeybees and wasps are members of the hymenoptera family, which encompasses bees, wasps and ants. This family includes most of the aculeate insects being those that sting. Wasps and bees have a common wasp ancestor; wasps feeding their young on meat, i.e. insect larvae, scraps of carrion, etc. so have an important ecological role including pest control, whilst bees have developed a vegetarian diet feeding on nectar and pollen becoming important for the fertilization of many plant species. Both groups are therefore important in benefiting horticulture and agriculture. Wasps can be a major problem for bee colonies in the autumn. This sheet is published to help explain the problem and help to give some guidance to beekeepers. It must be remembered that the use of poisons as controls may also kill bees and can be harmful for the beekeeper!

How many wasp species are there?

There are very many species of wasp but most of these are solitary in habit and are generally not a threat to honeybees. In the U.K. there are six species that are social and create problems for bees and beekeepers. They are the Common Wasp *Vespula vulgaris*, the European Hornet *Vespa crabro*, the Red Wasp *Vespula rufa*, the Tree Wasp *Vespula sylvestris*, the German Wasp *Vespula germanica* and the Norwegian Wasp *Vespula norvegica*. These are all eusocial having a nest headed by a queen with workers (undeveloped females) feeding and caring for their siblings including drones(males) and virgin queens in late summer. There is also *Vespula austriaca*, which is a cuckoo species having male and female sexes only.

Which species present the greatest threat to honeybees?

Most accurate reports of wasps attacking honeybee colonies in the UK identify the species as Common Wasps *V. vulgaris* or German Wasps *V.germanica*. However the other species are generally less common or local in distribution.

Where do they nest?

As a general rule the Common Wasp, German Wasp and Red Wasp nest underground, the European Hornet prefers nesting in hollow trees whilst the tree wasp and Norwegian wasp nest in trees and bushes having nests hanging from branches.

What is their life cycle?

Mated queens hibernate in a sheltered spot and in spring emerge to seek a nest site. When found she then starts to build a nest.

P.T.O.

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Wasps do not have wax glands so they make their nests out of paper. Wasps can often be seen scrapping wood from trees and frequently garden fence panels or fence posts. They then mix the wood strands with saliva in their mouths, making a paper pulp, which is then formed into a nest. The nest starts as an umbrella shaped dome with cells that are built facing downwards. The queen lays eggs in the cells, which hatch into larvae and are then fed meat. When the larva is fed it yields a sugary secretion as a reward to the feeder. When developed the larvae pupates and subsequently emerges as an adult. The nest is expanded by the developing colony and drones (males) and virgin queens are reared towards the end of the nesting period. As the nest moves into autumn the virgin queens leave to become mated and hibernate over winter. The old queen dies and the workers are left with nothing to do. As they are not receiving their sugary reward they search out other sweets such as fizzy drinks, jam sandwiches, beehives, etc. In spite of this nuisance they play an important role in nature.

Do wasps eat honeybees?

Throughout the spring and summer wasps may be seen beside beehives generally looking for dead bees to use as food. There are reports of wasps particularly hornets taking live honeybees in the field but the numbers taken have little effect on the colony. In the autumn they are often intent on robbing honey from beehives.

What is the threat from Asian Hornets?

Asian hornets are not currently present in the UK. However one species *Vespa vellutina* is confirmed in, and spreading throughout France. The western honeybee *Apis mellifera* has no effective defense against Asian hornets. They are prone to attack between July and September. Adult bees are killed and brood taken for food. Without control honeybee colony losses can be as high as 90% but with effective trapping systems losses are reduced to about 30%.

What can I do to prevent wasps robbing my bee colonies?

Strong healthy colonies are better able to defend themselves. Small, weak and those colonies with varroa damage are more vulnerable.
There are three elements to control –

- **Controlling wasp nests in the environment.** Destroying nests in the spring and summer is clearly a good method of reducing the overall wasp population and reducing robbing problems in the autumn; so ensuring no wasps' nests are close to your apiary helps. However destruction of wasp colonies on a wide scale will be disadvantageous to the environment.
- **Trapping wasps in the apiary.** Placing wasp traps such as jars/bottles containing a mixture of water and jam will help. Wasp will tend to go these traps as an easier option and drown. Commercial traps such as WaspBane, which may be more effective and easier to use, are available from some bee equipment suppliers and other commercial outlets.
- **Assisting the bee colony**. Reduce the hive entrance to make it easier for the bees to defend the colony. With severe problems cut the entrance to a single bee-way. A small tube entrance can be easier for bees to defend. Closing open mesh floors with the floor insert will also help.

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Hive floors with in-built traps are currently under development for controlling Asian hornets. When available they could also be advantageous for all wasp control.

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