Getting Started
in Bees

Keeping bees becomes an attitude to life.

You may own the hives, but you don't own the bees. Bees and humans have a symbiotic relationship, developed over the centuries.

The benefits of this arrangement are received with gratitude and reciprocated with sacrifice of time, energy and finances.

Valley Bees

General principles that apply:

1. *Put simply, buy a hive from a beekeeper to get started. Ensure the bees are disease free, strong and housed in sound equipment.*
2. *Before acquiring bees, also acquire the knowledge necessary for managing bees.*
   - *Understand the biology and habits of the bees.*
   - *List the equipment required to house and manage the bees.*
   - *Talk to people experienced in bees.*
   - *Attend workshops, field days and meetings.*
   - *Google! There are amazing Australian sites loaded with great info that is relevant & informative.*
   - *Also explore some of the overseas sites - there are good inspirations on those as well.*
3. *Ensure you have the right facilities and resources that will satisfy the needs of the bees - suitable site and aspect, solid stand, good sun, closeness to water etc.*
4. *Start early in the season. Here are the general rules :*

   Aug - Dec ***In Spring, bees are active, nectar and pollen is abundant, activity is high.***
   Jan - May ***Wet weather does not favour bees, and resources are not as abundant in our area.***
   Jun - July ***Bees are very quiet. It's the time for creating and/or renovating your equipment.***
5. *Even after acquiring your bees, you should continue searching to expand your knowledge and enjoyment.*
6. *If you keep honey bees, they must be registered with DEEDI. Native bees do not need to be registered yet.*

   Go to the DEEDI web site, and follow the links to bee registration.
   Senior Apiary Officer Biosecurity, DEEDI, Locked Bag 17, Warwick 4370

Who's who and what's what…

Workers *are undeveloped females. As they mature they perform progressive roles of cleaning cells, nursing brood, tending the queen, storing honey, guarding the hive, foraging for nectar, pollen, water and propolis.*
In a strong colony there are about 40,000 workers.

The Queen *mates at 8 to 10 days old with one or more drones. She returns to the hive to lay up to 1,000 eggs per day and up to 1.2 million eggs in her lifetime. The Queen secretes a hormone which unites the colony. She will only leave the hive as part of a swarm, to be replaced by one of her daughters. There is only one Queen in a colony.*

Drones *can mate with a Queen after 12 days old. They congregate in drone zones up to 5 km from their hives, and three to 10 metres above the ground. A Queen flying through will mate with up to 8 drones, which then die.*
In a strong colony there are a few hundred drones.

A swarm of bees *is the unit consisting of one Queen, some drones and many workers. This unit is essential for bees to survive, reproduce and to form a colony.*

A colony *is formed when bees settle in a suitable habitat to sustain themselves and their brood and to accumulate stores. This habitat can be a natural cavity or hollow, or a man-made hive.*

A hive *is a box structure with moveable frames in which the colony establishes its nest.*

A nest *is constructed by bees from wax and propolis to rear brood and to store honey and pollen.*

The brood *includes eggs, larvae and pupae which are stages in the life cycle of bees. It occupies about one third of the nest.*

The stores *are the supplies of honey and pollen accumulated to sustain the colony during times when none is available in the environment.*

A beekeeper *manages bees in hives which enables him/her to handle the bees and to remove excess honey not needed by the bees.*

An apiarist *manages numbers of hives for commercial purposes.*

The apiary *consists of the hives, the buildings and equipment needed to extract honey and also the vehicles for transport to and from honey flows.*

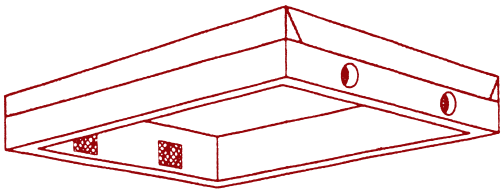
A honey flow *occurs when large numbers of trees in an area flower to produce good nectar and pollen supplies. Apiarists transport hives long distances to follow the flow.*

The forests *are the principal resource providing flows to keep bees strong in all seasons. Strong hives are needed to pollinate food crops.*

The parts of a beehive

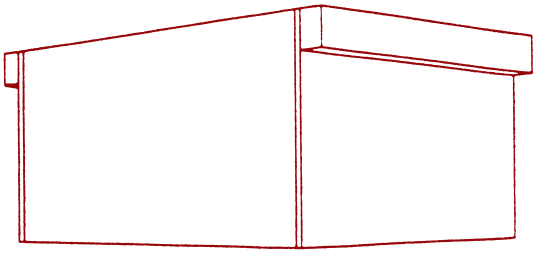
Empty frame with foundation

Full frame - holds about 2.5 kg of honey



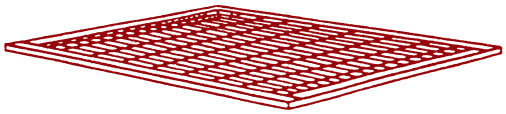
Ventilated lid

Inner mat



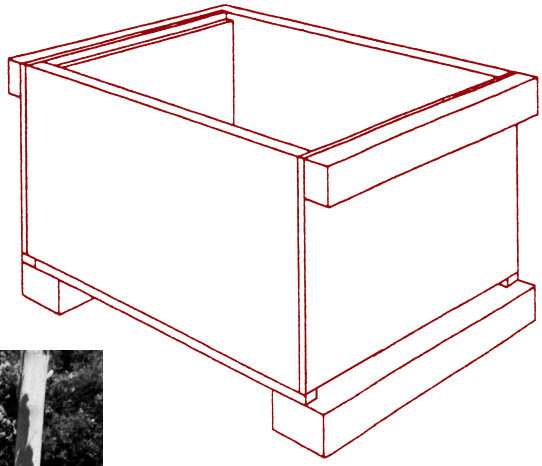
Honey super

406mm wide
508mm deep
245mm high



Queen excluder

(keeps the queen in the brood chamber)



Brood chamber

Base board

(entrance 10mm)

Equipment for examining a hive

Veil
Hat

Bee brush
Hive tool
Gloves

Wear a long sleeved shirt, long pants (or overalls), make sure you have steel capped boots and socks.

Smoker
Fuel
Matches

Seasonal management *as applied to small stationary apiaries*

The following is based on experience over many years. This experience teaches us that seasons vary, but there is a general trend over the years.

Beekeeping is based on respect for the bees. So they must be approached with a mood of observation and nurture rather than one of expectation and exploitation. Success comes from knowledge and understanding of the life of bees and their needs. As bees are responsive to environmental influences, it is important to gain knowledge of the local seasons, weather and flora.

August

By mid-August the Queen is expanding her egg-laying to boost the population after winter. This is the time to manipulate all the frames in the box. The last 2 weeks in August inspect every frame in the hive.

1 *Check the general health of the brood (colour and regularity). Look for any disease in the brood.*
2 *Check that the Queen is performing/laying (look for eggs and larvae).*
3 *Remove honey frames and old frames from brood box leaving only two honey/pollen frames on theoutsides, allowing 8 frames for the Queen to lay.*
4 *Check / fill / nenew beetle traps.*
5 *Extract surplus winter honey.*
6 *Reject / replace any old dark honey frames.*
7 *Do not open hives on cold windy days. The hive will take up to 4 days to return the temperture inside to normal.*
8 *The above list may be used throughout the year when you suspect problems, otherwise the general rule is always to disturb the brood as little as possible.*

Flowering: *Blue Gums, Wattles, Hairy Pea, Spotted Gum, Clover, Citrus, Macadamia, Wild Mustard, Ground Flora*

September

It's a busy time in the apiary - Spring!

1 *Inspect hives not already manipulated since winter.*
2 *Add new frames and supers to strong hives.*
3 *Extract surplus honey. Start collecting your stand-out honey samples for show.*
4 *Be prepared for swarming.*
5 *Plan for splitting hives.*
6 *When extracting consider the 1/3 rule : 1/3 for brood, 1/3 for honey / 1/3 empty.*

October

It's still Spring, continue as for September, plus:

7 *Check for Queen cells.*
8 *Add foundation to discourage swarming.*
9 *The prime month for dividing strong hives and forming nucs.*
10 *Increase vigilance for Small Hive Beetle.*

Flowering September and October :
Blue Gums, Hairy Pea, Ironbark, Clover, Grey Gum, Citrus, Grevilleas, Macadamia (Sept), Callistemon, Scribbly Gum, Banksia, Wild May, Wild Mustard, Ground Flora

November

Continue Spring management as for Sept / October.

Flowering: *Ironbarks, Banksia, Grey Gums, Wild May, Messmate, Black Paperbarks, Wild Apple, Grevilleas, Callistemon, Rusty Gum, Ground Flora*

December

Honey flows may ease off and rainfall may increase.

1 *Leave stores in the hives to tide the bees over prolonged rain events.*
2 *Continue Spring management with emphasis on SHB (Small Hive Beetle) management.*
3 *Consider this as the last month to form nucleus hives.*
4 *Only strong hives may be split.*
Note : In our area, new hives from now on usually will not build into string hives in time to survive winter.

Flowering: *Wild Apple, Messmates, Cadaghi, Black Tea Trees, Black Paperbarks, Brush Box, Rusty Gum, Ground Flora*

January February

A quiet time. Ensure there is ample food in the hives to tide the bees over prolonged wet weather.

Flowering: *Bloodwoods, Tea Trees, Stringybarks, Soapwood, Ground Flora*

March April May

More quiet times, winter approaching.

1 *Check hives for disease.*
2 *The bees will fill honey frames to insulate the brood. Leave them.*
3 *Ensure the bees are working all the frames. Remove or add supers as necessary.*
4 *Ensure hives are in a warm sunny position. If not, move them.*

Flowering: *Banksia, Flooded Gum, Paper-barked Tea Tree, Stringbarks, Bloodwoods*

June July

1 *Inspect hives sparingly - leave brood boxes alone unless problems are suspected.*
2 *Inland areas have few flowers, so leave honey in hive.*
3 *Do not open the hive in cold or windy weather.*
4 *Be alert to possible early honey flows, e.g. Blue Gum.*

Flowering: *Banksia, Hairy Pea, Tea Trees, Spotted Gum, Blue Gums (July), Wattles, Clover (?)*

Management, in general :

1. *Ensure that space in the hive is available - **1/3 for brood - 1/3/ stored honey - 1/3 empty honey frames.***
2. *Make sure bees are packed, i.e. working all the frames of the hive. Add or remove space to suit conditions.*
3. *Keep notes and build up knowledge of your locality - its flora and honey flows. Keep a history of your hives.*
4. *Re-Queen hives that show undesirable characteristics*
   (a) aggressiveness (b) low production (c) poor wintering (d) swarms often (e) failing queen (too many drones)
5. *Keep your hives in good condition. Have equipment in reserve.*
6. *Keep yourself informed - attend meetings, field days and read newsletters and magazines, search the internet, there are some fabulous sites to explore.*
7. *Use your product in the kitchen as a sweetener, in cooking and drinks.*
8. *Honey is an insulator. In winter have a frame of honey either side of the brood. In summer, if the hive is full of honey, the bees will not be hot and hang out of the entrance.*
9. *Hive beetle management must continue year-round. Inspect and replenish traps at recommended intervals : oil traps every 3-4 weeks in summer, every 4-6 weeks in winter. Other methods follow recommendations.*

How do bees find their way?

Young bees make orientation flights in loops near their hive to memorize landmarks in its vicinity. Throughout their lives they refresh these details to memorize changes.

A bee has a sun compass to fix the direction of the sun in relation to the hive entrance. Combined with this she has a built-in clock which allows her to compensate for the movement of the sun. It is accurate to 4 minutes.

Also a bee sees polarised light. This allows it to detect the exact direction it is flying in relation to the sun.

Armed with the formidable array of directional skills and spatial memory the (worker) bee can locate not only her nest on return journeys but also the position and site of productive food sources on her outward journey. - bees of the world

On return to the hive the foraging bee guides other bees to the source of nectar by dancing. The course of the dance signifies the direction from the hive whilst the body waggle indicates the distance of the flow. Taste and odour are given by surrendering samples of nectar to hive bees. Armed with all this information bees can fly directly to the bounty.

Bees see a different range of the spectrum from that of the human eye. To a bee red is black and it sees ultra violet clearly. So that white flower we see may be bright ultra violet to a bee.

It is estimated that bees make 20 million foraging trips to produce 1 kilo of stored honey.

In one day the members of a hive will visit four and a half million flowers.

In one day up to one thousand workers will die, to be replaced by the eggs laid by the Queen on that day.

Bees suck nectar through their hollow tongue and use their jaws to construct their nest.

Bees do not defecate in their hives. They make a daily flight outside for this purpose. Workers remove the faeces from the queen and larvae (which defecate only once) from the hive.

A drone hatches from an unfertilised egg.
He has a mother and a grandfather, but no father.

Bees *clustering on the outside of the hive in hot, humid weather. This helps to regulate the internal hive temperature, and is natural.*

Raising new hives

Guidelines

The best time to divide hives is during the swarming season - mid September to end December when the weather is warm and food plentiful.

In choosing the mother hive, look for the following characteristics :

1. ***Temperament - bees stay quietly on frames when being handled.***
2. ***Production - produces brood and honey consistently.***
3. ***Swarming - swarms seldom (once each year at most).***
4. ***Wintering - hive is strong in late August.***
5. ***Size - Queen is large and active, bees large.***
6. ***Colour - true to strain or breed.***

Bees reproduce when one swarm divides into two swarms. Raising new hives uses the natural reproductive activity of the bees. The beekeeper must be familiar with the biology of bees.

Consider the drones. The new queen may mate with up to 8 drones which will influence their progeny in the new hive.

Mating yards must be free of undesirable (and feral) bees.

Dividing Hives

A strong double may be divided into :

1. *A double and a single.*
2. *A double and a nucleus.*
3. *Two singles.*

Leave the queen in one and place half of the brood, including eggs, in the other. Place the hives side by side or move one to another site (6 km away).

Nucleus Hives

Method 1 *- In a 4 frame nucleus put :*

1 brood frame with eggs (covered in bees)
1 brood frame of capped pupae (covered in bees)
1 partly-filled honey frame (covered in bees)
1 frame with foundation only.

The bees will rear a queen which will be laying in 24 days.

Method 2 *- As above, but a queen in a cage is introduced. She will be laying in 4 days.*

Method 3 *- Using a queen cell :*

2 brood frames mostly capped pupae
1 partly filled honey frame
1 foundation.

Add one or more queen cells. If cells are from another hive, the nucleus must be queenless for 24 hours before the cell is added. This method can be used when queen cells are found in a good hive.

Just put a frame containing cells in the nucleus, but leave some queen cells also in the mother hive.

Queen cells

Swarms

Hiving A Swarm

This swarm gathered on the top of a fence post, and proved easily accessible. Not all swarms are as obliging!

Swarms are a good method of increasing your apiary.

Inspect them frequently to check their quality and be prepared to re-queen if necessary.

A swarm leaves the mother hive, settles nearby, searches for a suitable nest then sets off to the new site. So there is no time to lose.

Prepare well :

1. *A hive is needed (nucleus, 8-frame or 10-frame). It must be easy to seal. Always have these ready as the bees won't wait till you assemble them.*
2. *Have protective gear, smoker, secateurs, saw etc.*
3. *Carefully plan how to get the swarm into the hive. Each swarm will present its own challenge.*
4. *Remove enough frames to accommodate the swarm.*
5. ***Get the swarm into the hive!** Replace the frames and coax the bees into the hive.*

The hive may be sealed and removed when most bees are in the hive or left till after dark to pick up.

Remove to a suitable site. Check after 6 days for brood, health, and beetle. Place traps. It should build quickly so have hive components ready to add on.

If inexperienced, use gloves

Building The Hive

In good seasons a new hive will increase rapidly.

Be prepared to transfer to 10 frame boxes and double hives. A nucleus can progress to a double in 8 weeks after the new queen lays.

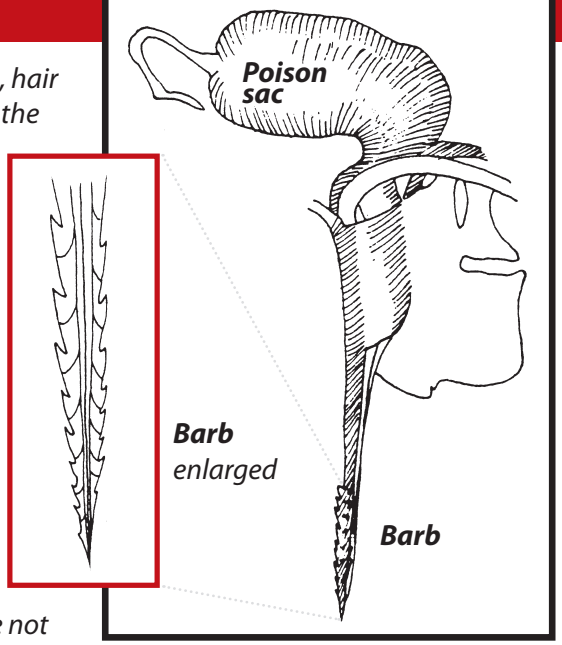
Be aware of the time frame :

Day 1	*Egg laid*
Day 3	*Larva hatches*
Days 3-6	*Queen cells built (with open end)*
Day 8	*Queen cells capped*
Day 8/10	*Open hive and check for queen cells*
Day 16	*Queens emerge*
Days 20-26	*New queen mates*
Day 28	*Eggs laid by new queen*
Day 30/32	*Open hive and check for eggs*
Day 50	*Progeny of new queen will emerge*

There should now be a rapid increase in population and time will tell if it is a good one.

Queen, surrounded by workers

What if a bee stings?



Bees sting to protect their swarm and their nest, or if they are trapped by hands, hair or clothes. When they sting an animal the sting remains in the skin and tears the segment of the abdomen from the bee. The bee dies.

Bees can be irritated by sounds (high-pitched machinery) and smells (strong body odour or scent) near the hive.

A bee sting has three parts:

- *A hollow shaft as sharp as the sharpest steel needle*
- *A sack of toxins mainly formic acid*
- *Barbs on the sides.*

After a bee stings the muscles of the sack continue to squeeze venom into the skin and the barbs work their way deeper into the flesh.

So when a bee stings:

- *Scrape the sting from the skin quickly (scrape, do not squeeze!)*
- *Rub the area with a neutraliser (honey, aloe vera etc.)*
- *If it is the first sting for the person, observe the symptoms to ensure they are not allergic (swelling around the neck or face, nausea). Few people are allergic and these must seek immediate medical attention.*
- *Like all stings, bee stings can be painful and are followed by swelling and then itching as the swelling subsides.*

Beekeepers have great respect for bees and avoid being stung by:

- *Wearing protective light-coloured clothing.*
- *Using smoke sparingly to calm the bees.*
- *Approaching the hive slowly and handling the bees gently.*
- *Paying attention to the weather, time of day and the condition of the hive.*
- *Re-queening hives to maintain bees with gentle temperaments.*
- *Siting bees where they do not create a nuisance.*

Bee venom has been used in natural medicine and needs further investigation to confirm benefits for human health. It certainly stimulates the immune system! We accept bees as an essential part of our natural environment for food and pollination and act with appropriate caution near their hives.

Go to the Mary River Catchment Coordinating Committee (MRCCC) website

www.mrccc.org.au *and go to the "LINKS"*

There you will find a number of informative (and free!) Valley Bees PDF documents. Click to download to your desktop :

*"**VALLEY BEES Flyer**" - all about our Valley Bees Group - 2 page PDF*
*"**ATTRACT BEES**" - planting native trees and bee gardens to attract bees - 30 page PDF*
*"**HEY HONEY**" - yep, you guessed it : all about our favourite sweet sustenance - 20page PDF*
*"**GETTING STARTED In Honeyees**" - Full colour version of this document - PDF -*
*"**GETTING STARTED In Native Bees**" - 2 page PDF*
*"**SAVE the BEES**" - what you can do the help save the bees - 2 page PDF*
*"**SEASONAL management**" - how to adjust your practices to suit each season - 2 page PDF*
*"**BIOLOGY of the HONEYBEE**" - 1 page PDF*
*"**HONEY RECIPE sheet**" - 1 page PDF - Delicious!*
*"**SMALL HIVE BEETLE**" - 2 page PDF*
*"**ASIAN BEE Incursion**" - 1 page PDF*
*"**MYRTLE RUST**" - 2 page PDF*

This document written and compiled by Athol Craig
Photographed and designed by Glenbo

Valley Bees

Contact Valley Bees • Athol Craig on 5482 3637
• glenbo@live.com.au