



Honeybees

The craft of beekeeping



Honeybees are remarkable pollinators and livestock in the UK. There is only one native species (Apis mellifera), though the United Kingdom boasts over 270 wild bee species overall.

Honeybee: Anatomy & Physical Capabilities

Five Eyes: Honeybees possess five eyes – three small ones on top of their head for light, and two large compound ones for detecting colour and movement.

Super Sense of Smell: They have 170 odorant receptors, giving them an olfactory sense roughly 50 times more powerful than a dog's.

Double Stomach: Bees have two stomachs: one for basic digestion and another "honey stomach" used to carry nectar back to the hive.

Vibrating Wings: Their wings beat about 200 times per second, which creates their famous buzzing sound.

High Speeds: When flying unladen, they can reach top speeds of up to 15 to 20 mph.

Heavy Lifting: Worker bees can carry nectar or pollen weighing up to 80% of their own body weight.

Cleanliness: Their front legs have special slots designed specifically to clean their antennae.

Honeybee: Hive Society & Roles

Three Castes: A colony is composed of three types of bees: one queen, female worker bees, and male drones.

All-Female Workforce: Every worker bee in a United Kingdom beehive is female.

The Queen's Output: During the peak summer season, a queen can lay up to 2,000 eggs a day.

Royal Diet: Queen bees live for 2–5 years because they are exclusively fed "royal jelly".

The Only Male Purpose: Drones do not have stingers and exist solely to mate with the queen.

Stingless Drones: Because drones lack stingers, you can safely handle them without fear of being stung.

Colony Scent: Every hive has a uniquely identifying smell so bees know exactly where they belong.



Honeybee: Behavior & Communication

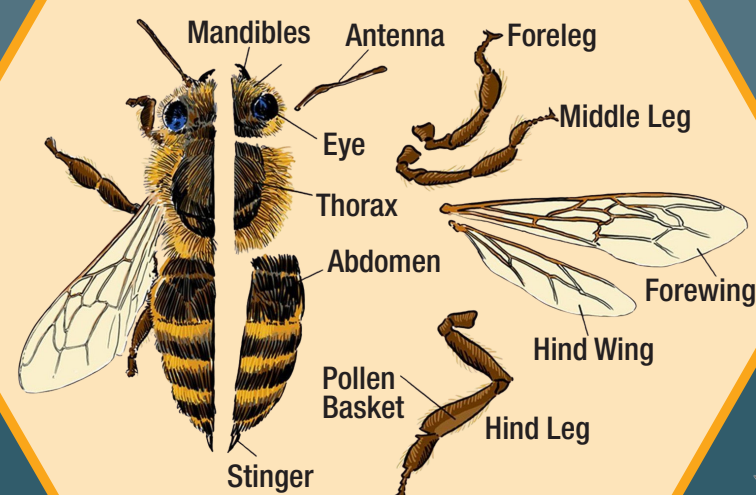
The Waggle Dance: To communicate the location of prime floral patches, bees perform a figure-eight "waggle dance" indicating distance and direction relative to the sun.

Summer Lifespan: A worker bee during the busy summer months lives for only about six weeks.

Winter Lifespan: Bees hatched in the autumn survive the winter months, living for up to 6 months.

Face Recognition: Bees can differentiate between human faces, often recognising their regular beekeeper.

Anatomy of a Honeybee



Honeybee: Folklore & History

Telling the Bees: A historic British folklore tradition called "telling the bees" involves whispering to the hive to notify them of important family news like weddings or deaths.

Busy as Bees: The idiom "busy as bees" was popularised by Geoffrey Chaucer in the 14th century.

Threats to Survival: Current United Kingdom honeybees face a variety of threats, including habitat loss, pesticide use, climate change, and the invasive Asian hornet, especially in areas close to the European Continent such as locally in Kent, as we are only 20 miles from the French Coast.

Honeybee: Ecology & Conservation in the United Kingdom

Primarily Livestock: The vast majority of honeybees in the United Kingdom are managed as livestock by beekeepers, not wild insects.

2026 Vulnerability: Since 1900, the United Kingdom has lost 13 native bee species, and about 35 others face extinction threats.

Food Reliance: Bees pollinate roughly 75% of the world's main food crops, including many grown in the United Kingdom.

Solitary Heroes: Despite honeybees' fame, solitary bees carry out the vast majority of all plant pollination in the United Kingdom.

No-Brown-Sugar Rule: If a bee looks exhausted and needs an emergency energy boost, use white sugar, as brown sugar is too hard for bees to digest.

Pathogen Risks: Feeding United Kingdom bees shop-bought honey can spread pathogens that are harmful to native hives (so don't).

Ancient Symbiosis: Beekeeping has been practiced for thousands of years, with human-bee relationships dating back to 8,000-year-old cave art.

Honeybee: Honey Production & Diet

Tiny Individual Yield: A single worker bee produces just a fraction of a teaspoon of honey over her entire lifetime.

Flower Power: Making 1 pound of honey requires bees to visit roughly 2 million flowers.

Global Flight Equivalent: To produce 1kg of honey, 1,100 bees must visit 4 million flowers, traveling a cumulative distance equal to flying three times around the Earth.

The Ultimate Fuel: Just two tablespoons of honey contains enough energy to fuel a bee's entire flight around the world.

Never Spoils: Because of its natural chemistry, honey is incredibly resistant to bacteria and never goes off (even if it has a sell before label).

Nutritional Goldmine: Honey is one of the only foods that includes all the substances needed to sustain life, including vitamins and minerals.

No Knees: Bees have jointed legs, but they lack kneecaps, so they do not technically have knees.



British Beekeeping Heritage

This is the clever honeybees' heritage to Britain

The annual cycle of bee populations maintain the food and countryside

we love, their pollination work is valued at £400 million each year!

The hard-working honeybees keep Britain's countryside beautiful.

Food was smeared with honey for cooking to make it more palatable. Shakespeare wrote in Henry V of the marvellous organisation inside a beehive. Until 1900, beeswax candles were the only ones allowed in Catholic churches/

The Bronze Age people who made the boat exhibited in Dover used beeswax as a material to seal joints. When the Romans came, every village kept bees in wicker or straw skeps and they certainly knew how to make mead.

Since the invention of hives with moveable frames in 1851, the square National hive is the most practical and popular, though the pagoda-shaped WBC hive is more decorative. Even with the modern polystyrene hives the beekeeper must care just as much for their colony.

A Beekeeper's year

November - February

The bees will form a cluster in the hive, barely moving, shivering to maintain warmth. They will slowly consume the stores of honey. Check the hive is not knocked over or damaged by animals, wind, woodpeckers etc.

March - April

On sunny days above 12 degrees C, bees may venture out. Pollen being taken in to the hive means new larvae, which is a good sign. Scrape and clean the hive in April, remove and replace old or damaged frames.

May - June

Inspect weekly; look for eggs to be sure the queen is there. Check for queen cells being built; these are large and long, and contain a developing queen. If these are left, the old queen will swarm and take half the colony with her. A swarm will hang on to a branch and each other, forming a mass which can be as big as a football!

July - August

Swarming will be less frequent. The bees will build up their honey stores. Extract surplus honey, strain and put into jars.

September - October

Give the bees medicine to fight disease. Feed with sugar syrup if necessary to build strength for winter. Check hives are in good condition and not damp

In 1943 during World War 2, sugar was

rationed, but beekeepers qualified for a

maximum 10 pounds of sugar per colony to

get them through the winter and 5 pounds

for spring feeding. The sugar was coloured

green to ensure it got to the bees and not the

Black Market, but this was stopped when the

bees produced green honey!

Pests and Diseases

Mice

They can squeeze into a hive in winter to find a warm space and can do a great deal of damage to frames.

Wax moths

They lay eggs in honey comb and their caterpillars eat tunnels through the wax and ruin it.

Wasps

In the late summer, wasps are a real nuisance to hives, robbing the colonies of their honey stores. Colonies sometimes abscond in despair.

Woodpeckers

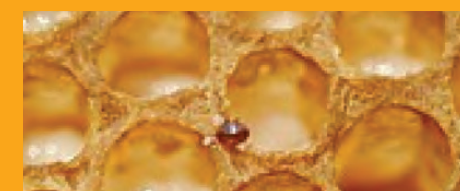
They can drill large holes through the sides of hive boxes to get at larvae and honey in winter.

Varroa

These little mites have been in the UK since 1992. They live on the bees' bodies and in the cells. They suck the bees' blood and introduce viruses. Without treatment a colony will be wiped out.

There are also bee diseases to look out for, diseases of brood before the bee emerges and bacterial and fungal diseases. All have the potential to weaken and eventually destroy a colony. Beekeepers must be as hygienic as possible moving from hive to hive.

Varroa mite, on brood cell and magnified varroa mite



The European honeybee [Apis mellifera] has survived on earth for centuries. They have several problems to cope with though!

