Australian Honey Bee
INDUSTRY COUNCIL

How bees make honey

Flowers provide two different food sources for a honey bee's survival. The first is nectar, the sugary juice collected from the flower's heart which is used to make honey and is a great source of energy for the honey bee. The second is pollen, the protein rich powdery substance made by flowering plants, trees and grasses.

300
bees

3
weeks

450g
honey

Within the bee colony, there are honey bees with a specific role to forage for pollen, nectar and water. These forager bees start visiting flora at approximately three weeks old and visit between 50 and 100 flowers per trip. With a lifespan of only six or seven weeks, the forager bees have a lot of work to do and little time in which to do it. Many other bees will be working at the same time, and the air is often noisy with their buzzing.

Collecting nectar and making honey

Nectar comes from flowers, which means there are hundreds of different types of honey with different colours, smells and flavours. When the honey bee sucks nectar from the flower, it is stored in her special honey stomach ready to be transferred to the younger, honey-making bees in the hive. If she is hungry, a valve opens in the nectar 'sac' and a portion of the nectar passes through to her own stomach and converted to energy for her own needs.

When her nectar 'sacs' are full, the honey bee returns to the hive and delivers the nectar to one of the indoor bees. The nectar is then passed mouth-to-mouth from bee to bee until its moisture content is reduced from about 70% to 20%, changing the nectar into honey. From time-to-time, the nectar is stored immediately in the honeycomb cells because some evaporation is caused by the 32.5°C temperature inside the hive.

Finally, the honey is placed in wax cells that have been well engineered and built by honey bees. Each wax cell in the comb has six sides and all the cells have a slight backward tilt so that the honey will not spill out. Each cell fits snugly against its neighbour on all sides — its construction is very strong and cleverly planned down to the most precise detail. Once the honey is placed in the wax cells, it is capped with beeswax in preparation for the arrival of newborn baby bees.

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Did you know?

It takes 300 bees about three weeks to gather 450 gm of honey. On average, a hive contains 40,000 bees.

Harvesting honey

Honey is ready to be harvested as soon as the honeycomb in the hive is filled with honey and capped with beeswax. Beekeepers regularly inspect their hives to see when the honeycomb can be removed. When ready, the honeycomb within the frame is removed from the hive and taken to a mobile extracting van or central extracting plant called a 'honey house'. The wax cappings are removed with a steam heated knife or special revolving blade before the honeycomb is placed in the extractor. The honeycomb frame is then placed in revolving baskets where the spinning movement throws out the honey by centrifugal force.

Little or no damage is done to the delicate honeycomb by this process and when it is returned to the hive, the bees immediately set about removing any left-over honey plus repairing and polishing each cell in readiness for a new load of honey.

Honey collected from the extractor is then strained and left to stand until air bubbles rise. Bubbles and any left-over wax particles are skimmed from the surface and the honey is ready for bottling. Most beekeepers send their honey in bulk to large commercial packing houses, however some have their own bottling equipment and sell the honey to retail and wholesale stores.

Collecting pollen

Pollen is a powder flowering plants, trees and grasses make to ensure more of the same plants grow around them. When honey bees collect pollen, they help to transfer it between flowers. This is called pollination and often turns into the seeds of the fruit, vegetables and nuts we eat. In fact, one third of the food we eat has been pollinated by honey bees.

Honey bees mix pollen with nectar to make 'bee bread', which is then fed to the larvae. A baby bee needs food rich in protein if the bee community is to flourish.

Before returning to the flower again for more pollen, the honey bee combs, cleans and cares for herself. This helps her to work more efficiently. Throughout her life cycle, the honey bee will work tirelessly collecting pollen, bringing it back to the hive, cleaning herself, then setting out for more pollen.

Did you know?

The honey bee is a marvellous flying machine. She can carry a load of nectar or pollen close to her own weight, while today's most advanced designed aircraft can only take off with a load one-quarter of its own weight.

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Australian Honey Bee Industry Council

The Australian Honey Bee Industry Council (AHBIC) is the national representative body for the honey bee industry. AHBIC works to protect the long-term economic viability, security and prosperity of the sector and promote the important link between the honey bee and healthy Australians. AHBIC advocates for its members, including seven state and three national associations, which represent individuals and businesses from across the supply chain.

Become a friend of AHBIC

Bees, and beekeepers, play an invaluable role in producing what the world eats. Honey bees are at the heart of a healthy Australia, however the industry does have challenges it must manage to grow its prosperity and resilience, protect the health of the species and ensure nutritious foods continue to be produced to nourish communities across the country. To become a friend of AHBIC, and support this critical industry, visit www.honeybee.org.au

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