Beelines

Newsletter of The Beekeepers Club Inc. Est 1998.

January 2016.

Mission statement:
To enhance the learning and better practices
of the art of beekeeping within our community.

Bees wax candles

Meeting venue; Senior Citizens Club. 895-901 Doncaster Road Doncaster East. Melway 47k-1. Opposite Dan Murphy's.
Meetings held 3rd Thursday of each month 7.00pm for 7.30pm.
Guests and Visitors are Welcome

Next Meeting.

21st January 2016. Start 7.30pm.
7.30pm Ian Brown. "Natural history and performance of a bee hive"
8.20pm Helmut Huber. Frame wiring and extraction practical night.

Upcoming events:
31st January 2016. Family open day Petty's Orchard. 11.30am - 3.30pm
Catered lunch. bring your family.
Guest speakers.

4th- 27th February Beginners Course. (registration via web site)
18th February 2016 Gavin Jamieson flora identification
20th February 2016 Capilano Visit.

17th March 2016 Prof David Vaux WEHI . Using bees to research cancer
21st April 2016 A prominent chef on using honey for cooking

The "J" Bee-Keeping School
BEE KEEPING and HONEY FESTIVAL
SUNDAY 6th March 2016 10am - 4pm

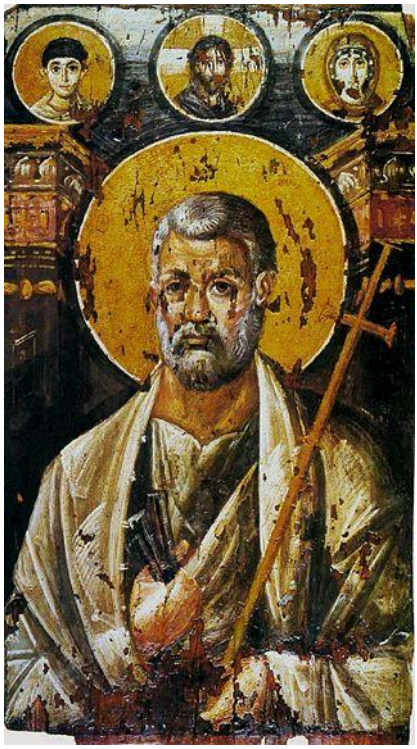
LOCATION: JADRAN SOCIAL CLUB 35 DUNCANS LANE, DIGGERS REST 3427

Demonstrations of bee-keeping operations
! Glass bee hive - watch them at work Safely, behind glass
! Bee-beard (subject to conditions on the day)
! Honey- varieties for tasting and sale
! Mead and Honey Liqueur- tasting and sales
! Bee-Keeping goods - sales
! Various other bee related products for sale
! Kids corner— learn all about bees
! Various other attractions including a live band

Melways ref. 352 G 11 BQ lunch, cakes, tea, coffee and drinks available.
Admission $3.00 per adult, children free

History of beeswax.

The old Egyptians used beeswax when embalming, for mummification of their pharaohs and for retaining the permanency of wig curls, for preserving the papyrus scrolls and to protect paintings. The wrappings of Egyptian mummies contained beeswax. Beeswax was mentioned in 32 prescriptions given in a papyrus, compiled in Egypt about 1550 BC. The ancient Persians used wax to embalm the dead, while the ancient Romans modelled death masks and life-size effigies from beeswax. The word mummy derives from a Persian word meaning wax. In ancient time's beeswax was used as an adhesive to join two surfaces together. The ancient Greek legend of the Athenian, the architect Daedalus (Dedalos), is remembered because he and his son Icarus tried to escape from the island Crete, made themselves wings of bird feathers, which they fastened to their bodies with beeswax. Flying too high, Icarus had the wax which held its wings to his body, melt, and he plunged into the Aegean Sea, drowning. His father flew at a lower height and made it safely to Athens, where he built a temple to honour Apollo.



The Romans demanded beeswax when they conquered Corsica in 181 BC. In Medieval European times wax was a unit of trade for taxes or other. Candles of beeswax were used already by the ancient Egyptians, ancient Greece, and Rome and in old China It was introduced in churches since the beginning of Christianity in Europe. Since the beginning of the Roman Catholic Church only beeswax candle should be used in the church. This law is still valid but no longer is 100 % beeswax required; the percentage varies according to the local Episcopal instruction between 5 and 50 %.

Beeswax as ingredient of artistic materials.

Beeswax is used in batik art. The word batik is of Indonesian origin, where batik art was invented. Evidence of early examples of batik have been found in the Far East, Middle East, Central Asia and India from over 2000 years ago. It is conceivable that these areas developed independently, without the influence from trade or cultural exchanges. However, it is more likely that the craft spread from Asia to the islands of the Malay Archipelago and west to the Middle East through the caravan route. Batik was practised in China as early as the Sui Dynasty (AD 581-618). These were silk batiks and these have also been discovered in Nara, Japan in the form of screens and ascribed to the Nara period (AD 710-794). It is probable that these were made by Chinese artists. They are decorated with trees, animals, flute players, hunting scenes and stylised mountains. Indonesia, most particularly the island of Java, is the area where batik has reached the greatest peak of accomplishment. The Dutch brought Indonesian craftsmen to teach the craft to Dutch warders in several factories in Holland from 1835. With this method colour is introduced into fabric. Portions of the cloth, covered with beeswax resist the dyes. When the dyeing process is complete the wax is removed by heat. Batik is still used all over the world.

Lost wax casting and figures

Figures containing beeswax survived in royal Egyptian tombs dating from 3400 BC. Throughout history it has been used in commerce and business as a document seal. One of the most important uses of beeswax was in “cire-perdue”, or lost wax casting. This method is very old and was known in different old high cultures as the Summerians, India, China, and Egypt. Many of the world’s most famous statues were produced using the lost-wax casting process. The object to be cast in metal is first sculptured in wax. It was then coated with clay and hardened by heat, thus melting the wax. Molten metal is then poured into the clay model. This technique requires a lot of metal. Less metal is required if a core of removable material is coated heavily with wax in which the image is engraved.

The whole is then coated with clay, dried, the wax melted out and the metal poured in.

The sculptures of Madam Tussaud's

The sculptures of Madam Tussaud's in London are widely known and copied in many countries. In the museum, famous people are copied in wax and dressed as life-sized figures. A mixture of three parts beeswax and one part of a harder wax are used. Modelling in wax or ceroplasty is a well-developed art used also for scientific models in important collections around the world. During the last century, wax flower modelling was apparently popular in Europe.

Candles made of beeswax have been used by mankind in religious ceremonies since the beginning of religion. Beeswax candles can be made by different methods: pouring, dipping, rolling, extruding, drawing and pressing. Since beeswax has a higher melting point than most paraffin waxes (most of which melt between 48 and 680C) beeswax candles remain straight at higher ambient temperatures.. Waxes with a melting point above 880C do not perform well during burning.

Beekeeping became commercially viable during the 19th century with four inventions: the moveable-frame hive, the smoker, the comb foundation maker, and the honey extractor. These inventions still support commercial apiculture. A fifth invention, a queen grafting tool, allows beekeepers to control genetic lines.

The Bucket list for 2016.

The committee has a number of projects under early planning or consideration which includes some of the following. If there is a project you feel you may be able to assist with, either in the planning or running of, please email editor@beekeepers .org.au

- Junior Beekeepers Club. Held one Saturday morning a month March 2016 - February 2017. We have a Facilitator but need 4 or 5 members to assist on a roster basis.
- Advanced beekeeping course, to include Queen raising and diseases open to all members who have completed the beginners course or experienced club member beekeepers who have not done the beginners course.
- A 2 day workshop on fundamentals of beekeeping for non-members who have purchased a Flow Hive. This will be in conjunction with Flow Hive Company.
- A number of weekend courses on fundamentals of beekeeping during the year.
- The formation of a subcommittee to select a candidate to apply for selection to do a Victorian Apicultural Industry approved on line "Bee pest and disease course" We need at least 2 very experienced beekeepers for this project committee.
- Compiling and printing of a Field Book and Hive record this project has already commenced.

If you have a particular request for an activity or function please contact any committee member or myself so we can evaluate and include into our years activity.

Family Day 31st January 2016.

I remind you all to keep Sunday 31st January free so you can attend our family day. A flyer will be sent out shortly as well as on the web site. The more that come will ensure we have a great turnout and successful day.

Nosema disease of honey bees

Nosema, is a quite common but serious disease of adult European honey bees including queen bees. In some years, nosema may cause serious losses of adult bees and colonies in autumn and spring.

In recent years, another nosema, *Nosema ceranae,* has been found to infect European honey bees in a number of countries including Australia.

Cause

The disease is caused by the spore forming microsporidian, *Nosema apis*. Spores cannot be seen by the naked eye.

When spores of *Nosema apis* are swallowed by bees they germinate within 30 minutes inside the stomach. The organism then penetrates cells of the stomach lining. It continues to grow and multiply rapidly, using the cell contents as its food supply. Large numbers of spores are produced in the host cell in 6 to 10 days. The parasite may also penetrate and infect adjacent healthy cells. This spreads the infection further.

During the normal digestive process of adult bees, healthy cells of the stomach lining are shed into the stomach. They burst open and release digestive enzymes. Infected cells are also shed in this way, but they release nosema spores and not digestive juices. These spores can infect other healthy cells of the stomach lining. Many spores pass through the intestines and are present in the faeces (excreta) of the bee.

Incidence and spread

Infection does not normally pass directly from infected bees to the next generation of adults. Instead, young bees become infected when they ingest spores as they clean contaminated combs.

During the summer months, most honey bee colonies carry a few infected bees with little or no apparent effect on the colony. Spores may also persist on the combs. As the weather in autumn changes, these spores may initiate an outbreak of nosema. Losses of bees at this time of the year may be very heavy.

Winter losses can also be heavy. Infected bees confined in their hives due to bad weather may defecate inside the hive soiling the combs and hive interior with excreta and spores. This, together with spores produced in the preceding autumn causes infection in spring.

Spring outbreaks usually begin in late August or September, when temperatures begin to rise. They may last until late spring or early summer.

When the warm weather comes, the disease begins to decline due to improved flight conditions. The source of infection is largely removed because the bees are able to defecate outside the hive thereby reducing the contamination of combs.

Fortunately, serious nosema outbreaks do not occur every year. Research has indicated that the following conditions appear to be associated with serious autumn outbreaks and epidemics of nosema:

- heavy summer rainfall
- an early autumn break in the fine weather about mid-March to early April
- bees working grey box (*Eucalyptus microcarpa*), red ironbark (*E. sideroxylon*) and white box (*E. albens*).

The exact reasons for these apparent relationships are not known. In these epidemics, strong colonies may be seriously weakened before winter. They may be reduced to the size of a nucleus colony in a matter of days. Infected colonies that survive the winter may require a long build-up period for the population of adult bees to reach normal numbers.

Losses caused by nosema disease are not confined to areas of Victoria having the field conditions mentioned above.

Spores of *Nosema apis* may occur in honey or pollen. Research reports indicate that honey bee workers can transmit nosema to queens in queen mailing cages, queen banks and queen mating nuclei.

Effect of nosema on bees

- hypopharyngeal (brood food) glands of infected nurse bees lose the ability to produce royal jelly which is fed to honey bee brood

- a high proportion of eggs laid by the queen of an infected colony may fail to produce mature larvae
- young infected nurse bees cease brood rearing and turn to guard and foraging duties usually undertaken by older bees
- life expectancy of infected bees is reduced. In spring and summer, infected bees live half as long as non-infected bees
- infected queens cease egg-laying and die within a few weeks
- infected pupae are resistant to infection
- an increase of dysentery in adult bees although nosema is not the prime cause of dysentery.

Symptoms

Bees infected with nosema either show no symptoms, or none that are specific for this disease. Many of the so-called symptoms attributed to nosema disease apply to other diseases or conditions of adult bees. Examination of adult bees using a light microscope is the only reliable method of diagnosing the presence of spores of nosema.

Infected colonies can lose adult bees sometimes at an alarming rate. Infected bees often die away from the hive and only a few sick or dead bees may be found near the hive entrance. The term 'spring dwindle' is often used to describe this condition. However, this should not be confused with the normal weakening of colonies caused by the natural dying of old, over-wintered bees in early spring.

Sick or crawling bees outside the hive entrance, dead bees on the ground and excreta (dysentery) on hive entrance and components may be associated with nosema infection, but may equally be caused by other diseases and abnormal conditions.

Control

Australian beekeepers use management practices to minimize the incidence of nosema. Chemical treatments for control of nosema are not registered in Australia for use in honey production beehives. Use of any such treatment is illegal and could result in unacceptable residues in extracted honey.

Management practices

- maintain colonies with queens with good egg-laying potential. Colonies prepared for winter should have a good population of young bees
- ensure colonies have adequate supplies of high protein pollen in autumn. This will help to ensure good populations of young bees
- ensure hives prepared for winter have good supplies of honey. Studies have shown that colonies generally with half, or more, of honey had lower spore counts compared to colonies wintered with less honey.
- place the hives in a sunny position in the cooler months of the year. Choose apiary sites that have good air drainage and protection from cold winds. Avoid cool shady and damp sites. Research has shown that the level of nosema infection in a colony can be reduced from about 85% to zero by placing the hive in a sun trap where it obtains maximum sun and maximum shelter from cold winds
- maintain winter colonies in a minimum of hive space so they are compact and warm. Remove supers (boxes) of combs not required by the bees
- avoid colony stress which can be caused by excessive opening of the hive, manipulation of combs, feeding and relocating colonies
- avoid stagnant water sources which may become contaminated by dead bees and bee excreta
- minimise the number of squashed bees during normal hive management. Any infection will be spread when their remains are cleared away by hive cleaning bees
- replace old, dark brood combs to lower the number of spores in the hive, although this will never totally eliminate the disease. Many beekeepers remove two or more old combs from the brood nest each spring, replacing them with sheets of beeswax foundation available from beekeeping supply shops.

Nosema ceranae

Nosema ceranae was first found in Asian honey bees (*Apis cerana*) in 1994. It was found in European honey bees (*Apis mellifera*) in Taiwan in 2005 and later in Europe, USA and other countries including Australia. It has been found in Queensland, New South Wales and Victoria, but appears to be more common in Queensland.

As this is a relatively new parasite in European honey bees, the full effect of this species of nosema on individual bees and colonies is still being researched. It does not appear to cause sudden, quick losses of bees as does *Nosema apis*.

N. ceranae can be detected in all four seasons, while *N. apis* occurs mostly in the milder seasons of autumn and spring. *N. ceranae* infection affects more cells in the honey bee gut than *N. apis* infection at the same temperature. Researchers have suggested that this difference may explain why there is a higher mortality of bees when they are infected by *N. ceranae* than when they are infected with *N. apis*. *N. ceranae* can kill bees faster than *N. apis.*

Colonies infected with *N. ceranae* in summer may gradually lose adult bees resulting in reduced honey production and may even die. While dysentery may be associated with outbreaks of *N. apis*, signs of dysentery are markedly reduced in outbreaks of *N. ceranae*.

N. ceranae has been found in honey and pollen. Recent research has shown that *N. ceranae* spores lose viability when they are subjected freezing and chilling.

Acknowledgement to DEPI for text component.

Extractor Hire.

For those wanting to hire the club extractor it is now available for hire.
The hire cost has been set by the committee as:-
No charge for a maximum hire of 2 days. There will be a deposit of $ 75.00 which is fully refundable, on a clean and timely return of the unit.
If the unit is returned late there will be a charge of $ 5.00 per day thereafter.

A booking page is on the club website to facilitate an easier booking process, or alternatively contact Aris Petratos on 0425 706 426 or aris@himp.com.au. to arrange.

Barry Cooper (club member) sent the following to us, and I think it is important to present to members to be aware at all times of your colony health condition.

".....At the last Doncaster meeting, I got talking to two beekeepers and arranged with them to send me photos of their brood frames. One looked OK, but the other had a very spotty pattern. I visited the later last Saturday and we tested a suspect cell with an AFB test strip. It gave a positive response and we sent off a microscope smear for testing. The beekeeper has contacted Joe Riordan and has begun to make appropriate arrangements to remedy the situation. This exemplifies the situation that may face some beekeepers – they have a weakly performing hive but do not realise that it may be caused by a brood disease.

....So a heads up that there is probably some AFB around".

For those club members wanting assistance or help we now have a FAQ page and forum on the website. This is an excellent way to quickly find an answer to any question, if this forum does not satisfy your problem just email your enquiry to mentor@beekeepers .org.au for a quick return answer.

"Perfect hexagonal tubes in a packed array. Bees are hard-wired to lay them down, but how does an insect know enough geometry to lay down a precise hexagon? It doesn't. It's programmed to chew up wax and spit it out while turning on its axis, and that generates a circle. Put a bunch of bees on the same surface, chewing side-by-side, and the circles abut against each other - deform each other into hexagons, which just happen to be more efficient for close packing anyway."
— *Peter Watt.*

"...The world was really one bee yard, and the same rules work fine in both places. Don't be afraid, as no life-loving bee wants to sting you. Still, don't be an idiot; wear long sleeves and pants. Don't swat. Don't even think about swatting. If you feel angry, whistle. Anger agitates while whistling melts a bee's temper. Act like you know what you're doing, even if you don't. Above all, send the bees love. Every little thing wants to be loved."
— **Sue Monk Kidd**

Simple and small to solve such a big problem.

Farms in east Africa have a pretty big problem - literally. Wandering elephants are a major concern and can be devastating to farmers. One solution is to dig a massive ditch and some reinforced fencing but that's hardly practical due to the expense. Unfortunately, without some kind of protection, farmers trying to defend their crops often lead to frequent injuries and deaths of both farmers and elephants. Thanks to zoologist Lucy King, however, that's all about to change.

King noticed that elephants are terrified of bees, because the pain of getting stung inside their trunks is absolutely unbearable and there's little they can do to soothe themselves afterwards. Elephants instinctively avoid bees and just the sound of a buzzing bee is enough to make an elephant vacate the area immediately. She wondered if beehives suspended at regular intervals might make an effective barrier against elephants. After a wildly successful test run in 2009, The Elephants and Bees Project was officially started shortly thereafter.

Today there are active beehive fences in Kenya, Botswana, Mozambique, Tanzania, Uganda and Sri Lanka.

Besides being great at keeping elephants away, the bees are also incredibly useful for pollinating crops and farmers can also harvest the honey they make for an additional revenue stream. It's truly an awesome example of using something so simple and small to solve such a big problem.

Program to improve honeybee biosecurity.

Following a recommendation from the "Victorian Apicultural Industry Advisory Committee" The Government has recently approved a program to train up to 20 beekeepers from clubs in Victoria. The selected applicants will be fully reimbursed the $ 425.00 course fee for the on-line Bee Pests and Disease course.

We invite club members to apply. The applicants will be selected by a selection panel of 3 committee and 2 club members. The successful applicant will be required to complete the course by 31st December 2016 and on the successful completion he/she will be required to become the official club bio security officer.

Further information and registration forms will be available hopefully during February 2016 both on the web site and in hard copy at the February meeting.

Honey Bee Benefits

We are fond of the stinging *Apis mellifera*, of course, for its liquid honey. Honey is one of the most energy-dense foods in nature, consisting of a concentrated source of fructose and glucose containing approximately 80-95% sugar. Honey contains trace amounts of several essential vitamins and minerals and also can be used as a preservative.

Australian bee body waits for local study before acting on neonicotinoid insecticides

Bees could be getting a neurological reward when they consume small doses of neonicotinoid insecticides.

The Australian bee industry says it wants more information about the effects of neonicotinoid insecticides on bees before it forms a policy position on their use.

Recently, scientists at the University of Newcastle set out to determine whether bees could taste or detect the controversial insect killers.

The results of their study, published in the journal Nature, found that they were unable to, and that if they did consume a sugar syrup laced with neonicotinoids, then they actually ate more than they normally would.

Lead researcher, professor of neuroscience Geraldine Wright, says the result surprised the team.

"What we found was that either they didn't avoid the stuff or that instead they were attracted to drink more of the solution that contained the pesticide," she said.

The low doses offered to the bees in the study were similar to those found in plants that are grown from seeds coated in neonicotinoids, a common practice in Australian agriculture, especially when sowing canola.

Another study published in Nature at the same time found wild bee populations were more damaged by these low doses of neonicotinoids than honeybees, who might only be exposed for short amounts of time.

"These low doses that wind up in pollen and nectar of seed treated canola affects wild bees more than they affect honeybees, so the amount that is present in pollen and nectar and its effect on bee species could depend on the species that actually collect the pollen," Professor Wright said.

But there is no consensus among Australian beekeepers about whether or not these low doses are toxic to working bees, according to Australian Honey Bee Industry Council (AHBIC) executive director Trevor Weatherhead.

It is why the AHBIC has commissioned research into the topic, which is being conducted in the field rather than under laboratory conditions.

"Some believe they have an effect on their bees and others don't and there has not been any trial work to demonstrate that," Mr Weatherhead said.

"That is why the importance of this trial from WA, where we have had bees put on seed-coated canola plants.

"Hopefully we will get some definitive answers out of that particular research, because to date it has only been anecdotal evidence."

Mr Weatherhead says the AHBIC will, with the Federal Government and the Australian Pesticides and Veterinary Medicines Authority, form a policy on neonicotinoids and bee safety once the results are available.

Source ABC