

GLOSSARY

Abdomen: The lower part of a bee's body containing the heart, honey stomach, intestines, reproductive organs and sting.

ABPV: Acute bee paralysis virus.

Abscond: This occurs when a colony of bees suddenly leaves a hive with few or no bees remaining behind. Absconding should not be confused with swarming; it is often caused by problems such as poor temperature within the hive, mite problems, pests, lack of food, poor ventilation or other intolerable problems.

Acarapis woodi: A small mite that infests the tracheas of the honeybee.

Acid board: A rimmed hive cover containing a pad of absorbent material into which benzaldehyde (almond oil) or butyric anhydride (bee repellents) is poured. Used to remove bees from honey supers prior to taking the frames away for honey extraction.

Acute bee paralysis virus (ABV): A viral infection of the honey bee that causes paralysis of adult bees. Adulterated honey: Any product labeled 'Honey' or 'Pure Honey' that contains ingredients that are not shown on the label should be classed as adulterated honey.

Africanized honey bee (AHB): A term used to describe the South African honey bee *Apis mellifera scutellata* or its hybrids, that are now found in both North and South America. Africanized honey bees are known for their volatile nature. The term 'Africanized honey bee' is used to differentiate the type of bee found in the Americas from African honey bees, which although of the same race are only found in Africa.

After swarm: A swarm that leaves a colony with a virgin queen, shortly after the first (or prime) swarm has departed. The first after swarms is also referred to as a secondary swarm while an after swarm that leaves after the secondary swarm is also called a tertiary swarm.

Alighting board: A small platform at the entrance to the hive allowing bees to land before entering the hive. Usually called a landing strip or landing board.

American Foul Brood (AFB): A lethal infection of honey bees with the bacterium *Paenibacillus* larvae.

Asian bees: Of the 12 currently identified species of honeybees, 11 are only found in Asia and these are called by the generic name Asian Bees. The twelfth type of bee, the European honey bee, *Apis mellifera*, before being transported globally by people, was only found in Africa, Europe and parts of the Middle East and is thus not an Asian bee. Note that Asian honey bee is a generic term for eleven species of honey bees found in Asia, while the term The Asian Honey Bee, AHB, usually applies to the single species *Apis cerana*.

Asian honey bee: *Apis cerana* : One of the twelve species of honey bee found globally. *Apis cerana* can be found across large areas of Asia as well as in parts of Queensland.

Australian hive tool: Commonly called a J-tool, a tool used by beekeepers to open and clean hives and to remove frames. See *also* hive tool.

Automatic uncapper: Automated machine that removes the cappings from honey combs, usually by moving heated knives, metal teeth or flails across the surface of a capped honey frame.

Bacillus thuringiensis: Often abbreviated to Bt, a naturally occurring bacterium used for controlling wax moths. *Bacillus thuringiensis aizawai* is a part of a large group of bacteria that occur naturally in soil. These bacteria are toxic to certain

species of insects and can be used as an insecticide. Once ingested by larvae, Bt bacteria release a toxic protein into the insect digestive system. This protein causes death by attaching to the gut, eventually rupturing it.

Bait hive: An empty hive left to attract swarms of bees. The term sometimes refers to hives that have been left near ports to attract swarms that have reached Australia by ship and have eluded capture by quarantine. A bait hive may use the Nasonov pheromone to attract swarms.

Bee milk: See Royal Jelly.

Bee moth: See Wax Moth.

Bee space: A space between two frames that is big enough to allow two bees to pass each other while working on opposite frames. A bee space is about 9.5mm wide, which is too small to encourage comb building, and too large to induce propolis activities.

Bee suit: A pair of overalls, often white, used by beekeepers to protect them from stings and to keep their clothes clean. Bee suits are designed to cover the beekeeper's body from the ankles, to the wrist and also completely covers the head.

Black bees: See *Apis mellifera mellifera*.

Black comb: Comb that is dark brown or black in colour is caused by brood being raised in the cells.

Blended honey: The term blended honey usually refers to a mixture of a premium honey with a less desired honey. Blending is done in such a way that the taste or aroma of the premium honey is retained while the overall cost of the sold honey is kept low by the addition of the less desired and cheaper honey.

Brace comb: Pieces of seemingly random comb that connect hive parts together, such as between two frames or between an end frame and the wall of a hive. Brace comb is a form of burr comb. See *also* Burr comb.

Breeder flow: A medium flow of honey producing nectar into a hive. A large quantity of nectar coming into the hive is called a honey flow and is highly sought after by honey producers. A lesser flow of nectar is more suitable for queen breeders since the hive does not honey bound and gives the workers more time to raise brood.

Brood: A general term to describe young bees that have not yet emerged from their cells as adults. Brood can be workers, drones or queens. The four stages of brood are egg, larva, pre-pupa and pupa.

Brood chamber: The area of the hive where the queen lays eggs and brood are reared; usually the lowermost parts of the hive.

Brood comb: Wax comb from the brood chamber of a hive. Brood comb turns dark brown or black after a few years use rearing brood.

Buckfast hybrid: A productive bee suitable for damp and cold conditions developed by Brother Adam at Buckfast Abbey in England during the years 1926 to 1990. Bred for disease resistance, disinclination to swarm, hardiness, comb building and good temperament.

Build up: The natural increase of the bee population within a colony that coincides with the start of the main nectar flow during early spring.

Burr comb: Burr comb is also the name given to the random comb built inside the lid of a hive. See *also* Brace comb.

Candy plug: A fondant-type candy usually made of icing sugar and honey placed in one end of a queen cage to delay her release. The candy temporarily blocks the exit from a queen cage until the queen and other workers eat the candy allowing her to escape from the cage. Not to be confused with candy or candied honey.

Capped brood: Brood in the pre-pupal or pupal stage inside a capped cell. Immature bees whose cells have been capped with a brown wax cover by other worker bees; inside the sealed cell, the non-feeding larvae are isolated and can spin cocoons prior to pupating.

Capped honey: Cells full of ripe or mature honey, sealed or capped with beeswax.

Capped larva: The stage of brood development when the larvae turns into pre-pupae and is ready to have its cell capped and to spin its silk cocoon, about the tenth day from the laying of the egg.

Capping melter: Melter is used to liquefy the wax from cappings as they are removed from honey combs. A capping melter may be heated by steam, electricity or by solar energy. A solar capping melter is the most common type of melter used by hobbyists.

Capping scratcher: A fork-like device used to remove the wax cappings covering honey so that the honey can be extracted. Also referred to as a scratcher.

Castes: The three types of bees that comprise the adult population of a honey bee colony: the queen, workers and drones.

Caucasian bees: A black race of honey bees native to the Central Caucasus. This is a gentle race that tends to propolise excessively.

Cell cup: The base of an artificial queen cell made of beeswax or plastic and used for rearing queen bees.

Chalk brood: A fungal infection of the brood. Infected larvae eventually die and turn into hard, chalky white 'mummies'.

Chromosomes: The structures in a cell that carry the genes, the hereditary information of bees.

Chronic paralysis virus: Sometimes called chronic bee paralysis virus, this is a disease mainly of adult bees.

Clay pots: In underdeveloped countries hives are often made of clay pots shaped like an urn or a pipe.

Clearer board: A board used to clear bees from a super prior to removing the frames ready for extraction.

Cleat: Handles attached to a super or brood box to allow for easier handling by the beekeeper. See *also* Base cleat.

Clipped queen: Queen whose wing (or wings) has been clipped to stop her from swarming.

Cloake board: A Cloake board is used by queen breeders to facilitate raising queen bees. Invented by Harry Cloake, the cloake board consists of a queen excluder mounted in a wooden frame mounted between a brood box and a super. The wooden frame contains a slot which allows a 'temporary' floor to be inserted blocking off the movement of bees between the two boxes.

Cluster: A large group of bees hanging together, one upon another, often as a result of swarming before they locate a new home. A group of bees inside the hive during winter that huddle together to keep warm.

Colony: A collection or family of bees living within a single social unit containing workers, drones and a queen.

Colony Collapse Disorder: Usually called CCD, a malady of European honeybees in which worker bees from a beehive or honeybee colony abruptly disappear.

Comb: The wax portion of a colony, including cells, in which eggs are laid, and honey and pollen are stored. See *also* Honeycomb.

Comb foundation: A thin sheet of beeswax with the base pattern of cells impressed on the sheet as a template for the bees to start making comb. Some foundation is also made of plastic. See *also* Foundation.

Comb honey: Honey sold and eaten in the comb. Honey that is sold without first removing it from the comb.

Chronic Paralysis Virus: One of several different viruses that can cause paralysis in adult honey bees.

Creamed honey: Honey that has had fine grains of sugar added so that the honey crystallises out. An edible variety of honey.

Cutting down: An unhatched queen cell that has been attacked and the queen pupa killed by an earlier hatching queen.

Dance language: A simple communication used by bees to provide location information for nectar, pollen, water or possible new home sites for swarms.

Dark bees: See German bees.

Deformed Wing Virus (DWV): A virus of the honeybee, often associated with a *Varroa* infestation, that causes newly emerged bees to have deformed wings and bodies.

Disease resistance: The ability of an organism to avoid a particular disease; primarily due to genetic immunity or avoidance behaviour.

Divider board: Also called a division board. A board placed between two brood boxes used to split an established hive into two separate hives.

Drawn comb: Wax foundation with the cell walls drawn out by the bees, completing the comb.

Drift: The process in which bees join a different hive from their own, often due to loss of direction or when hives are placed too close together.

Drone comb: Comb with about four cells to the inch and in which drones are reared.

Drone Congregation Area (DCA): Often abbreviated to DCA. An area where many drones from surrounding colonies gather to mate with queens during their mating flights. The location of drone congregation areas remain stable over many years.

Dysentery: An abnormal condition of adult bees characterised by severe diarrhoea and usually caused by starvation, low-quality food, moist surroundings, or *Nosema apis* infection. See *also* *Nosema apis*.

Eclosion: The emergence of an adult insect from a pupal case or an insect larva from an egg

Emergency queen cell: A queen cell in the middle of a brood frame that has been made quickly as a result of the queen bee dying suddenly.

Endemic: An animal, plant, insect or disease that is native to a certain area.

Endophallus: the penis-like organ of a honey bee.

Entrance gate: A gate or closure located at the entrance to a hive or nucleus to stop bees leaving the hive during shipping.

Entrance reducer: A device used to regulate the size of the bottom entrance. May be used to close down the hive entrance during winter months.

Escape board: A board having one or more one-way bee escapes in it. Used to empty a super of bees.

Escorts or escort bees: Worker bees that are placed in a cage with a queen for shipping. Usually about four or five escort bees are included with the queen.

European Foul Brood (EFB): An infectious brood disease of honey bee brood caused by the bacterium *Streptococcus pluton*.

Extraction: Removal of honey from comb. Typically refers to the use of an extractor but also includes non-mechanical methods such as crush and strain.

Failing queen: A queen that has reached the end of her fertile age and is not producing sufficient brood for the colony to survive. The colony is now ready for the supersedure of the queen.

Feral bees: Bees that are not kept in hives by beekeepers.

Feral hive: A term used to describe a colony of bees not managed by a beekeeper, sometimes called a nest of bees.

Fertile queen: A queen, inseminated instrumentally or mated with a drone, which can lay fertilised eggs.

Foul Brood: A generic term for Foul Brood disease. See *also* American Foul Brood and European Foul Brood.)

Garden honey: A high quality honey that is obtained by hobby beekeepers by allowing their bees to forage on a wide variety of plants and trees within their neighbourhood.

German bees: A race of the European honeybee, *Apis mellifera mellifera*, that is dark or black in colour and originates mainly from northern Europe, the United Kingdom and Scandinavia.

Grafting tool: A needle or probe used for transferring larvae when grafting queen cells.

Granular: Particles of solid sugar, usually glucose, found in honey.

Granulation: The process by which the sugar in honey crystallises out and becomes solid. The speed of granulation depends of the kinds of sugars in the honey, typically, the less soluble glucose will crystallise out while fructose will not crystallise out.

Granulated honey: See Crystallised honey.

Grill: A perforated piece of metal used to cover the air vent in the lid of a hive to stop robber bees or wasps entering.

Guard bees: See Guarding.

Guarding: Bees stationed at the entrance of a hive to detect and ward off invaders and to examine entering bees. Guard bees are typically about 3 weeks old.

Haplodiploidy: a [sex-determination system](#) in which males develop from unfertilized eggs and are [haploid](#), and females develop from fertilized eggs and are [diploid](#). Honey bee drones are haploid while workers are diploid.

Hemolymph: The fluid in the circulatory system of bees and can loosely be likened to blood.

Heterosis: The situation in which the traits of a bee are enhanced as a result of mixing the genetic contribution of its parents. Often called hybrid vigour.

Hive stand: A device that raises the bottom board off the ground and helps extend the life of the bottom board by keeping it dry.

Hive tool: A metal tool used to pry apart supers or frames and also for removing frames. Hive tools have a flat blade at one end to scrape wax of surfaces. Also called J-tools, Australian hive tools and American hive tools.

Honey bee race: Honey bee race is a classifications of honey bees, in particular the European honeybee, *Apis mellifera*, into different types. The most common races of *Apis mellifera* found in Australia are Italian bees, Caucasian Bees, Carniolan Bees, and dark German bees.

Honey bound: A brood nest that is congested by cells/comb filled with honey, reducing the amount of space that the queen has to lay eggs.

Honey colour: Grades of honey colour measured using a Pfund honey grader; honey colours are classified from water-white to white, to amber to dark amber in seven steps.

Honey extractor: A machine that removes honey from frames by centrifugal force. See radial extractor and tangential extractor.

Honey flow: A time, usually in the spring and summer, when there are sufficient nectar-bearing plants blooming so that bees can store a surplus of honey..

Honey gate: A gate or large diameter tap attached to a honey tank and used for removing honey from the tank or other storage device.

Honey house: See Extracting shed.

Honey plants: Plants whose flowers yields sufficient nectar to produce a surplus of honey; examples are asters, basswood, citrus, eucalyptus, goldenrod and tupelo.

Honey pump: A pump used to transfer liquid honey, usually from the extractor to storage tanks.

Honey sac: See Crop.

Honey stomach: See Crop.

Honey sump: A clarifying tank between the extractor and honey pump used to remove the coarser particles of comb introduced during extraction.

Honey supers: The hive bodies or boxes, usually above the brood box, used by the workers to store honey.

Honey bee: The common name for *Apis mellifera*, the European honey bee.

Honey-B-Healthy: A commercially made essential oil additive to honey bee feed to control *Varroa* mites, tracheal mites and to reverse the parasitic mite syndrome (PMS) seen in colonies infested with *Varroa* mites.

Honeycomb: Comb built by honey bees with a hexagonal shape that is used to store honey

Honeydew: The sweet secretion from aphids and scale insects. Since honeydew contains almost 90 per cent sugar, it is collected by bees and stored as honeydew honey.

Hoop pine: A high quality pine wood native to New South Wales and Queensland and used to make supers and other hive parts.

Hopelessly queenless: A colony of bees that has been without a queen for several weeks and, as a result, is unable to make a new queen from young larvae.

Hornet: A family of insects closely related, and very similar in appearance, to a wasp.

Hot dip: See Wax dipped.

Hot room: An insulated portion of a warehouse with radiant or forced air heating that can produce temperatures up to 38°celsius.

Hot waxed: See Wax dipped.

Hybrid: Offspring from two unrelated lines of bees.

Hybrid bees: hybrid honey bee that are the result of mating between two races of honey bees to produce a bee that consists of a mixture of the genetic traits of both parents.

Hybrid vigour: See Heterosis.

Hydrogen peroxide: Hydrogen peroxide is found in all honeys and provides most of the antibacterial properties of honey. See *also* Unique Manuka Factor.

Hydroxymethyl furfuraldehyde: A chemical formed during the breakdown of honey and causes honey to darken in colour. Can also be produced by heating honey or adulterating it with invert sugar.

Hygroscopic: The tendency to absorb and retain moisture. Honey is hygroscopic.

Hymenoptera: The biological classification to which all bees ants, wasps, termites and some parasitic insects belong.

Hypersensitive: A condition in which a person's reactions to bee venom may be life threatening.

Hypopharyngeal gland: a gland in the head of worker honey bees that is used to produce royal jelly for feeding to larvae.

Hypopharynx: an appendage or thickened fold on the floor of the mouth of a honey bee that resembles a tongue.

Ideal: A size of super or brood box or super with a depth of 144 millimetres.

Idiopathic Brood Disease Syndrome (IBDS): Also called snotty brood syndrome. IBDS can cause colony death even though there is a low *varroa* mite infestation. Idiopathic means that the cause is not known.

Imago: The final developmental stage of capped brood before it has emerged from the capped brood cell.

Imperfect: An imperfect worker or drone that is not fully formed.

Impregnating: *See* Artificial insemination.

Inbred/inbreeding: Mating among related individuals that may cause genetic deformities in the bee.

Increase: To add to the number of hives, usually by dividing the hives on hand. *See also* Split.

Infertile: A bee that is unable to produce a fertilised egg, typically applied to laying worker.

Inhibine: Antibacterial effect of honey caused mainly by an accumulation of hydrogen peroxide, a naturally occurring constituent of honey.

Injections, desensitising: A series of injections given to persons with allergies (such as bee venom) so they might build up an immunity.

Inner cover and inner mat: *See* Hive mat.

Insecticide: Any chemical that is used to kill insects.

Instrumental insemination (II): The manual process of depositing semen into the oviducts of a queen by the use of special instruments.

Integrated hive management: Usually abbreviated to IHM. Another name for integrated pest management since IPM may be used in industries quite distinct from beekeeping.

Integrated pest management (IPM): A pest control method that uses a variety of complementary strategies including genetic, biological, cultural management, chemical management, as well as mechanical and physical devices such as screened bottom boards. IPM techniques are typically performed in three stages: prevention, observation, and intervention. It is an ecologically-friendly approach with the goal of significantly reducing or eliminating the use of pesticides while at the same time managing pest populations at an acceptable level.

Interlocking: A design of wooden hive in which the corners of the boxes interlock with each other.

Introducing: The process of introducing a new queen into an existing hive.

Introducing cage: A small wood, wire or plastic cage used to ship queens and also sometimes to release them into the colony. *See also* queen cage.

Invertase: An enzyme produced by bees that speeds the conversion of sucrose to glucose and fructose.

Inverted sugar/Invert sugar: A mixture of glucose and fructose, obtained by splitting sucrose into its two components.

Ironbark: A hardwood from the Ironbark family of trees. Ironbark wood is often used as cleats under bases since the wood is durable, weather resistant, and resistant to borer attack.

Irradiate: To irradiate a hive with gamma radiation to kill American Foul Brood or other diseases. There are very few places across Australia that will do this. On the East Coast there is one in each of Melbourne, Sydney and Brisbane.

Isle of Wight Disease: *Acarapis woodi*, a small mite that causes tracheal infestations of the honeybee, is believed to be the cause of the severe decline in the honeybee population on the Isle of Wight, off the south coast of England, in 1904.

Israeli Acute Paralysis Virus (IAPV): First identified in Israel but now infecting honey bees in many parts of the world, one of several viruses that causes paralysis of adult honey bees.

Italian bee: A common race of bees, *Apis mellifera ligustica*, which originated in Italy. Italian bees have brown and yellow bands; usually gentle and productive, but tend to rob other hives. Italian bees are the most well known type of honey bee amongst hobby and commercial beekeepers

J-Tool: See Hive tool.

Jumbo hive: A hive that is 2-1/2 inches (about 6.4 centimetres) deeper than standard Langstroth hive.

Juvenile hormone (JH): A hormone found in juvenile bees that have recently emerged from cells and delays their transition to older worker bees. Older worker bees have less juvenile hormone in their body and this enables them to participate in activities associated with older bees such as guarding the colony or foraging.

Kashmir Bee Virus (KBV): Initially a naturally occurring virus infecting *Apis cerana*, Kashmir Bee Virus jumped species to infect *Apis mellifera* and is now a common infection of this bee.

Kenyan Top Bar Hive (KTBH): A design of hive used by natural beekeepers that has vertical sides, unlike the Kenyan Top Bar Hive that has sloping sides.

Killer bees: See Africanized Bee

Lancet: The stinging part of a bee. The barb that is used by the bee to puncture the skin and inject poison.

Landing board: See alighting board.

Langstroth hive: The modern hive used in Australia is frequently termed the Langstroth hive and is a simplified version of a similar hive designed by L. L. Langstroth, a minister born in Philadelphia, USA (1810–1895), who recognised the importance of bee space. The main innovation introduced with this type of hive is the use of removable frames to store honey so that the hive need not be destroyed when extracting honey.

Larva: The second stage of development in the life cycle of the bee. The three stages are egg, larva and pupa. The larva stage is often called a grub.

Larvae The plural of larva.

Latex gloves: Latex is a natural rubber or synthetic compound that has been emulsified in water. Many people are allergic to latex if it touches their skin. Latex gloves are not as sting resistant as Nylex gloves.

Laying queen: A queen that is healthy and laying a large number eggs.

Laying worker: See Drone layer.

Leg basket: See Pollen basket.

Lemongrass oil: An extract of the *Cymbopogon citratus* plant that is used to attract swarms of bees to an empty hive. Lemongrass oil is one of the ingredients of Nasonov pheromone that honey bees produce and use to mark their nests.

Lesser Wax Moth (LWM): The smaller of two related species of wax moth that infest hives. The scientific name for the Lesser Wax Moth is *Achroia grisella*. See also *Greater Wax Moth (GWM)*.

Levulose: Non-crystallising sugar found in honey which darkens quickly if the honey is overheated. A form of fructose, levulose is much sweeter than glucose and is used as an alternative to sucrose, which is more expensive.

Lid: The top part of a hive used to protect the hive from heat and poor weather. The lid is usually capped with metal for additional durability.

Lifting cleat: A wooden cleat attached to the side of supers and brood boxes to make them easier to lift.

Line: A family or set of descendants bred from the same queen.

Line breeding: Mating of selected members of successive generations among themselves in order to maintain or improve desirable characteristics in bees.

Liquid smoke: A liquid smelling strongly of smoke that can be used to calm bees on total fire ban days. Liquid smoke is typically edible and is also used to add the smoky flavour to beef jerky.

Mailing cage: See Queen cage.

Mallee: The Mallee is the most north-westerly district in the state of Victoria. The term also refers to the growth habit of certain eucalypt species that grow with multiple stems usually to a height of no more than 10 metres.

Malnourished hive: A colony of bees that has insufficient food to rear brood.

Mandibles: The jaws of an insect. Mandibles of bees move from side to side, not up and down like human jaws.

Mandibular pheromones: A pheromone produced in the mandibles of worker bees.

Manipulations: The process by which frames in a hive are moved or replaced.

Manley: A size of super or brood box or super with a depth of 169 millimetres, named after Robert Manley (1888 to 1978) an English beekeeper and manufacturer of bee equipment.

Manuka tree: A type of tea tree, *Leptospermum scoparium*. The manuka or 'tea tree' is a small tree or shrub found in New Zealand. The manuka plant is related to the Australian 'tea tree' (*melaleuca*) and both have many medicinal uses.

Marked queen: A queen bee that has been marked with a spot of paint or had a disk attached to her upper thorax so that she can be more easily identified by the apiarist.

Masonite: A type of hardboard made of steam-cooked and pressure-moulded wood fibres. Masonite is frequently used inside hive lids but, unlike Weathertex, it is not waterproof.

Mated queen: A queen that has gone on a mating flight or has been artificially inseminated with drone sperm.

Maternal: From the mother's side of the family.

Mating flight: A short flight taken by a virgin queen during which she mates in the air with several drones from other colonies. Queens usually mate with 10 to 20 drones on one or more mating flights.

Mating sign: When a virgin queen returns from her mating flight she will still have attached to her vagina the sexual organ of the last drone she mated with. This is called the mating sign and is removed by workers when the queen returns to the hive.

Mead: A wine made from honey. If spices or herbs are added the wine usually is termed metheglin

Meltdown: A situation during hot summer days when the hive overheats, the wax comb melts and bees die inside and outside the hive.

Metamorphosis: The complete growth phase of a honeybee from egg to adult. Metamorphosis also applies to other insects, frogs, toads, fish and newts.

Methylglyoxal (MGO): The scientific name for the chemical that provides Unique Manuka Factor. See *also* Unique Manuka Factor.

Microcrystalline wax: Microcrystalline waxes are produced as part of the petroleum manufacturing process. Often mixed with beeswax when making candles or when hot wax dipping hives.

Micro-encapsulated: Micro-encapsulation is a process by which tiny particles of pesticide are surrounded by an outer coating to give the small capsules alternative properties. Micro-encapsulated insecticides can be mistaken by bees for pollen and taken back to the hive causing the death of larvae and adult bees.

Midnight hybrid: A cross of the Caucasian and Carniolan races caused by interbreeding these two races.

Migratory beekeeping: The practice of professional beekeepers and some hobby beekeepers to regularly move their hives to follow the flowering pattern of different types of trees.

Migratory lid: The lid of a hive that has the same outside dimensions as the super. Called a migratory lid since it is of a convenient size to allow beekeepers to transport their hives on the back of trucks. A lid that does not extend over the sides of the hive.

Miller cage: New queens can be introduced into a colony using Miller cages. Miller cages are constructed from wire and wood with a small entrance which is filled with queen candy. They are reusable and fit easily between frames.

Mite: See *Acarapis woodi*, *Varroa jacobsoni*, *Varroa destructor* and *tropilaelaps*.

Miticide: A chemical or biological agent which is applied to a colony to control parasitic mites.

Mitochondrial DNA: The DNA passed on from mother to offspring. Fathers do not pass this type of DNA on to his offspring, only mothers.

Modified Dadant (MD): A 290 millimetres (11.5 inch) deep brood box used instead of the standard 254 millimetres (10 inch) deep Langstrath brood box. The larger size of the modified Dadant enables the use of only one brood box during the spring build up instead of two standard size Langstrath brood boxes.

Moisture content: In honey, the percentage of water should be no more than about 18 per cent; any percentage higher than this may allow the honey to ferment.

Monoecious: Flowers that contain both male and female reproductive parts..

Moult: The process by which brood shed their skin in order to grow and develop into adult bees.
Moveable frames: Moveable frames can be easily removed from a hive when the beekeeper needs to extract honey, check the queen or brood, or otherwise manage the hive. A frame constructed in such a way that it preserves the bee space between adjacent frames.

Moveable frame hive: A hive that contains moveable frames.

Moving board: A framed screen that fits over the top of a hive and used to move bees in hot weather. A moving board replaces the lid and provides sufficient ventilation to keep bees from suffocating.

Mummies: The bodies of dead larvae infected with chalkbrood.

Mutation: A term used to describe both a sudden change in the genetic makeup of an organism and the changed form itself as it continues to survive.

Nadir: Nadir means 'the lowest point'. The term nadir is used with Warré hives and means to add a super at the bottom of the hive.

Nadiring: To insert a new brood box at the bottom of a Warré hive.

Nailing box: See frame assembly box.

Nasonov pheromone: The pheromone produced by the Nasonov gland located near the stinger on the abdomen of a worker bee.

Native bees: Bees that are native to Australia, for example, stingless bees. The European honey bee is not a native bee as it was introduced to Australia by Europeans in 1822.

Native pollinators: Apart from native bees, other animals may also be native pollinators such as birds or other insects.

Natural beekeeping: A philosophy of keeping bees that puts the welfare of the colony ahead of the amount of honey collected during a season.

Natural honey: Pure honey that has not been heated or finely filtered during processing prior to bottling.

Nectar: A liquid rich in sugars, made by plants and secreted by nectary glands in or near flowers; the raw material for honey. Nectar provides the carbohydrates needed by bees to keep warm and to provide energy to fly.

Nectaries: Special cells on plants which produce nectar.

Nectar flow: The time of year when a tree or shrub produces a lot of nectar for bees to collect. The nectar flow of a particular tree often only lasts a few weeks, so professional beekeepers need know what trees are flowering where and when and move their hives around by truck to follow the flowering trees.

Nectar glands: Special nectar secreting glands usually found in flowers, whose function is to attract pollinating insects, such as honey bees for the purpose of cross pollination, by offering a carbohydrate-rich food.

Nectar guides: Colour marks on flowers believed to direct insects to nectar sources.

Neonicotinoides: A class of insecticides chemically related to nicotine.

Nest: A feral colony of bees that is not being managed by a beekeeper.

Newspaper method: A technique to join together two unrelated colonies by providing a temporary newspaper barrier between the two colonies. The bees will eat their way through the newspaper over a few days and the two colonies should merge together without fighting.

Nitrile: A type of plastic used to make gloves and fine netting to filter honey. Nitrile gloves are commonly used to provide strength, high dexterity and sensitivity to the fingers when handling queens.

Nosema: A disease caused by a protozoan spore-forming parasites living in the gut of adult bees. The two type of nosema that infect adult bees are *Nosema apis* and *Nosema cerana*.

Nosemosis: To be infected with *Nosema*.

Nucleus hive (Nuc or Nuke): A colony of bees housed within a small brood box usually containing only four or five frames. Nucleus hives are often used to rear queens or to house swarms.

Nuptial flight: See Mating flight.

Nurse bees: Young bees, three to ten days old, which feed and take care of developing brood.

Obligate parasites: An obligate parasite is a parasitic organism that cannot live independently of its host, for example, Varroa.

Observation hive: A hive with walls made largely of glass or clear plastic to allow the observation of bees at work. Often used as a teaching aid during courses.

Ocelli: The three simple eye of a bees located above the two main eyes. The singular term is ocellus.

Oligophagous: The ability to feed on only a small number of types of plants.

Ontogeny: The development of an individual bee from first being laid as an egg to emerging as an adult.

Oregon pine: Also known as Douglas fir or Douglas spruce. Oregon pine is native to Western North America. Oregon pine is a good quality wood used in the manufacture of hive parts.

Organic honey: Honey that has been made from nectar from flowers grown in organically certified regions.

Orientation flights: Short orienting flights taken by young bees, usually by large numbers at the same time and during warm part of day, in order for them to learn to fly and to familiarise themselves with their surroundings.

OSB: One size box. A configuration of brood box and super championed by the Rose method of honey bee management.

Osmotic pressure: In relation to honey, it is the ability to absorb water from the air or from other microscopic organisms.

Out apiary or Out Yard: Generally, an out yard is an apiary kept at some distance from the home or main apiary of a beekeeper; usually over kilometre away from the home yard.

Outer cover: The lid that fits over a hive to protect it from rain; the two most common kinds are telescopic and migratory lids.

Ovary: The egg producing part of a plant or animal.

Over wintering: The survival of a colony over winter.

Overcrowding: A hive that has too many bees living in it for its size.

Oversuperring: Adding more supers than can be managed by the bees to store honey. This practice can lead to infestation by small hive beetles or wax moth.

Ovipositor: The egg laying part of the queen that is used to deposit eggs in cells. The ovipositor in a queen has the same origin as a stinger in a worker.

Ovule: An immature female germ cell which develops into a seed or egg.

Oxytetracycline (OTC): An antibiotic sold under the trade name Terramycin. Oxytetracycline is used to control American and European Foul Brood diseases.

Package bees or Package: A quantity of bees (1 to 3 kilograms), with or without a queen shipped in a wire and wood cage to start or boost a colony. Package bees are common in North America but are not usually available in Australia.

Paradichlorobenzene (PDB): A white crystalline substance whose vapours are heavier than air and are used to fumigate wax moths in stored hive bodies.

Parasitic mite syndrome (PMS): Signs of poor health in a colony of bees that has been infested with varroa.

Parent colony: The home colony from which swarms or splits originated.

Parthenogenesis: The development of young drone bees from unfertilised eggs laid by females. In honeybees, such eggs can be laid by queens or by laying drones and can only develop into drones.

Pattie: *See* Pollen cake.

Peppermint oil: Peppermint oil is extracted from *Mentha piperita* of the Labiatae family. Peppermint oil, together with other naturally occurring oils such as spearmint and thymol, are believed to be beneficial to honey bee health if fed to them in small quantities.

Permethrin: A chemical used to kill insects and mites. Although permethrin can be used to manage small hive beetle, it should be used with care since it can kill bees. Permethrin solution can be used to drench the ground around and under the hive to kill small hive beetle larvae from pupating in the ground.

Pest: A term used by pesticide experts to loosely classify unwanted insects that need to be killed. See also beneficials.

Pesticide toxicity in bees: The amount of a specific pesticide that is toxic to bees. Usually expressed as the amount of pesticide that will kill half of the bees in a colony.

Pfund honey grader: an instrument used to determine the colour of honey. Often used to judge the colour of honey that has been entered into a competition.

Phoretic: A symbiotic relationship in which one organism transports another organism of a different species. For example, Tracheal mite has a temporary phoretic relationship with adult bees after it has emerged from the trachea and is looking for a new host to live in.

Pheromone: Several kinds of scents produced by bees to establish a basic form of communication or to stimulate a response.

Phosphine: A highly poisonous gas used to disinfect hives. See *also* Aluminium phosphide. Although pure phosphine is odourless, commercial grade phosphine may smell of garlic or rotten eggs due to impurities in the gas.

Piping: A series of sounds made by a queen, usually before she emerges from her cell.

Pistil: The reproductive part of a flower, comprising the stigma, style, and the ovary of a flower.

Plantation pine: The most readily available plantation timbers in Australia are softwoods such as Hoop Pine, Radiata Pine and Slash Pine, the two latter being introduced species.

Plastic foundation: Foundation placed inside a frame made entirely of plastic, used as an alternative to wax foundation. See *also* plastic frames.

Plastic frames: Frames that are constructed entirely of plastic, including the outer rim.

Plastic cored foundation: See plastic foundation.

Play flights: Short flights taken in front and in the vicinity of the hive by young bees to acquaint themselves with the location of the hive. Play flights are sometimes mistaken for robbing or preparation for swarming. See orientation flights.

Plumose: branched hairs found on the thorax of honey bees and used to capture pollen.

Poison sac: Large oval sac containing venom and attached to the stinger; used to store venom produced by the poison gland.

Pollen: The male reproductive cells of flowers. Pollen provides the protein in a young bee's diet and is frequently called bee bread when stored in cells in the colony. Pollen is an essential component of a broods' food. Honey is another essential component and provides the carbohydrate part of the bee's diet.

Pollen basket: The area on the hind leg of bee adapted to carrying pellets of pollen or propolis back to the colony.

Pollen cake or pattie: A soft cake of sugar, water, and pollen or pollen substitute used as a substitute for pollen obtained by foraging bees.

Pollen mite: Pollen mites (*Mellitiphis alvearius*) are light brown and are around 0.75 mm long and 0.75 mm wide. Pollen mites are not harmful to honey bees but are sometimes found in hives where they are often mistaken for *varroa* or *tropilaelaps* mites.

Pollen substitute: A food material which is used as a substitute for naturally occurring pollen. Pollen substitute usually contains soy flour, brewers' yeast, powdered sugar, or other ingredients. Pollen substitute is used to stimulate brood rearing in periods of pollen shortage.

Pollen trap: Device which forces the bees entering a hive to walk through a meshed screen, the pollen is brushed off the bees legs by the screen and is collected every evening from a collecting tray.

Pollen tube: Used in the reproductive process of flowers. A slender thread-like growth, containing sperm cells, which penetrates the female tissue (stigma) of a flower until it eventually reaches the ovary; there the sperm cells unite with the ovule.

Pollination: The transfer of pollen from the anthers of a flower to the stigma of that or another flower of the same type.

Pollinator: The agent that transfers pollen from an anther to a stigma: bees, flies, beetles, etc.

Pollinator decline: The loss of bees and other pollinators due to insecticide use and loss of natural habitat is an environmental issue.

Polyandorous: A form of polygamy where the female takes more than one mate, this would include the honey bee queen. The term for a male taking more than one mate is polygyny.

Polyphagous: The ability to feed on a wide range of plants.

Polystyrene: An inexpensive plastic widely used in the manufacture of plastic beehives and frames.

Porter bee escape: First introduced in 1891, the escape is a device that allows the bees a one-way exit between two thin and pliable metal bars that yield to the bees' push; used to free honey supers of bees but may clog since drone bees often get stuck.

Prime swarm: The first swarm to leave the parent colony, usually with the old queen. See also secondary swarm.

Proboscis: The mouth parts of bee, similar to a sucking tube or tongue, used for sucking up nectar, honey or water.

Processed honey: Honey that has been finely filtered to remove impurities and heated to minimise granulation before sale to the public.

Progeny: The offspring of a queen.

Propolis: A sticky resinous material collected from trees or other plants by bees; used to close holes and cover surfaces in the hive. Often referred to as bee glue. Propolis also has antimicrobial properties and is used by bees for this purpose.

Propolise: To fill with propolis, or bee glue; used by bees to strengthen the comb and seal cracks.

Protein: Naturally occurring complex organic substances, such as pollen, and composed of amino acids. An essential food for brood to build body tissue before emerging as adult bees.

Protonymph: A stage in the development of a mite, such as varroa, between a larva and an adult. The bloodsucking stage in the life cycle of some mites.

Pupa: The final stage in the life of a developing baby bee after larva and before maturity. Pupa are only found inside sealed brood comb.

Pupae: The plural of pupa.

Pupate: The process by which brood changes from larva to pre-pupae or pupae.

Queen: Sexually developed female bee. The mother of all bees in the colony. A queen is recognised by other bees in the colony by her unique pheromones.

Queen bee: An egg laying bee capable of producing workers, drones, and queens.

Queen cage: A small cage in which queens are shipped and/or introduced into a colony, usually with five or six young workers called attendants. The entrance to the cage is blocked with a candy plug which the bees eat out over a number of days allowing the queen to leave the cage and join the colony.

Queen cage candy: Candy made by mixing powdered icing sugar with honey or sugar syrup until it forms a stiff dough; used as food in queen cages and to temporarily block the entrance of a queen cage so that the queen is unable to escape.

Queen cell: The cell in which queen develops. Queen cells are much larger than normal cells, are shaped like peanut shells, and are usually found hanging vertically at the bottom of a frame.

Queen clipping: Removing a portion of one or both front wings of a queen to prevent her from flying and the colony from swarming.

Queen cup: A cup-shaped cell hanging vertically from the comb, but containing no egg; may be made artificially of wax or plastic to raise queens. The beginnings of a queen cell in which the queen may lay a fertile egg to start the rearing of another queen.

Queen excluder: A screen made of metal, wood or plastic having openings of 4.2 millimetres, which permits workers to pass but blocks queens and sometimes drones; used to confine the queen to a specific part of the hive, usually the brood nest.

Queen mandibular pheromone: A pheromone produced by queens that attracts a retinue of attendants, is used as a sex attractant during mating, and inhibits swarm queen cell construction.

Queen marker: A pen or label used to mark a queen's back so that she can more easily be found and sometimes to record the year in which she was raised.

Queen substance: Pheromone material secreted from glands in the queen bee and transmitted throughout the colony by workers. Queen substance makes the workers aware of the presence of a queen. Lack of queen substance may cause the workers to rear emergency queens.

Queenless colony: A colony that does not have a queen.

Queenright: A colony of bees that contains a laying queen.

Rabbit: A narrow piece of folded metal fastened to the inside upper end of the hive body from which the frames are suspended.

Race of bees: There are believed to be 12 races of honeybees across the world, the four most common being *Apis mellifera* (the common European honeybee), *Apis cerana* (the Asian bee currently located around Cairns), *Apis dorsata* (the giant Asian bee) and *Apis florea* (a very small honey bee located in parts of Asia).

Radial extractor: An extractor in which the frames are placed like the spokes of a wheel. See *also* Tangential extractor.

Radiata pine: Radiata pine is the most commonly planted and cultivated pine. It is valued on plantations for its fast growth and utility as a source of construction lumber. Radiata pine is soft and is not resistant to rot but can be treated with preservatives.

Raw honey: See Natural honey.

Rebated box or super: A hive box that has grooves at the ends to join the box sides together. See *also* Dovetailed box.

Refractometer: An optical device for measuring the water content of honey.

Regurgitation: The transfer of honey or nectar from the honey stomach out through the mouth. See *also* Trophallaxis.

Rendering wax: Melting old combs and wax cappings and removing refuse to partially refine the beeswax.

Requeen: To introduce a new queen to a queenless hive. Usually to replace an old queen with a young one.

Residual toxicity (RT): the long term effects of pesticides or other chemicals used in agriculture. **Resmethrin:** A synthetic pyrethroid insecticide used to kill diseased honey bee colonies.

Reversing: The process of changing the order of different hive boxes in the same colony; usually for the purpose of nest expansion, a brood box full of brood together with the queen is placed below an empty brood box to allow the queen extra laying space.

Ripe: Honey that has processed by the worker bees and contain the required amount of water, usually about 17 per cent water. Honey that is ready for extraction.

Ripen: The process of making honey ripe.

Riser: The raised rim around the base of a hive that the brood box sits on.

Robber bees: Bees that are robbing other colonies of their honey.

Robbing: Bees that are stealing honey from other hives. This is a common problem particularly in autumn when nectar is not available in the field. The term also applies to bees that are cleaning out supers or cappings left uncovered by beekeepers.

Rocking: *See Washboarding.*

Rolling bees: *See Washboarding.*

Roping or ropy characteristic: Having the characteristic of sticky elasticity and stringing out when stirred and stretched. This is also a diagnostic test for American Foul Brood and sometimes European Foul Brood in which the decayed larvae form an elastic rope when drawn out with a matchstick.

Round sections: Sections of comb honey in plastic round rings instead of square boxes.

Roundup ready (RR): Roundup-resistant crops introduced by Monsanto enabling farmers to kill weeds without killing their crops.

Royal jelly: Bee milk and worker jelly all refer to royal jelly, which is a pearly white, creamy substance produced by young worker bees to feed larvae. Royal jelly is a secretion of the hypopharyngeal glands located in the head of young worker honeybees.

Russian stock: A race of *Apis mellifera* recently introduced to the United States from Russia that has superior resistance to *Varroa* and tracheal mite.

Sac: *See Crop.*

Sacbrood: An uncommon viral disease of larvae, usually non-fatal to the colony, which interferes with the moulting process; the dead larva resembles a bag of fluid.

Scale: A dehydrated, dead larva shrunken to an elongated thin, flat chip at the bottom of a cell. *See European Foul Brood and American Foul Brood.*

Scent gland: *See Nasonov gland.*

Scholtz candy: The term used for queen candy in Europe. Queen candy is the substance in queen cages that the worker bees eat through to free the new queen.

Scout bees: Worker bees out searching for a new source of pollen, nectar, propolis, water or a new home for a swarm of bees.

Screened bottom board (SBB): A framed screen used instead of a solid base in order to improve ventilation through the hive. Also used as a means to control *Varroa*, Small Hive Beetle and to allow debris to fall through to the outside of the hive.

Screened ventilating board: A framed screen used to cover the top of a hive that is being moved allowing the colony to gain fresh air.

Sealed brood: See Capped brood.

Sealed honey: Cells containing ripe honey that has been sealed with wax cappings by the workers.

Sections: Small plastic or wooden boxes placed inside frames and used to produce comb honey.

Self-pollination: The act of a single flower or flower from the same plant, pollinating itself. Also called auto-pollination.

Self-spacing frames: Frames constructed so that they are a bee space apart when pushed together in a hive body. Often called Hoffman frames after their inventor, Julius Hoffman, born in Prussia in 1838 although he later moved to London and then New York..

Separator: A device to remove residual honey from honey cappings after the frames have been removed from frames.

Septicaemia: Usually minor disease of adult bees caused by *Pseudomonas apisepctica*.

Settling tank: A large capacity container used to settle extracted honey. Air bubbles and debris will float to the top, clarifying the honey.

Shallow: An American term for a super that has a depth less than a full sized super. In Australia this would be equivalent to an Ideal, WSP, Manley or half-size box.

Sideline beekeeper or sideliner: An American term for a beekeeper who operates for profit, but is not a full-time beekeeper.

Skep: An old beehive design, usually made of straw and shaped like a dome. Sleps lack movable frames and are thus illegal in Australia.

Slotted bottom board or slatted bottom board: A wooden ventilation rack that fits between the bottom board and hive body. By minimising draft at the bottom of the brood chamber, the queen will make better use of the lower brood chamber to lay eggs, there will be less comb gnawing, and less congestion at the front entrance. Due to the reduced draft the colony will survive winter better and will be stronger than a hive without a slatted rack coming into spring.

Slum-gum: The black, sticky, fibrous, oily or waxy material left when comb has been melted and filtered by a beekeeper.

Small hive beetle (SHB): Small Hive Beetle (*Aethina tumida*). The small hive beetle is a destructive pest of honey bee colonies, causing damage to comb, stored honey and pollen. If a beetle infestation is sufficiently heavy, they may cause the bees to abandon their hive. The beetles can also be a pest of stored combs, and honey (in the comb) awaiting extraction. Beetle larvae may tunnel through combs of honey, feeding and defecating, causing discoloration and fermentation of the honey.

Smoker: A metal container used to blow smoke on bees to calm them and to reduce stinging. Smokers use pine needles, Stringybark, dry Eucalypt leaves or hessian cloth as fuel.

Snotty brood: Sick brood with physical symptoms very similar to European Foul Brood (EFB). Snotty brood is also called 'Idiopathic Brood Disease Syndrome', which is a fancy way of saying that we haven't figured out what causes it yet and we are still looking.

Social insects: Insects which live in a family community, with parents and offspring sharing a common dwelling place and exhibiting some degree of mutual cooperation; for example, honey bees, ants, termites.

Solar wax melter: A glass-covered box in which wax combs and cappings are melted by the sun's rays and wax is recovered in cake form.

Solitary: Individuals of many species of bees, but not honey bees, live as isolated individuals away from other members of the same species. This characteristic may be genetically based or environmentally based, depending on the species of bee.

Sp: species, plural spp.

Spatula: See Grafting tool.

Spearmint oil: Spearmint oil is extracted from *Mentha spicata* of the Labiatae family. Spearmint oil, like peppermint oil and thymol, are believed to improve the health of honey bees if fed to them in small quantities. Spearmint oil is often mixed with lemongrass oil to make its taste more palatable to honey bees.

Species: *Apis mellifera* and *Apis cerana* are two distinct species of honey bees in that they are unable to mate and produce viable offspring. *Apis mellifera ligustica* (Italian bees) and *Apis mellifera carnica* (Carniolans) are not species but strains or races since they are able to mate together and produce viable offspring.

Spermatozoa: The male reproductive cells (gametes) that fertilise female eggs. Also called sperm cells.

Spermatheca: Small sac-like organ connected to the vagina inside a queen in which sperm is stored over the lifetime of the queen.

Spinner: American name for an extractor.

Spiracles: External openings in the abdomen and thorax and through which bees and all insects breathe.

Spotted brood or spotted brood: An irregular brood pattern on the frame caused by disease or a failing queen.

Split: To divide a colony in two to increase the number of hives.

Spotted brood: A sign that all is not well in the hive. Spotted brood is when the pattern of brood is not continuous across a frame but is irregular.

Spotted gum: Although spotted gum is naturally resistant to termite attack and has good durability to adverse weather, it is often further protected by the use of preservatives such as Copper Chromium Arsenate, CCA, and is a good choice for cleats under bases.

Spring build up: The rapid increase in the number of bees in a hive during spring.

Spring dwindling: A decrease in the size of the colony population during spring instead of the significant population growth which should be experienced. Spring dwindling is not associated with swarming in which about half the colony leave the hive to found a new colony.

Spur embedder: A wheel used for mechanically embedding wires into foundation by employing hand pressure.

Stamen: The male part of flower on which pollen-producing anthers are borne.

Starline hybrid: An Italian hybrid bee, used in the United States, known for its vigour and honey production.

Starter colony: A colony used by queen rearers into which 1 to 1 ½ day old larvae in queen cups are placed so that they will be fed the maximum amount of royal jelly. After a further 1 to 1 ½ days the queen cups and larvae are removed and placed in finishing colonies.

Sternite: The ventral shield or plate on the upper side of the body of each segment of the body of an insect or other arthropod.

Sticky: A frame a super that has had its honey removed and is now covered in honey and is sticky to touch.

Stigma: The receptive female part of a flower to which pollen adheres.

Sting or stinger: Modified ovipositor of female worker and queen bees that has developed into an organ of defence. The defence mechanism at the rear of a bee that is used to inject venom in to its victim. A worker bee will die shortly after using its stinger.

Sting sack: See Poison sac.

Stingless bees: Native *Trigona* and *Melipona* bees that have been kept from ancient times in Central America and Australia.

Straining screen: A metal or plastic screen through which honey is filtered. May also serve as a base for other, finer screening material.

Stray honey bees: Honey bees that are not being managed by a beekeeper.

Streptococcus pluton: Bacterium that causes European Foul Brood.

Sucrose: The main sugar found in nectar. Also the most common household form of sugar – cane sugar. Sucrose is made up of glucose and fructose, the two main constituents of honey.

Sugar syrup: Food for bees, containing sucrose or table (cane) sugar and hot water, usually mixed in the ratios of 1 (sugar):1 (water) or 2 (sugar):1 (water).

Sump: A tank with strainers and baffles used to filter honey before it is pumped into settling tanks.

Super: A wooden box with frames containing foundation or drawn comb in which honey is to be produced. Named for its position above the brood nest, e.g. superstructure. The same size box is referred to as a hive body or brood box when it is situated below the honey supers and is to be used for brood rearing.

Supering: Placing additional supers on a hive in order to collect excess honey and provide more room for workers in a crowded hive. See *also* Undersupering and Oversupering.

Superorganism: The name given to some insects, such as bees, wasps, ants and termites that live in colonies, where the division of labour is highly specialised and where individuals are not able to survive by themselves for extended periods of time.

Supersedure: The replacement of a weak or old queen in a colony by a daughter queen. Shortly after the daughter queen begins to lay eggs, the mother queen disappears or is killed by the other bees.

Supersisters: Queens or worker bees produced by a single queen and sired by sperm from the same drone.

Suppress mite reproduction (SMR): A type of bee that has been bred to be resistant to *Varroa* mite. This trait prevents female mites from producing offspring.

Surplus honey: A term used to indicate an excess amount of honey above that needed by the bees to survive the winter. This surplus is usually removed by the beekeeper.

Swarm: A collection of bees containing at least one queen that has left its home colony to look for a new nest. Swarms are currently without a home site and are looking for a new one, often resting on a tree or other object.

Swarm box: A box to collect swarms. See *also* Nuc/nucleus/nuke.

Swarm cell: Queen cells usually found on the bottom of the combs before swarming.

Swarming: The natural method by which bee colonies propagate. When the hive or nest becomes congested with bees in the spring, about half the colony flies off with the old queen to find a new home, leaving a new queen behind to head the old colony.

Swarming season: The time of year, usually early spring to mid-summer, when colonies usually swarm.

Synergy: The combined effect of two or more chemicals which exceeds the effects of both chemicals when applied individually. The term is often used when discussing combining pesticides and their combined effect on bees.

Syrup: A mixture of sugar and water used to feed bees when nectar sources are scarce or the beekeeper wants the colony to make honey for the winter.

Tangential extractor: A design of honey extractor that spins frames in such a way that honey can flow only from one side of the frame at a time.

Tanzanian Top Bar hive (TTBH): A top bar hive with vertical sides. See *also* Kenyan top bar hive.

Tarsus: The foot or fifth segment of bee leg.

Tergite: The outer covering of a bee's abdomen.

Terramycine: An antibiotic used to treat European Foul Brood. See Oxytetracycline.

Tertiary swarm: A third swarm to leave a colony, after the primary and secondary swarms.

Tested queen: A queen whose offspring have been tested to show that she has mated with a drone of her own race or has other qualities which would make her a good colony mother.

Thick super foundation: A thicker foundation that is used in supers that holds together better under the centrifugal force inside an extractor.

Thin super foundation: A thinner comb foundation that is used for comb honey or chunk honey and is thinner than that used for rearing brood or storing honey.

Thorax: The middle part of bee, containing mainly muscle and to which the legs and wings are attached.

Tongue: Part of the mouthpiece of a bee.

Top feeder: A syrup feeder that is placed at the top of the hive under the lid.

Top bar: The top horizontal part of a frame.

Top Bar hive (TBH): The Top Bar hive is a method to manage bees with removable combs which rely on top bars rather than frames for the combs. There are no standard dimensions for a TBH as there are for Langstroth hives. TBHs have some advantages for hobby beekeepers. See also Kenyan top bar hive and Tanzanian top bar hive.

Top supering: Adding a new super on top of the other supers in a hive. That is placing the new super immediately under the lid.

Torula yeast: The type of yeast favoured by apiarists when making artificial pollen patties.

Tracheae: The breathing tubes of an insect, including bees.

Tracheal mite: *See Acarapis woodi.*

Transferring: The process of moving bees and combs from one hive to another.

Trap out: A process used to remove a colony of bees from a wall or tree by closing off the entrance to the colony with a cone of wire with a small entrance at the end furthest from the entrance to the nest.

Travel stains: The darkened appearance on the surface of otherwise clean honeycomb caused by bees walking over the cappings.

Treated wood: Wood that has been treated with a preservative such as Copper Chromium Arsenate, CCA, to prolong the life of the hive.

Triple or triplet: A hive consisting of three boxes. This configuration may be one brood box and two supers, or a single brood box and two supers.

Trophallaxis: The exchange of regurgitated foods or liquids between adult bees or between adults and their larvae. Trophallaxis is also practised by other social insects.

Two-queen hive: Some beekeepers prefer to keep hives with two queens in them. This may occur naturally during supersedure, or may be set up by the beekeeper by placing a brood box with excluder at the bottom of the hive, and another brood box with excluder underneath at the top of the hive. The supers are located in the middle of the hive and are used to store honey by the workers from the bottom brood box and the top brood box.

Uncapping knife: A knife used to shave off the cappings of sealed honey ready for extraction. Uncapping knives may be used with the blade cold or heated by dipping in hot water. Knives can also be heated electrically or by passing steam through the knife.

Uncapping machine: A machine that automates the uncapping of honey frames used by professional apiarists.

Uncapping tank: A container over which frames of honey are uncapped. The container often incorporates a sieve to strain out the honey which is then collected.

Undersupering: Placing an additional super beneath an existing super but above the brood chamber.

Unfertilised: An ovum or egg, which has not been fertilised with sperm. This is a characteristic of drone eggs.

Unique Manuka Factor (UMF): Honey collected from certain *Leptospermum* (Tea trees) plants contain the special Unique Manuka Factor antibacterial property. Unique Manuka Factor activity exists in addition to the hydrogen peroxide antibacterial activity found in all honeys. See also *Methylglyoxal (MGO)*.

Unite: Combining two or more colonies to form a larger colony.

Unripe: Honey in cells that have not been capped because the workers have not yet evaporated sufficient water to turn the nectar into honey. If unripe honey is extracted it can ferment.

Unsealed brood: Brood during the egg and larval stages that are not yet in sealed cells.

Unsealed honey: Honey in cells that have not yet been capped. Also see unripe.

Varroa destructor: An external parasitic mite that attacks *Apis cerana* and *Apis mellifera* and develops in sealed brood cells. *Varroa destructor* is closely related to *Varroa jacobsoni*.

Varroa jacobsoni: An external parasitic mite that attacks honey bees *Apis cerana* and *Apis mellifera* and develops in sealed brood cells. *Varroa jacobsoni* is closely related to *Varroa destructor*.

Varroa sensitive hygiene (VSH): Often called VSH. A genetically selected honeybee which suppresses *Varroa* mite reproduction.

Veil: A protective netting that covers the face and neck and allows ventilation, easy movement of the head and good vision.

Venom allergy: A condition in which a person, when stung, may experience a variety of symptoms ranging from a mild rash or itchiness to anaphylactic shock. A person who is stung and experiences abnormal symptoms should consult a physician before working with bees again.

Venom hypersensitivity: A condition in which a person, if stung, is likely to experience anaphylactic shock. A person with this condition should carry an emergency insect sting kit at all times during warm weather.

Vent: A perforated piece of metal used to cover the air vent in the lid of a hive to stop robber bees or wasps entering.

Ventilated lid: A hive lid that has vents in the rim allowing air to circulate.

Virgin queen: An unmated queen or a queen that has not yet left the colony to go on a mating flight and is not yet able to reproduce.

Virgin queen pheromone: A pheromone produced by virgin queens that repels worker bees so that she is ignored by the workers in a colony until after she has mated.

Vitellogenin (VTG or VT): A chemical found mainly in young bees before they become forager bees. When the young bee is ready to become a forager bee the amount of vitellogenin in its body decreases and juvenile hormone increases. See also Juvenile hormone.

Walk-Away-Split: A method to raise a new queen or to establish a new colony. About half of the brood frames with eggs and worker bees are removed from a hive containing a viable queen and installed into an empty hive or nuc.

Warming cabinet: A heated insulated box or room used to liquefy honey.

Washboarding: Worker honey bees exhibit a group activity known as rocking or wash-boarding on the internal and external surfaces of the hive. This behaviour is believed to be associated with general cleaning activities but under what circumstances workers washboard is not known.

Wasp: A close relative of honeybees, usually a member of the family Vespidae; they are carnivorous with some species preying on bees. In Australia there are two races of wasps: the English wasp (*Vespula vulagris*) and the European or German wasp (*Vespula germanica*). There are distinct differences in the face markings and the yellow/black abdominal band pattern between the English and the European wasp.

Wattle: A tree of the Acacia family. Although a prolific and common flowering tree, wattles are seldom visited by honey bees for nectar or pollen.

Wax: See Beeswax.

Wax dipped: Hive parts that have been dipped in hot wax to protect the wood from the weather. Frames are not typically dipped in wax to protect them.

Wax glands: Eight glands located on the underside of a bee's abdomen from which wax is secreted.

Wax moth: Usually refers to the Greater Wax Moth, *Galleria mellonella*, whose larvae bore through and destroy honeycomb as they eat out its impurities. Wax moth infested hives are covered in a thick, spider-web, like material.

Weathertex: A range of long lasting processed wood fibres that have been rolled into sheets. Weathertex is frequently used to make hive bases and hive lids.

Western honeybee: *Apis mellifera*.

White waxing: Worker bees building new white comb during a honey flow.

Whitening up: The addition of clean, new wax to a hive indicating that new cells are being built and that a nectar flow is in progress.

Wild bees: Feral or wild bees. A colony of bees that is not kept by a beekeeper in a hive.

Wild survivor stock: A US term used to denote bees that originated from feral colonies that have survived *Varroa* infestation. Wild survivor stock is regarded as having superior resistance to *Varroa* when housed in a hive managed by a beekeeper.

Wind pollinated: Plants whose flowers manufacture light pollen (and usually no nectar) which is released into the air to fall by chance on a receptive stigma; examples include the grasses (corn, oats) and conifers (pines).

Windbreaks: Naturally occurring or specially constructed barriers used to reduce the force of winds on a beehive.

Wing clipping: See Queen clipping.

Winter cluster: A closely packed colony of bees within a hive that forms a cluster to conserve heat when outside temperature falls below about 15° celsius.

Winter hardiness: The ability of some strains of honeybees to survive long winters by minimising their use of stored honey, the northern European black honey bee would be an example of this.

Wintering down: Preparing a hive for the winter.

Wire cone escape: A cone formed from fly-wire screen mesh and used to remove bees from the wall of a house or from the cavity of a tree. See *also* Trap out.

Wired foundation: Foundation with wires embedded in it to further strengthen the comb during very hot weather. This is in addition to the wire used to construct the frame and is embedded directly into the foundation during manufacture.

Wired frames: Frames with wires holding sheets of foundation in place.

Worker and worker bees: An unfertilised female bee that makes up the majority of a colony's population. The worker performs most activities within a hive as well as outdoor foraging tasks.

Worker bee activity: The many tasks performed by a worker bee during her lifetime.

Worker comb: Comb measuring about four cells to the square centimetre, in which workers are reared and honey and pollen are stored. See *also* Drone comb.

Worker egg: Fertilised female bee egg.

Worker inhibitor pheromone: A pheromone produced in the honey crop (honey stomach) of adult worker bees and fed via food to younger bees by the older bees. Worker inhibitor pheromone inhibits young workers from becoming forager bees too early.

Worker jelly: See Royal jelly.

WSP: A super or brood box or super with a depth of 192 millimetres. Named after the inventor William Stanley Pender, 1866 to 1931, a well-known NSW beekeeper.

Yellowjacket: the common name in North America for predatory wasps of the genera *Vespula* and *Dolichovepula*. The term would include the European and English common wasps as well as hornets.