

The BUZZ about BEES



Discover the world of honey
bees, our superheroes!



THE GREAT AUSTRALIAN HONEY.



The Buzz About Bees

Welcome to the wonderful world of bees, beekeeping, honey and pollination. In this book we explore the interesting and busy lives of our littlest livestock, find out how our precious honey is made, and the very important role bees play in our broader environment – from pollinating various plant species to the foods we eat.

As Australia's favourite honey brand, we have been packing honey for over 65 years. It goes without saying that we love our honey bees! We passionately believe it is our responsibility to respect the health of our planet by protecting these wonderful tiny workers that do so much for us. Because it is not us that makes honey – it is our bees.





The Top 5 Reasons We Love Aussie Bees!

1. Bees make pure Aussie honey!

The golden ray of sunshine that is the lifeblood for honey bees is also the delicious, sweet staple in all our pantries. From crumpets to porridge, smoothies to baking – where would we be without it?

2. Our littlest livestock, bees are so precious to our Aussie beekeepers

Beekeepers are farmers too, taking care of their little livestock and moving them around different floral sources throughout the year for healthy, happy, buzzing hives! It is a life's work and one that helps support the beekeeper's families.

3. Bees help to support the sustainability of our Aussie food supply

An astonishing one third of Australian food is dependent on honey bee pollination.* From almonds to avocados to pumpkins and more, bees are vital for the pollination and production of many of our favourite foods!

4. They help secure Aussie farmer's livelihoods

In Australia, 65% of our horticultural and agricultural crops also require pollination. Bees play an important role in helping sustain our farmers so they have enough feed for their livestock or seeds to continue growing their crops.

5. They pollinate more than just our favourite foods

Bigger than the foods we eat, by pollinating plants bees are also helping support our natural environment. Many mammals, insects and birds rely on native habitats like wild flowers, shrubs and trees for homes and food supply.

*Source: AgriFutures Honey Bee & Pollination. 2020. *The Extraordinary Honey Bee and Its Impact on the Food We Eat*. Publication No. 20-084, AgriFutures Australia.



What is a Honey Bee?

Scientifically known as *Apis mellifera*, Western (or European) honey bees are undoubtedly the most industrious creatures on the planet. They are also the most well-known bee, living together in a colony. The colony lives in a nest - some nests are wild, while others are kept by humans (we call them beekeepers) that live in beehives.

Discover the unique and fascinating processes that takes place to ensure the survival of a honey bee's colony.

The history of bees in Australia

The first honey bees arrived in Australia from England in 1822, aboard a ship called the "Isabella" and quickly adapted to our conditions here. Early settlers used these bees for producing honey and pollinating their crops. Later, honey bees arrived from different parts of the world, such as Italy, Southeast and Central Europe, and North America.

Different Types of Bees

There are around 20,000 different species of bees around the world! Here in Australia, we have over 1,500 native bee species.

Bees can come in all shapes and sizes. From the Wallace Giant Bee, the world's largest at 4cm long, to the Quasihesma Bee native to Northern Queensland which is one of the world's smallest at around 2mm in length.

There are also bees covered in soft hair like the Teddy Bear Bee native to Australia or the common Bumble Bee in England.

One thing you may not know about bees is that not all of them live in large groups called a colony. Some are solitary bees who go about their lives by themselves. Ones that live in large colonies are known as social bees.



Wallace Giant Bee



Quasihesma Bee



Bumble Bee



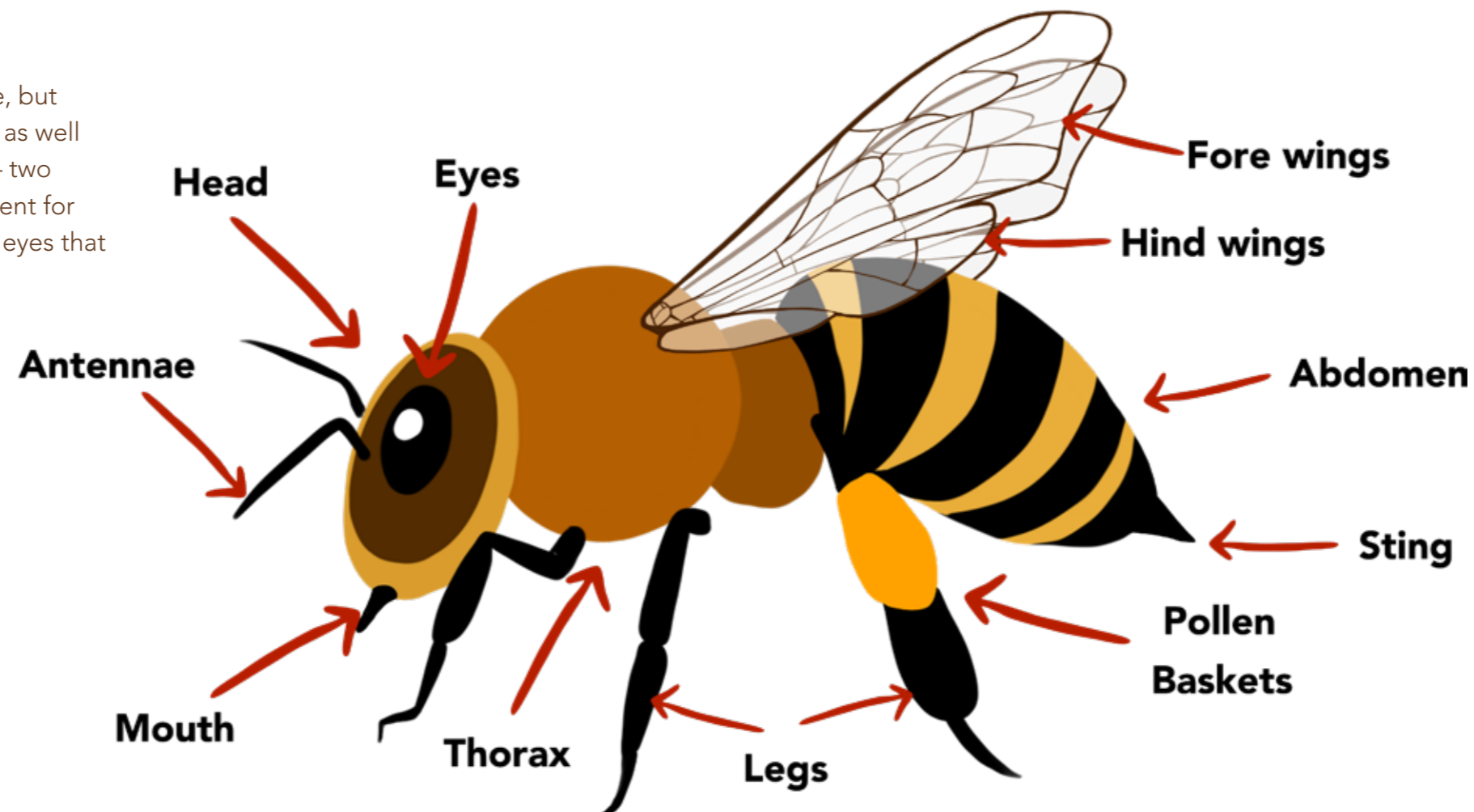
Teddy Bear Bee

Anatomy of a Honey Bee

A honey bee's body is made up of three different sections – a head, a middle section called the thorax and the end which is called the abdomen.

The Head

A honey bee does not have a nose, but instead has two antennae to smell as well as taste. They also have five eyes – two big composite eyes that are excellent for detecting flowers, and three small eyes that detect light.



The Wings

Bees have two pairs of wings on the thorax - the fore wings and hind wings, with the fore wings being larger than the hind wings. They need to move very fast for a honey bee to fly. This makes vibrations in the air that we then hear as a "buzz" sound!

The Mouth

The mouth has a long tongue (called a proboscis) that the honey bee uses like a straw to reach into flowers and suck up lots of nectar. This nectar is stored in a honey stomach while the honey bee carries it back to the hive.

The Hind Legs

Bees have six legs in total, and with them they can hear sound in the form of vibrations. The hind legs of the honey bee are used to carry pollen in an area known as the "pollen basket". As the honey bee forages on a flower, the pollen gets stuck to the little soft hairs on the abdomen. The hairs on the front and middle legs acts like a comb, sweeping up the pollen into these pollen baskets.

Inside the Beehive

A beehive can contain up to 40,000 honey bees, each with their own role to play in keeping a hive happy and healthy. There are three roles within the colony - a queen bee, worker bees and drone bees.



Queen

Queen Bee Female

There is just one queen bee that can live up to 5 years. Her role is mother to most of the bees in the hive, laying eggs to keep her colony alive. Each day she can lay up to 2,000 eggs!

Worker Bees Females

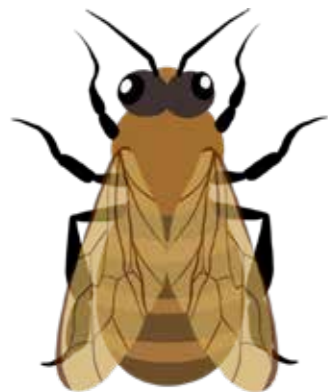
There are thousands of worker bees in a hive with a life span of up to 6 weeks (during the peak of the season). These bees have the most jobs to do – from nursing and cleaning, foraging and making honey, to guarding the hive. They are the reason it is called being a “busy bee”!



Worker

Drone Bees Male

There are hundreds of these stingless bees during the summer months when their only task is to mate with the queen bee. Once they successfully mate with a queen mid-flight, they will float back to earth and sadly die by the time they reach the ground. The remaining drones will be pushed out of the hive during the colder months to die or will pass away due to a food shortage.

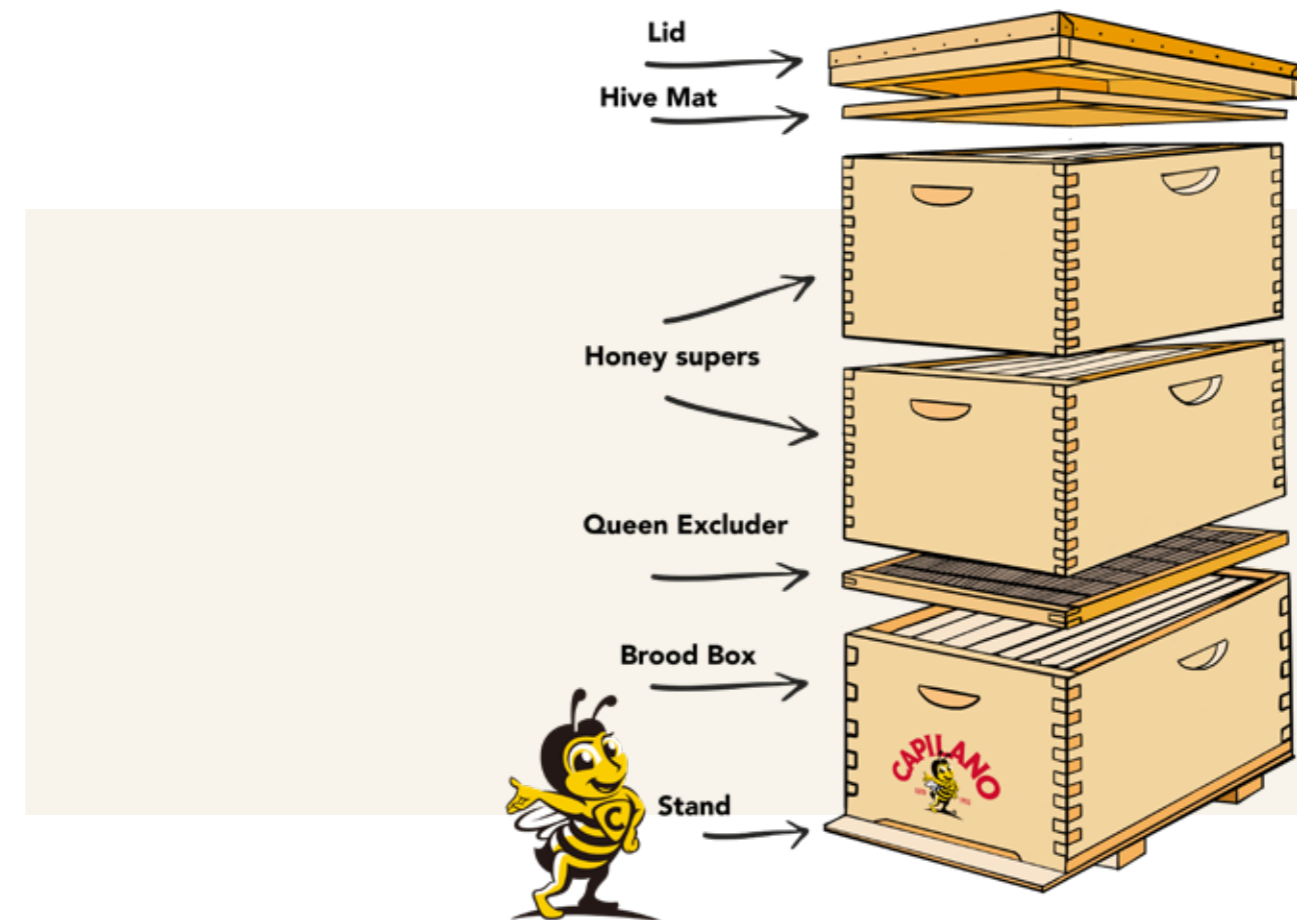


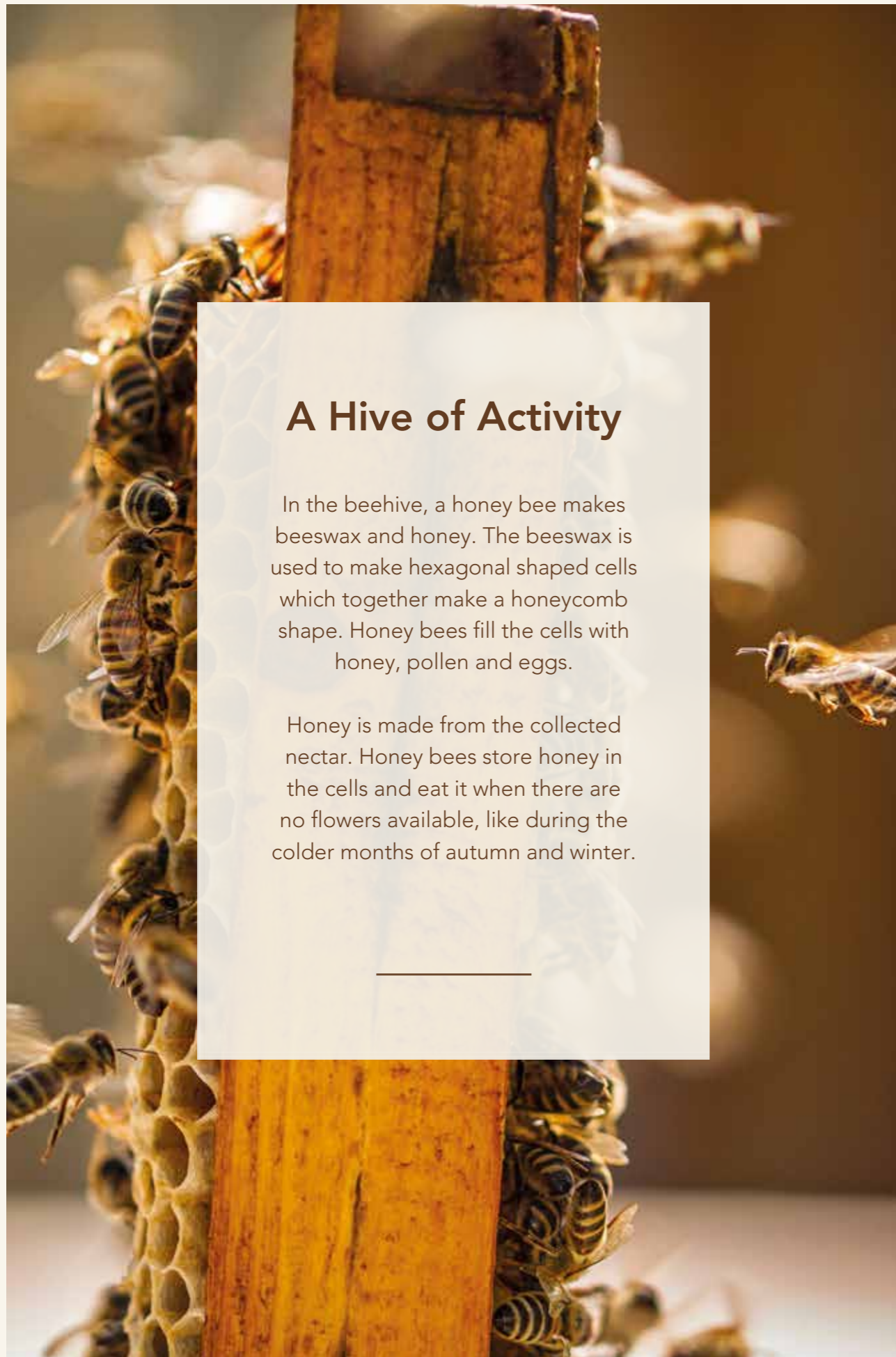
Drone

Anatomy of a commercial beehive

Some honey bees live and make honey in the wild. They make nests in rocks, hollow trees and caves. Other honey bees are domesticated and make honey collected by beekeepers. These honey bees live in beehives and are cared for by beekeepers. Beehives protect the honey bees from the cold and rain, as well as keep them cool in summer.

The beehive is typically divided into two sections – one on the top for the bees to build honeycomb to later fill with honey, and the nursery underneath for egg laying and raising the next generation of bees. The top section is referred to as the honey super. This is where beekeepers extract their honey from for us to enjoy. Honey is also stored in the brood box, but it is never extracted from here as it is for the honey bees own supply.





A Hive of Activity

In the beehive, a honey bee makes beeswax and honey. The beeswax is used to make hexagonal shaped cells which together make a honeycomb shape. Honey bees fill the cells with honey, pollen and eggs.

Honey is made from the collected nectar. Honey bees store honey in the cells and eat it when there are no flowers available, like during the colder months of autumn and winter.



From Hive to Home

At Capilano we have over 800 beekeeping families that provide us with their 100% pure Aussie honey. These farming families run independent beekeeping businesses that often date back over multiple generations. They passionately care for their hives to ensure their bees produce enough surplus honey to harvest. The beekeepers then carefully extract the honey from their hives and send it to us at one of our three packing facilities around Australia.

When we receive the honey, we group it with other honeys of similar floral types or colours. Samples are taken for colour grading and moisture content which are recorded by our quality control department.

These samples are also taste tested by our master honey blenders, who are highly skilled with years of experience in taste testing and blending, like that of a wine maker.

Once the honey has been carefully packed into containers, it is ready to be sent to your local supermarket, pharmacy or health food store.

Our beekeepers are the backbone of Capilano who dedicate their lives to producing delicious, 100% pure honey for all of us to enjoy. They can travel more than 100,000 kilometres a year, moving their hives to different sites that have the best and purest floral sources for their bees.

Without the beekeepers, there would not be honey and the precious bees that make the honey! It is a special relationship and one we cherish every day.

How Do Bees Develop?

All bees undergo complete metamorphosis, or change in form, during their development. The four life stages of a bee are: egg, larva, pupa and adult.



Egg

Larva

Pupa

Adult

DAY 0-3 Egg

All honey bees start off as an egg. The queen bee lays an egg in a cell that has been made by the worker bees. This gives each egg its own space to grow.

DAY 4-7 Larva

After the egg hatches into a larva, the nurse bees feed the larva royal jelly. This rich food helps the larva grow strongly. After three days, the future worker bees' diet is changed to mainly pollen and nectar, while the future queen bees are continued on a diet of royal jelly.

DAY 8-20 Pupa

When the larva has grown big enough, it spins itself a silken cocoon for protection whilst it becomes a pupa. This is the stage the pupa grows the body parts it needs to become an adult bee.

DAY 21+ Adult Bee

When fully grown, the pupa gnaws its way out of the cocoon and cell, ready to join the rest of the hive as a hive nurse before taking on other roles in the hive.

As for drone and queen bees, the drone bees emerge from their cells 3 days after the worker bees and future queen bees emerge sooner within 16 days.

A Day in the Life of a Worker Bee

While the queen and drone bees have only one job, the worker bees have many different jobs throughout their lifetime!



DAY 1-11 Cleaning and Nursing

The first task of the worker bee is to clean out the cell where she was born. She will then move on to helping the other nurse bees clean and cap cells, as well as feeding the larva of the hive.



DAY 12-17 Building and Storing

The next job for the worker bee is receiving and storing nectar from the forager bees. She will need to pack the pollen and build the honeycomb that is later filled with honey and eggs.



DAY 18-21 Guarding

Her next duty is as a hive guard, where she will look out for danger and guard the hive from foreign insects from entering.



DAY 22+ Foraging

For the rest of her life, she will be a forager bee, where she will collect nectar and pollen from flowers and bring them back to the hive.



How Do Bees Communicate?

Bees cannot talk to each other like we can, so they communicate through dances, vibrations and body chemical signals. Once the scout bees have found new pollen, nectar or water sources, they will return to the hive to perform a dance across the honeycomb.

To indicate distance exactly, the scout bee uses an audible code of buzzes on a 200 cycle per second note with a pulse rate of 35 to a second.

There are two types – a round dance and a waggle dance.

The round dance

The round dance is performed when the food source is within a hundred metres of the hive. Her wings will vibrate swiftly as she runs in a circle and then turns and runs the other way.



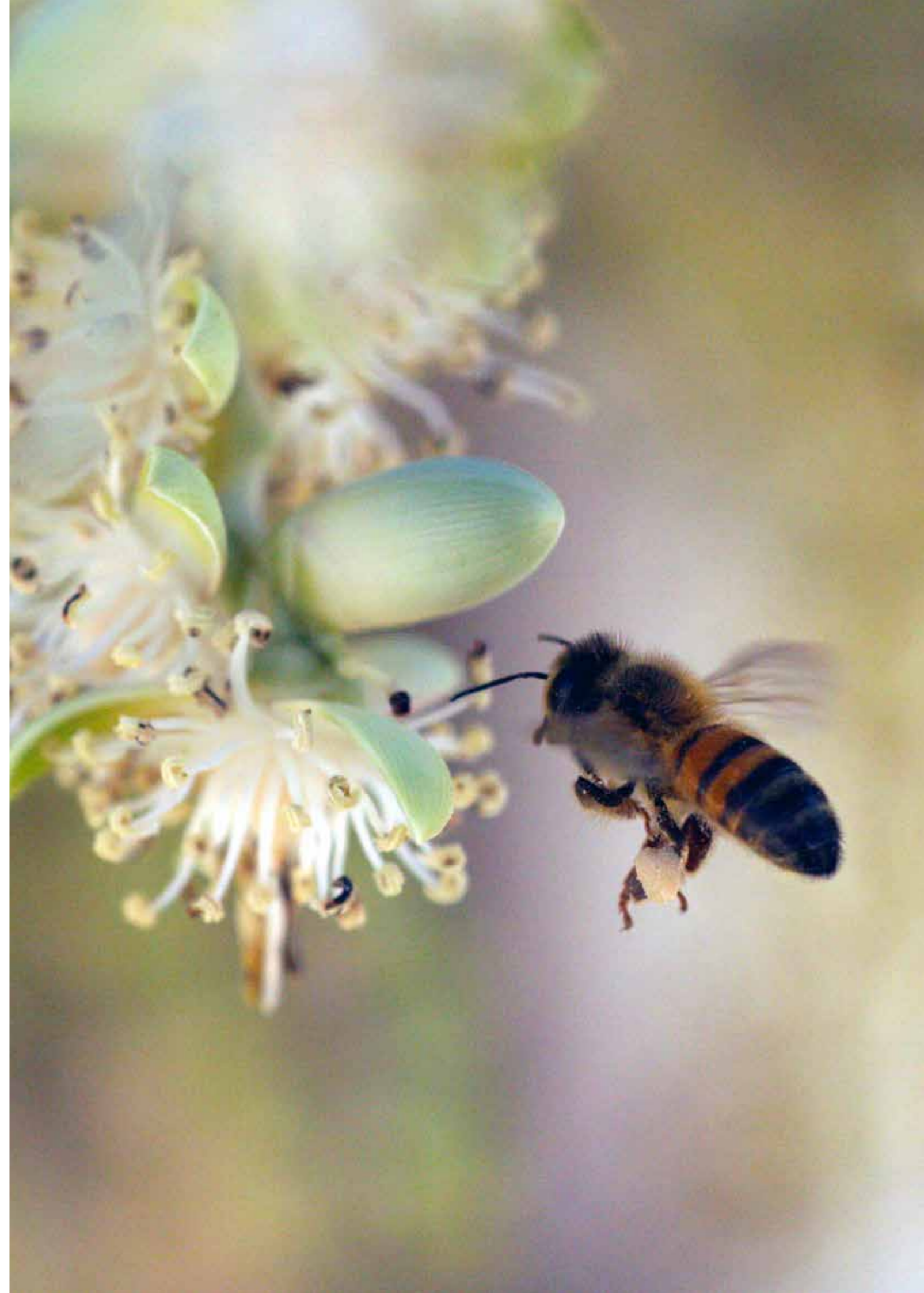
Round Dance

The waggle dance

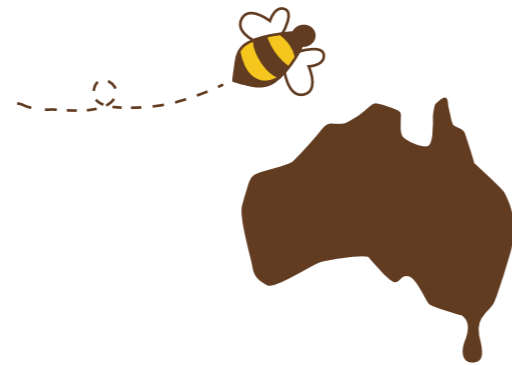
The waggle dance is performed if the source is further away and resembles a figure 8 with a straight centre. The angle of the dance tells other bees the direction of the flowers. As the sun moves across the sky, the waggle portion of the dance always means to fly in the current direction of the sun, wherever it may be.



Waggle Dance



Sweet, Sweet Aussie Honey!



Where does honey come from?

Honey bees need two different types of food to remain healthy.

The first is nectar, which is the sugary juice that is collected from the heart of the flowers.

The other is pollen, which comes from the anther of the flower. These are the small grains that get stuck to the honey bee's body that not only help in pollination but are what the honey bees take back to the hive in their "pollen baskets".



Different flowers = Different tasting honeys!

Different floral sources produce a different flavoured honey, and the taste of each honey is unique – like sticky and sweet fingerprints, no two are exactly alike!

It all depends on which flowers the bees have visited and collected nectar from. When enough nectar is sourced from just one species of flower, the resulting honey has a very distinct flavour.

For example, our Yellow Box Honey has come from bees foraging on flowers of the Yellow Box (*Eucalyptus Melliodora*) trees. It is light in colour and has a delicately smooth flavour.

Our Floral Manuka on the other hand has come from bees foraging on Manuka (*Leptospermum*) flowers and is much darker in colour and rich in flavour.

How Do Honey Bees Make Honey?

When foraging, honey bees can select the best yielding nectar single floral source available at any given time which often leads them to concentrating on a single floral source.

Let us follow Phoebee on her journey from flower to hive.

From Flower



STEP 1

Phoebee starts by collecting nectar from flowers with her tongue and stores it in a special honey stomach.

STEP 2

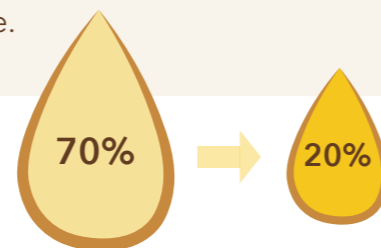
She then flies back to the hive where she will pass the nectar to a honey-making bee with her mouth. This is where the healthy enzymes are added.



To Honey

STEP 3

The indoor bees then pass the nectar mouth-to-mouth from bee to bee until its moisture level is reduced from 70% to 20%. This is what creates honey! Sometimes nectar is stored in honeycomb cells before the mouth-to-mouth transfer because some evaporation is caused by the warm temperature inside the hive.



STEP 4

Bees then constantly flap their wings to keep air flowing through the hive, to reduce moisture in the honey, and keep the colony dry. The process of converting nectar into honey is called 'ripening'.



To Hive



STEP 5

The honey is stored in the honeycomb cells and sealed to keep it fresh, ready for the next generation of honey bees to be born or for the winter months where food is scarce.

Repeat Again!

STEP 6

Before setting out on the next trip, Phoebee will comb off the excess pollen and clean herself from top to toe so she is ready for another successful flower visit!





Bees & Pollination

One of the most important processes in our natural environment, pollination is the reason many of our trees, flowers and other plant species can exist and thrive today. It is also how our birds, bees and many other insects get their food every day.

What is pollination?

Pollination is the process of moving pollen from the anthers of a flower to the stigma of another flower (can be the same or different type of flower). This process helps flowers to reproduce and make seeds that grow into fruits and new plants.

Bees are some of the best pollinators because the pollen can easily stick to their furry bodies, and their small size that allows them to pollinate flowers of many different shapes and sizes.

Sometimes pollination can happen from wind moving pollen without the help of animals or insects.

How Do Bees Pollinate Flowers?

STEP 1

Phoebee is attracted to a flower because of the bright petals and sweet smell of nectar.



STEP 2

Phoebee visits this flower to collect nectar or pollen. While she is foraging the flower, pollen on the anthers gets stuck to Phoebee's furry body.



STEP 3

When she is done with the first flower, Phoebee then visits another to collect even more nectar or pollen.



STEP 4

At the next flower, the pollen falls off Phoebee's body and gets stuck to the sticky part of the flower called the stigma.



STEP 5

The pollen enters the flower at the stigma and grows a tube to the flower's ovary. Here, it meets the egg. Once the pollen has joined with the egg, it starts to become a seed.





Why Do Bees Need Flowers?

Did you know that like us humans, bees also need a balanced diet for their growth and development?

Rather than relying on the pollen or nectar source of one plant, bees need to forage a variety of flowers to get their all-important carbohydrates, proteins, fats, vitamins and minerals to remain strong and healthy!

Different flowering plants offer varying nutrients, so that is why honey bees will move between different floral sources to find what they need for a healthy colony.



*1/3 of Australian food that ends up on our plate is dependent on honey bee pollination.**

Why is Pollination so Important?



As we have seen, bees pollinate plants which help them to reproduce and grow fruit, vegetables and nuts.

Many of these plants are crops growing on farms which are then harvested and sold as food for all of us to eat. Or these plants are used by farmers as a food source for their livestock that they rely on for income.

From almonds to avocados to apples and more, honey bees are vital for the pollination and production of many of our favourite foods. Honey bees also contribute to the meat we eat with some livestock feed crops dependent on pollination.

One third of Australian food that ends up on our plate is dependent on the humble honey bee for pollination*.

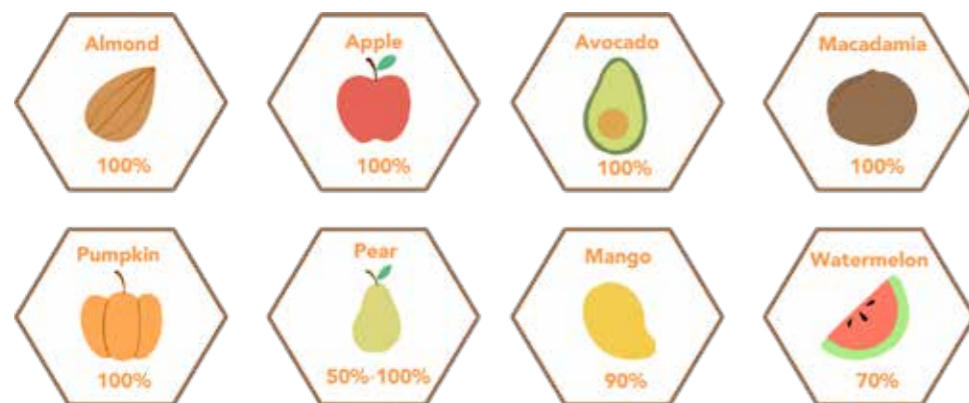
*Source: AgriFutures Honey Bee & Pollination. 2020. The Extraordinary Honey Bee and Its Impact on the Food We Eat. Publication No. 20-084, AgriFutures Australia.

Crops That Rely On Bees

Various crops are largely dependent on pollination from honey bees to sustain the quantities of food needed for Australia's food security. Here we illustrate the more reliant crops in Australia and how many honey bees are required to produce them.

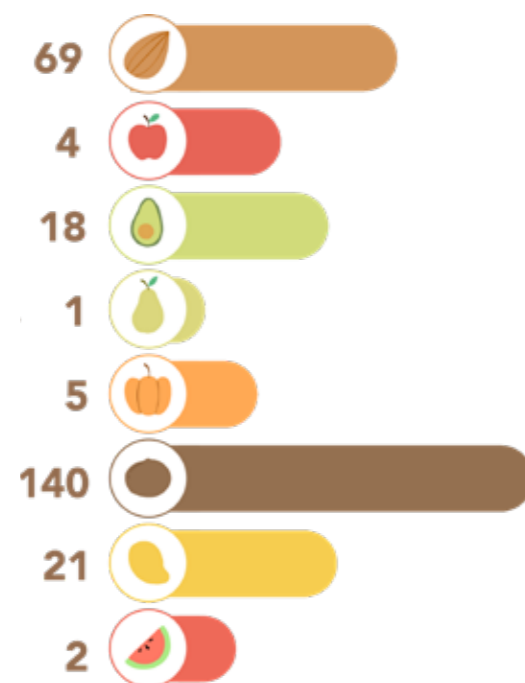
Crops that rely on bees for pollination:

The following crops are 70 - 100% dependent on honey bee pollination*.

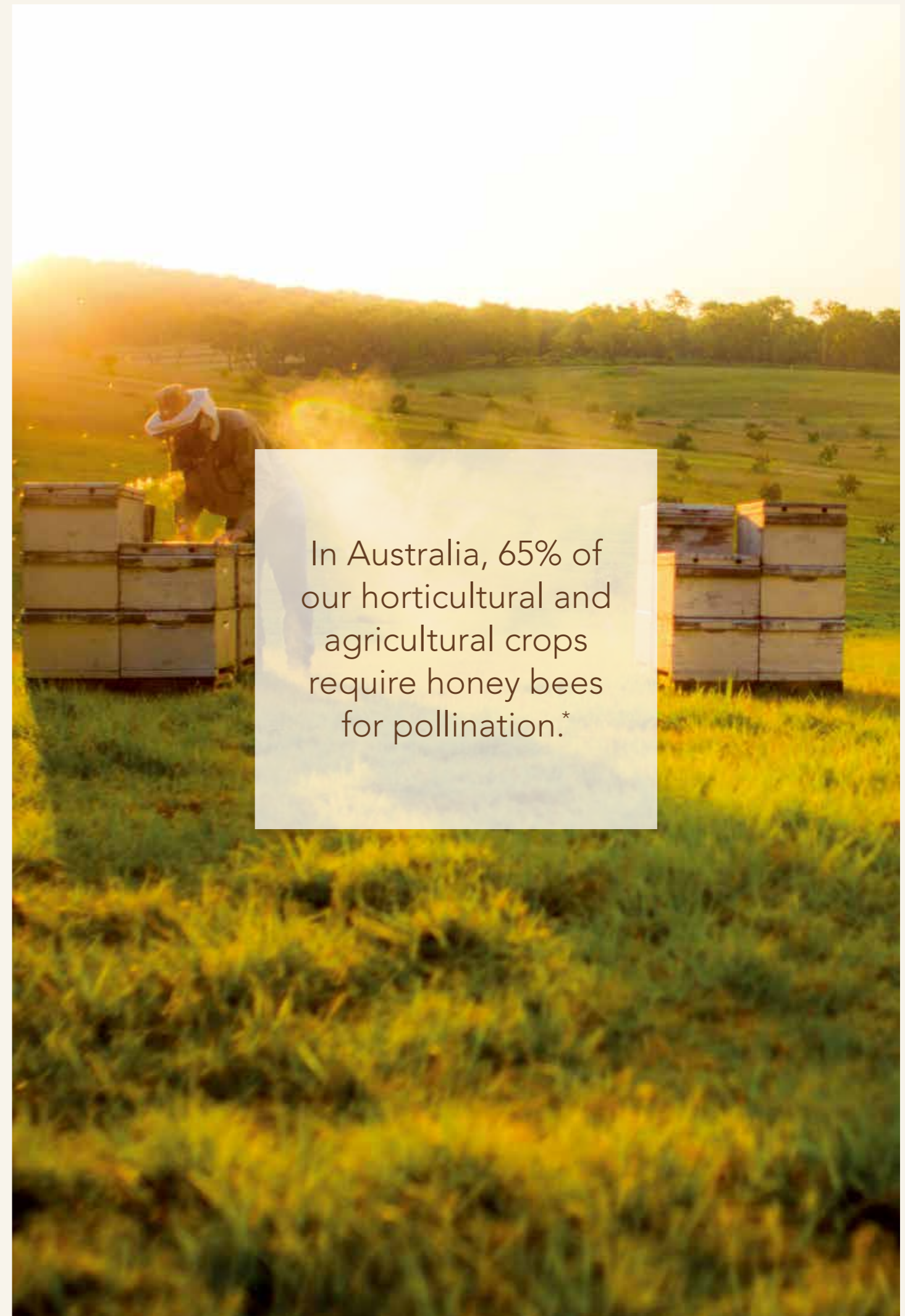


Bees required per kilogram of produce:

It takes a lot of bees to produce one kilo of our most nourishing crops!



*Source: AgriFutures Honey Bee & Pollination. 2020. The Extraordinary Honey Bee and Its Impact on the Food We Eat. Publication No. 20-084, AgriFutures Australia.

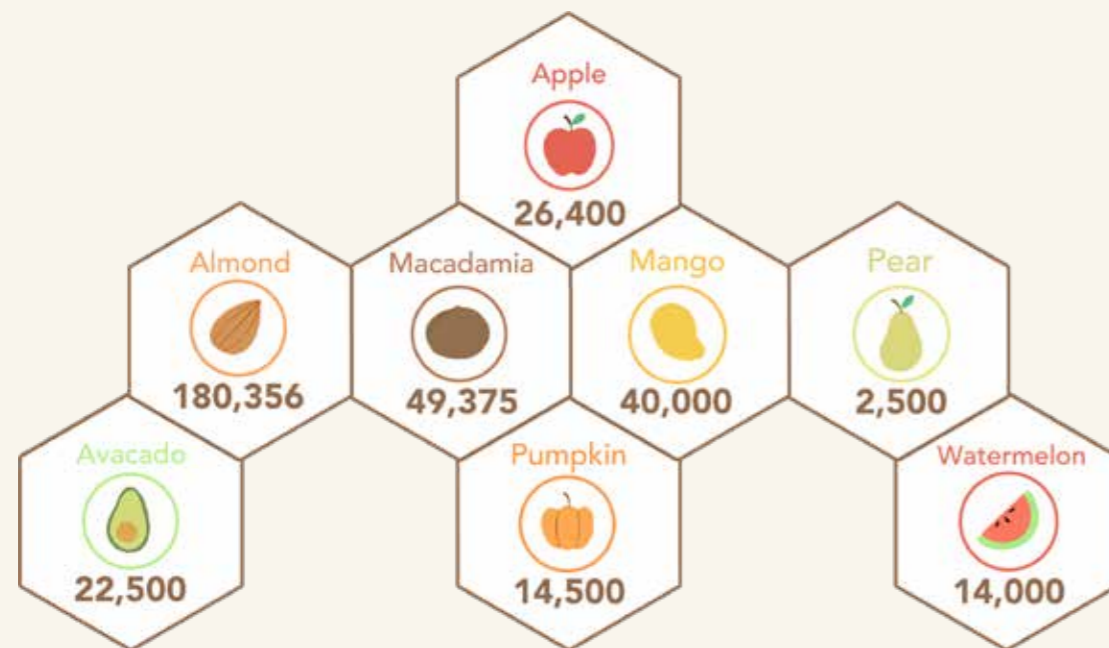


In Australia, 65% of our horticultural and agricultural crops require honey bees for pollination.*

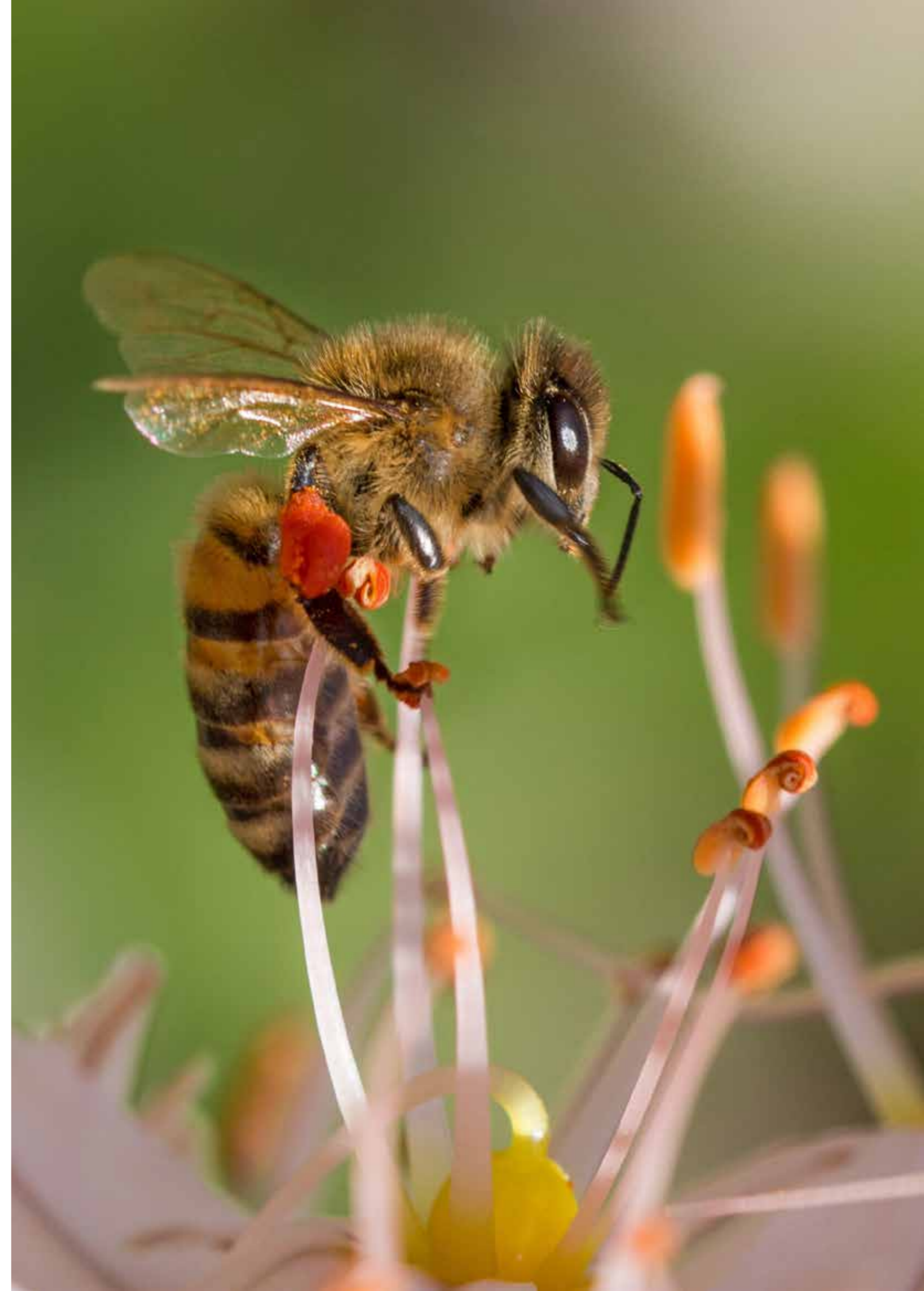
How many hives does it take to feed Australians?

With one beehive containing up to 40,000 bees, discover how many hives are needed for our most nourishing foods!*

And these are only the few crops that are more heavily reliant on bee pollination than others. There are many more foods that require a combination of animals and insects working together for successful pollination.



*Source: AgriFutures Honey Bee & Pollination. 2020. The Extraordinary Honey Bee and Its Impact on the Food We Eat. Publication No. 20-084, AgriFutures Australia.





What Would We Do Without Bees?

Mealtime without bees

One in three mouthfuls of food that we eat has been made thanks to pollinators like the honey bee.* When you think about it, that is quite a lot of food!

Without bees, some of our favourite fruits, seeds, nuts and vegetables would not make it from the farm to our plates.

We would also risk losing some of our meat and dairy products because we often feed farm animals with fodder such as lucerne that is made thanks to pollination.

On the following pages we have pictured what meal times would look like if we did not have the precious honey bees anymore.

*Source: AgriFutures Honey Bee & Pollination. 2020. The Extraordinary Honey Bee and Its Impact on the Food We Eat. Publication No. 20-084, AgriFutures Australia.

Breakfast without bees

Without bees, we would not be able to enjoy the very popular avocado on toast. Our porridge and cereals would be less fun and exciting with no more berries, almonds or macadamias to add flavour and texture.

Our fruit salads would be more limited, with so many fruits that rely on honey bees for pollination. Coffee would be harder to come by and more expensive than it is now, and sadly would not taste as good either.



Breakfast with bees



Lunchtime without bees

Lunchboxes would be very sad without all of the fresh fruits and vegetables that rely on bees for pollination.

It would be harder for us to find delicious, good quality foods like tomatoes, carrots or cucumbers. There would also be no more apples or pears for us to crunch into for those midday meals.



Lunchtime with bees



Dinner without bees


Our dinner time would not be the same without our precious bees.

We would have to say goodbye to delicious pumpkins who rely heavily on the hard work of bees. There would be less zucchini, capsicum and cucumber for us to enjoy, and they wouldn't taste or look as nice either.



Dinner with bees





What Would Life Be Like Without Bees?

It is not just our plates that would be impacted if honey bees were not around anymore - there would be no more honey for us to enjoy, which would be the saddest of all!

But also, the very important beekeepers who harvest the honey from their beehives would no longer have a job. They would not have any honey to sell to make money to support their families.

This would also mean that there would be less beekeepers around, meaning less bees available for pollinating our food crops.

Bees Support Our Wildlife

Bees also play a very important role in supporting a variety of Aussie wildlife. Buzzy bees spend their days pollinating plants. By pollinating plants, the bees are helping native and wild flowers. They are also helping our great varieties of Eucalyptus trees too!

Mammals rely on areas of native and wild flowers for homes and food supply. These flowers give other insects food supply too! And birds nest in areas with plenty of protection in trees and shrubs, surrounded with native and wild flowers so they can eat the seeds, berries and insects for food.





What You Can Do to Help Bees!

There are so many ways we can help our littlest livestock, but these handy tips are enough to make a small impact that goes a long way!

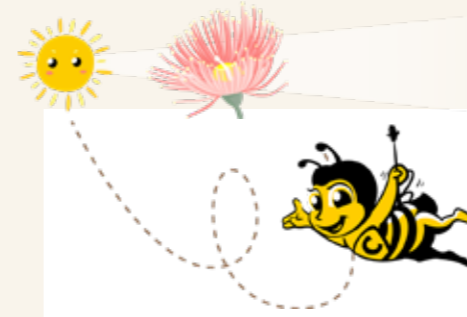
Helpful tips for creating a bee-friendly garden:

One of the easiest ways we can help support our hard-working, buzzy friends is by planting more bee-friendly plants in our gardens!

Bees of all types love gardens that are full of colourful flowers rich in nectar and pollen. Here are some helpful tips to help get you creating a beautiful, bee-friendly garden.

Tip 1

Consider which plants will suit your climate. This is a good starting point when you know what plants you have to work with! Your local nursery will be able to help you out here.



Tip 2

Choose plants that grow well in full sun and include lots of yellow, white, purple and blue coloured flowers in the mix. These colours have been shown to attract more bees. Plus, bees also use the sun to find their way so will gravitate to flowers in bright, sunny positions.

Tip 3

Native bees are just as important for pollination, so make sure to select a nice range of flowers that are loved by all types of bees!



Tip 4

Solitary bees like to make nests in small holes. Give them the 5-star treatment in your garden with a little 'Bee Hotel'. You can get crafty and make one yourself or buy one already made. Make sure to place them in sunny spots and keep an eye on your different guests that check-in!



Tip 5

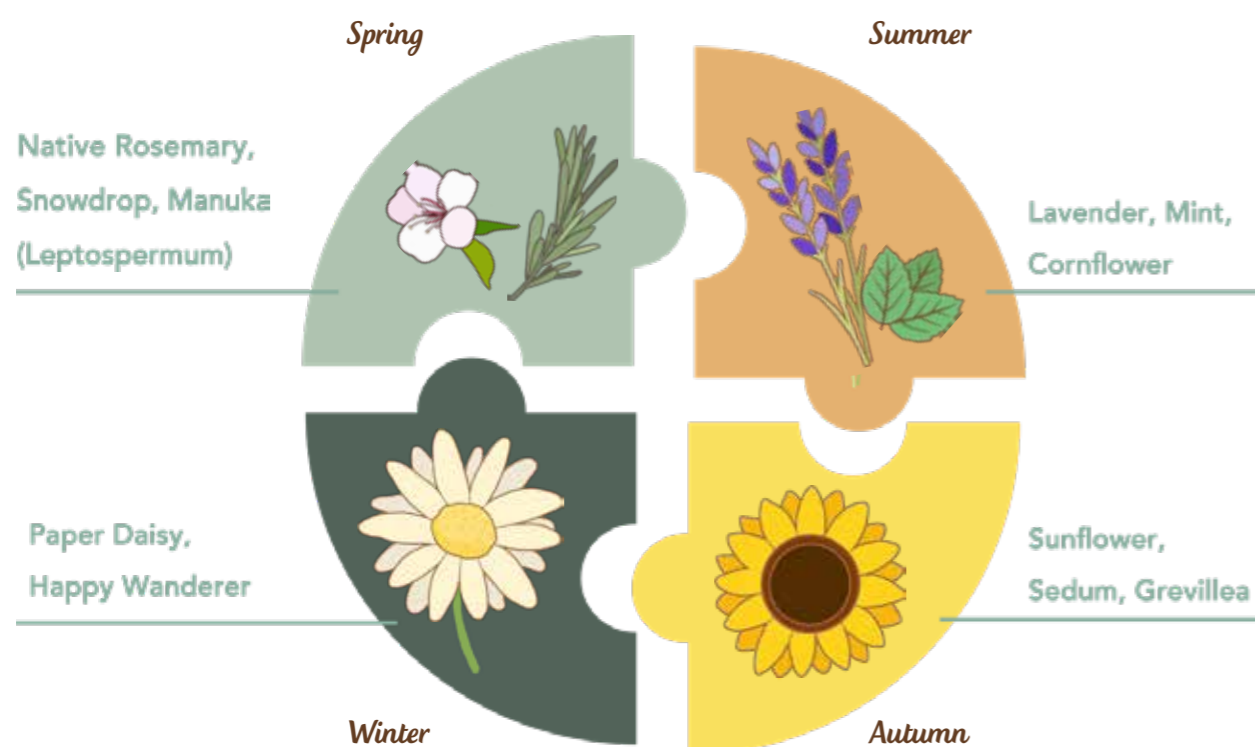
Water is just as important as pollen and nectar as this keeps the bees hydrated. Create a 'bee bath' by leaving a shallow dish of pebbles in water. You will want to keep this very shallow to avoid unwanted visitors like mosquitos and change the water often, so it remains fresh for your thirsty visitors.



Tip 6

For year-long foraging in your garden, ensure you pick multiple different varieties that flower at different times of year. This helps keep bees coming back to your garden as they need a variety of flowers for a healthy, balanced diet.

Here is an example of what your garden could look like throughout the year:



Tip 7

Finally, avoid using chemicals in your garden. Pesticides and other gardening products can be harmful to bees, so be careful in what you use. You can still have a beautiful, flourishing garden without using chemicals.

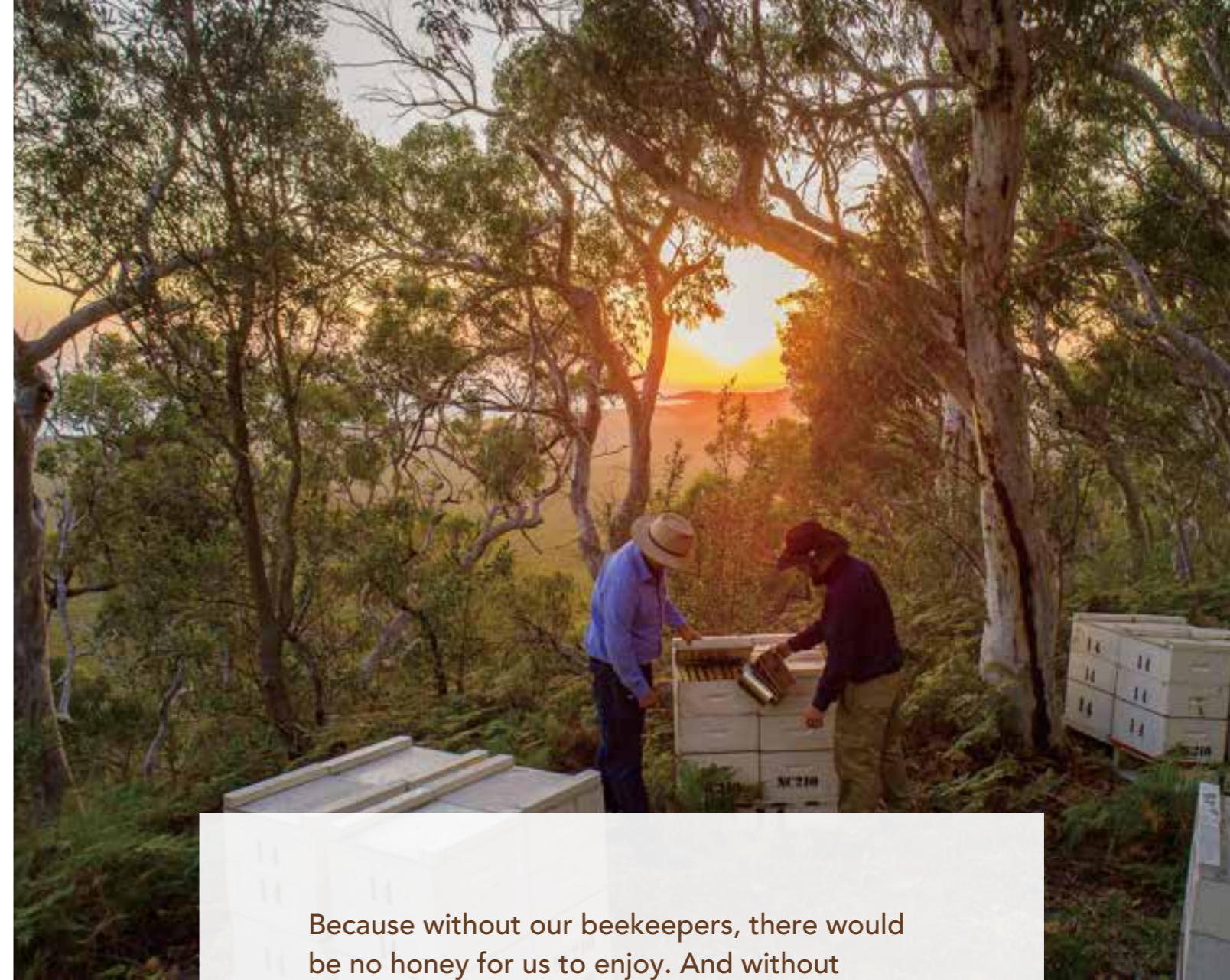


Support Your Aussie Beekeepers. Buy Australian Honey

Our pristine natural environment, warm sunny climate and great floral diversity together means we have some of the world's healthiest bees.[†] And with such sprawling wilderness to explore, our 800+ beekeeping families go the extra mile in search of the purest golden honey.

Our beekeepers forage the greatest range of locations – right across Australia – searching to find untouched land where the air is cleanest, the nectar is purest, and the bees can thrive.

It is the dedicated beekeeping families who hand the rich traditions of Aussie beekeeping down through the generations. They are botanists, meteorologists, food scientists, biologists and most of all, guardians – protecting the bees that are so important to all of us.



Because without our beekeepers, there would be no honey for us to enjoy. And without everyone wanting to enjoy honey at breakfast, in drinks or for cooking, there would be less beekeepers, and less bees!

By choosing Capilano Honey, you are not only supporting the Aussie beekeepers who brought you that honey, but you are also supporting the hard-working honey bees that created it in the first place.

[†]Source: Vella, G. 2016. *It's official: our honey bees are some of the healthiest in the world.* Issue 215. CSIRO, an independent Australian federal government agency responsible for scientific research.



Capilano Honey

Proudly 100% Aussie Made & Owned

Capilano Honey is proudly Australian made and owned, providing pure, 100% Australian honey to families near and far for over 65 years. Our high quality, Classic Pure Australian range has graced Aussie brekky tables for generations, earning its right as the nation's favourite honey.

Capilano Honey was founded by, and still supports, over 800 beekeeping families from across Australia. With beekeepers at the heart of our business, every action through to you, the end consumer, is based on the principle of building a better Australian apiculture (beekeeping) industry and delivering a safe, natural and completely pure product to you.

We are proud to be the biggest supporter of Australian beekeepers and without them, Capilano Honey would not be the same as it is today.



Discover Our Products, From Our Hives to Your Home



[†]Source: Vella, G. 2016. It's official: our honey bees are some of the healthiest in the world. Issue 215. CSIRO, an independent Australian federal government agency responsible for scientific research.



Pure Honey

The honey that goes into our Classic range has come from bees that have foraged on a symphony of 100% pure, high quality Australian Eucalyptus and ground flora.



Floral Manuka Honey

The honey that goes into our Floral Manuka comes from bees that have only foraged on Leptospermum (Manuka) flowers, but do not have the same active properties as our Active Manuka honey.



Yellow Box Honey

Yellow Box honey is in the name – it comes from bees that have only foraged on Eucalyptus melliodora (Yellow Box) flowers! A very unique and distinctive Australian honey.



Active Manuka Honey

Our Active Manuka honey like our Floral Manuka, comes from bees that have only foraged on Leptospermum flowers. But what makes this honey unique is its bioactive properties. The higher the MGO rating (Methylglyoxal content), the more potent the honey's activity.



Light & Smooth and Dark & Bold Honey

Our Light & Smooth and Dark & Bold honeys are both a unique blend of honeys that give each their name. Light & Smooth has come from bees that have foraged on flowers that produce honey light in colour and smooth in flavour. Whereas Dark & Bold has come from bees that have foraged on flowers that produce honey dark in colour and bold in flavour.



Organic Raw Honey

Our 100% Australian Certified Organic honey has been carefully sourced from bees foraging various Eucalyptus trees in pristine native bushland, within a 5km organic foraging radius.



Low GI Honey

Low GI Honey comes from bees that have foraged premium Australian Eucalyptus flowers. It is a unique blend of specially selected honey that have a naturally occurring sugar profile, influencing the way it is digested in the body that determines its GI rating. Capilano Low GI Honey is a licensed food in the Glycemic Index Symbol program.



THE GREAT AUSTRALIAN HONEY.

For more information please visit capilano.com
Australia's favourite honey brand since 1953