AUSTRALIA'S

HONEYBEE NEWS

"The Voice of the Beekeeper"

Volume 8 Number 2
March - April 2015

www.nswaa.com.au

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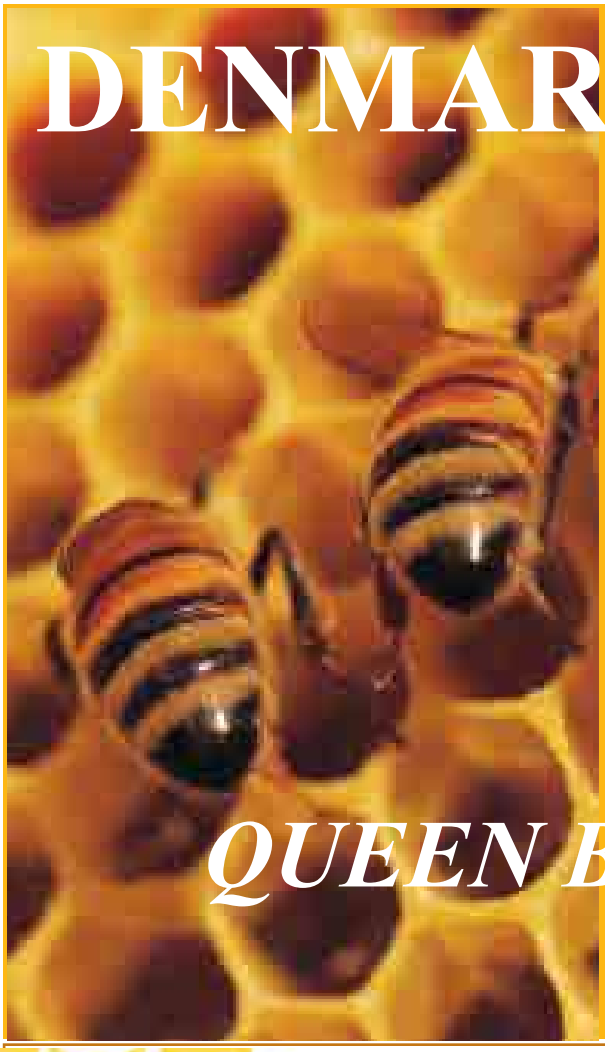

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AUSTRALIA'S HONEYBEE NEWS

The official Journal of the NSW Apiarists' Association (NSWAA) www.nswaa.com.au

Published Bi-Monthly **Email:** honeybeenews@bigpond.com **ISSN 1835 6621**

CONTENTS

Executive & Industry Contacts	Page 4	Bee Aware - Newsletter	Page 17
President's Report	Page 5	Doug's Column - *Increasing Prosperity*	Page 20
2015 Conference & Accommodation	Page 6	Annual Conference Program	Page 22
Taking on an Apprentice Beekeeper	Page 6	Forestry Corporation NSW - 24 Vacant Sites	Page 27
Improving Market Access - for Small Exporters	Page 8	Not all Leptospermums are Equal	Page 28
New Members	Page 6	ABARES - Save the Date	Page 28
Dutch Beekeeper Seeking Internship	Page 8	SICK BEES - Part 18F2 - Plant Allelochemicals	Page 30
Wheen Bee Foundation Notice	Page 8	Australian Leptospermum Honey	Page 41
The Frost Report - *Protect Honeybees*	Page 11	DPI Letter	Page 41
Eucalypt Identification Workshop	Page 14	AHBIC News Update	Page 41
Open Industry Q & A Session	Page 15	Beekeeping Journals	Page 44
NSWAA Trade Show	Page 16	Advertisers	Page 46

COVER: Vice-President Neil Bingley setting up the *Honeyland* stand PHOTO: Margaret Blunden

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PRESIDENT'S REPORT

CODE OF PRACTICE AND NATIONAL BEE BIOSECURITY PROGRAM
We are all aware that AHBIC has been working with State Associations, Government and Plant Health Australia (PHA) to develop a mandatory Biosecurity Code of Practice and a National Bee Biosecurity Program.

There has been a great deal of noise about this – but often from beekeepers who have not actually read the draft document! This is one of the most important things to happen to our industry – so please take the time to read the documentation.

The Code of Practice is the result of a great deal of hard work from many within our industry. It is totally reasonable to have issues with some of the details. But to want to throw the whole thing away because a few individuals are already flouting the law and damaging all of our businesses, is ridiculous.

Where do the packers stand on this issue?
As this issue is so important, and the approach of the packers in managing residues could significantly influence the value of our honey, at our last Executive meeting we passed a motion to write to AHBIC to ask them to approach the Honey Packers and Marketers Association, and other major packers, to state their position on the Code of Practice. We sent the letter to AHBIC requesting them to ask the packers - as yet we have had no response!

Biosecurity Code of Practice Workshop
We have organised a workshop on Friday 22 May with Craig Klingner (AHBIC) and member of the Industry Working Group along with Sam Malfroy (PHA) to discuss the Code of Practice.

This is open to all members and I encourage you to come along to hear what is happening and to take part in discussions. For details… there is a full page Ad on page 15 in this edition.

Progress with Local Land Services (LLS)
A representative from LLS attended our last Executive meeting. We have been holding an ongoing series of meetings with the LLS to represent our members' needs. We are continuing to negotiate with regards to how beekeeping is categorised, because this will ultimately impact on our ability to use Traveling Stock Routes – essential sites for many of our members.

NATIONAL PARKS
On Wednesday 1 April Doug Somerville, Neil Bingley and myself met with National Park representatives to discuss the Beekeeping Policy Draft. There will be some work to be done on this before we will be happy with the paper.

FORESTRY CORPORATION OF NSW
Following several years of unproductive negotiations regarding a NSW beekeeping policy, the Forestry Corporation of NSW has thrust upon NSW beekeepers a clearly damaging proposal to auction several bee sites on the South Coast.

They have made this decision despite a consistent and strong message from the Executive that it is totally unfair, unacceptable for beekeepers, and any auction type process will create further uncertainly for many beekeepers who are already struggling with other challenges to their businesses. The Executive will continue to fight on this issue.

AHBIC ANNUAL GENERAL MEETING
AHBIC are holding their AGM on Saturday 4 July following the NSW Conference. For more details visit www.honeybee.org.au

NSWAA POSITION PAPER
We are preparing an *Apiary Sites on Public Land* position paper. Once finalised it will be available on our website, and I strongly urge our member to use it as a tool when talking to your local politicians about the importance of fair access to public lands for NSW beekeepers.

BEE SPRAY INCIDENTS
If you suspect your bees have been sprayed – *immediately*:

1. Call the NSW Environmental Protection Agency (EPA) Hotline and report the incident - Phone: 131 555

2. Contact the NSWAA President so that the Executive has a record of incidents and "actions" taken by regulatory bodies

Even though the "actions" of the EPA can be useless (see below as an example) the more we beekeepers report incidents, and the more your Executive is made aware of these types of issues, the more we will be able to do something about it – but it's much less useful if you wait months to put in a report.

ACT
A member recently contacted the ACT EPA to report a major bee kill and was fobbed off being told that this was a biosecurity matter. There were mounds of dead bees at the entrance, on the bottom board and lots of dead brood.

He rang the EPA on a Monday morning and was told that someone would ring back later that day. This did not happen. It is extremely important for dead bee samples to be collected as fresh as possible before the chemicals evaporate and degrade.

The ACT EPA clearly does not take their responsibility seriously when it comes to major bee kill events. The beekeeper in question is a highly knowledgeable operator and this was not a biosecurity matter.

BEE WEEK - MAY
NSWAA will be taking part in the 2015 Bee Week Field Days and Honey festival to be held at the Orange Showgrounds on 22 - 23 May

This is a great opportunity to raise awareness of the importance of bees and beekeepers with the general public, as well as providing an opportunity for beekeepers to get together and access things of interest at trade stands.

NSWAA has provided a donation to support the event, and thanks to Karla Hudson from Superbee who is putting in loads of effort to organise Bee Week.

Volunteers are needed to help in Orange (22/23 May) and it would also be great to have plenty of real beekeepers there to chat to the public. If you can help out in any way, please see the Ad on page 39 in this edition and contact Karla.

COMMUNICATION BETWEEN THE NSWAA MEMBERS AND THE EXECUTIVE
I'd like to clarify the usual line of communication between members and the Executive. If a member has something important to bring forward to the Executive I would wish for them to take this to a branch meeting to be discussed then forwarded to the State Secretary. If a member wishes to ask a simple question on a personal level they can contact the State Secretary direct.

Please remember that your hardworking Executive volunteer significant amounts of time for the benefit of members. Our Secretary is part-time and although we live in an age of instant communications we cannot always respond instantly to the hundreds of messages we receive every week, especially when the issues are complex and the whole Executive needs time to discuss them before we can respond.

THE FLOW HIVE
I'm sure that just about every beekeeper in the country has heard about the Flow Hive. This hive concept has left some non-beekeepers with the impression that they can just install one in their backyard, ignore it indefinitely and then turn on the tap every now and get honey out. But as we are all well aware, good beekeeping is about much more than just collecting honey – bees are animals that require good nutrition, access to enough water and regular "check-ups" from their keepers to ensure they are healthy.

There are a number of non-conventional hive designs around, and with the increase in recreational beekeeping it is likely that there will be more of these. Overall, so long as the hives comply with regulatory standards, the NSWAA has no objection to any non-conventional hives. However, we categorically state that good management practices around ensuring bee health and nutrition are absolutely essential regardless of hive design.

There was some discussion on having a Flow Hive at the Show this year – however, none of our Executive Councillors or other representatives have had the opportunity to test this new design. More importantly, we need to keep in mind that the NSWAA does not promote or endorse *any* specific beekeeping equipment suppliers, and having any particular new type of hive design at the *Honeyland* Stand would have been seen by the public as an endorsement, regardless of our intentions. Videos of this hive have also given many the impression that all you have to do to collect honey is turn a tap on – so why would the public pay "reasonable" prices for our honey if it is so "easy" to collect…?

NEW BROCHURE FOR NSWAA
Thanks to Margaret Blunden for all her efforts in putting together a great looking brochure – we had copies available at the Show for anyone interested in joining, and we'll also have copies at Bee Week and for guests at Conference.

I'd like to take this opportunity to thank Margaret, on behalf of the Executive and all of our members, for all the hours of effort she gives to the Association to help with displays for the Show, create brochures for us and publish our fantastic *Australia's Honeybee News*, a journal the envy of Australian beekeeping associations.

THE 2015 SYDNEY SHOW
Bee Week is a fantastic initiative, but let's not forget that NSWAA has been working to raise awareness of the importance of what beekeepers do for over 30 years through *Honeyland* – we've been running a very successful "honey fortnight" for a long time.

As we go to press we are entering the last couple of days of the Show, so more about it in my next report. But a big thank you to Bruce White, our Show Coordinator and his assistant Lynn White. Also to Capilano Honey, Superbee, Beechworth, Bryn Jones and Warren Williams for their donation of honey.

A special thanks to Neil Bingley (featured on the cover) who has set up and pulled down the Show stand for many years and has been such a great supporter of *Honeyland* all at his own expense.

CONGRATULATIONS
Congratulations to Brett Bingley and Melissa Kershaw on their wedding on Saturday 28 March. The union of two well known beekeeping families from the Southern Tablelands. We wish them a long and happy marriage.

Casey Cooper
State President

2015 CONFERENCE

The NSWAA 2015 Conference will be held on 2 & 3 July at the Penrith Panthers Leagues Club, followed by the AHBIC Annual General Meeting Saturday 4 July

A registration form is included with this edition.

The Association has reserved a number of rooms at the Chifley Penrith, cnr Mulgoa & Jamison Rds, Penrith, adjacent to Penrith Panthers World of Entertainment, less than 5km from Penrith & 50 minutes from Sydney

ACCOMMODATION BOOKINGS

All attendees must book directly with the venue
Phone: 02 4721 7700 | Fax: 02 4732 2928
www.chifleyhotels.com.au/penrith
Book Online: www.silverneedlehotels.com.au

When booking please quote the following code to have rooms released from our bulk booking:
NSW Apiarists' 444701

TAKING ON AN APPRENTICE BEEKEEPER

There are a number of initiatives to assist employers who take on an apprentice or trainee particularly where it is in an industry experiencing a skills shortage. These initiatives provide financial incentives to eligible employers through the Australian Apprenticeships Incentives Program.

Whilst beekeeping professionally is associated with an ageing workforce and declining numbers of beekeepers, there is some good news out there for beekeepers who would like to take on a trainee.

Recent major changes in training apprenticeships have seen the TAFE OTEN course almost double in price from $480 to over $900.

The absence of skillsets on the NSW list at the end of 2014 (when this list closed), required for a training organisation to get government funding, makes it difficult but not impossible to take on a trainee.

However, the good news is that there is money around for both the trainee and the trainer. In all there is an additional federal $467 million for Agrifoods business to take on trainees which is top priority for this Government.

A trainee can now access up to $20,000 for accommodation and tools. The employer can obtain $1,500 for taking on a trainee, and the employer can get $2,500 for completing the traineeship.

But you need to get round some jargon - fortunately the New South Wales Apiarists' Association will be having an information table at their Trade Show which runs in conjunction with the State Conference to be held 2/3 July at Penrith Panther Leagues Club.

For more information contact:

Lamorna Osborne 0419 731 684
Bruce White (02) 9634 6792

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IMPROVING MARKET ACCESS FOR SMALL EXPORTERS

THE HON. BRUCE BILLSON MP
MEDIA RELEASE - 16 February 2015
www.treasury.gov.au

I welcome the announcement by my colleague Minister Barnaby Joyce, of more than $11 million in grants to improve market access for small exporters of dairy, meat, egg, fish, horticultural and grain products.

Small businesses stand to benefit the most from this funding programme. Small businesses and family enterprise are at the heart of the Australian agriculture sector. 82 per cent of the sector's output and 83 per cent of employment comes from small businesses.

The grants programme is seeking proposals for projects that will improve market access for small exporters and that will promote competitiveness and profitability.

As well as helping Australian small businesses to improve their competitiveness in the international marketplace, this funding announcement is a timely one. It has the potential to assist small businesses to make the most of the historic trade agreements the Abbott Government has signed with China, Japan and Korea.

The grants are one component of a four year $15 million package to assist small exporters, announced last year. The other two components are a rebate for eligible small exporters to assist with export registration charges, and a review of export fees and charges.

Applications for the grants programme close 5 pm AEST, 30 April 2015. Programme guidelines, including selection criteria and application details, can be found on the Department of Agriculture website at agriculture.gov.au/package-assisting-small-exporters.

Sally Branson: 0455 050 045

DUTCH BEEKEEPER SEEKING INTERNSHIP

First of all let me introduce myself, my name is Mario Coremans and I am a 19 year old Dutch student. Right now I am studying Business Administration & Agribusiness at the HAS university of applied sciences in Den Bosch, the Netherlands. At the moment I am on my way to graduate to the third year, in which an abroad internship is processed. I would like to complete this internship in the beautiful country of Australia, which brings me to the reason why I have decided to write you this e-mail. As my interests lie in the honeybees I have been searching for several bee-keepers in Australia, in which I have found the website of the NSWAA.

I hope you could help me with my search for an internship. As the HAS is a university they demand that the internship is based on an assessment related to Business Administration and Agribusiness on management level. Task is to combine the assessment with the normal business over a period of 12 to 15 weeks starting in November this year.

I have founded my own pollination company in 2012 and it is growing each year. I have done some research on the NSWAA website and found that the Australian beekeeping market is quite big. I was wondering if you could reach a few big, leading companies in this sector with my application for an internship with a level-related assessment. If you have got any other suggestions or ideas to help me further by finding an internship you are very welcome to share them. Thank you for your patience and cooperation, if you have got any questions don't hesitate to let me know.

Mario Coremans Email: M.Coremans@student.has.nl

NEW MEMBERS

A warm welcome to the following:

Thomas Gillard	Leichhardt
Brad & Merea Johnston	Gunnedah
Joel Johnston	Gunnedah
Joe Joseph	Coolongolook
Phillip McHugh	Nemingha
Erik Metlikovec	Bulga
Gary & Rina Rees	Berowra Heights
Judith Saxvik	Darlington Point

WHEEN BEE FOUNDATION LIMITED

PO Box 223
Richmond NSW 2752
www.wheenbeefoundation.org.au

25 March 2015

Re: Restructure of the Wheen Bee Foundation
The Wheen Bee Foundation has established itself as Australia's premiere, not---for---profit organisation that has been created to support honey bee research and development. After its initial establishment phase the Foundation is now embarking on its next stage of development to ensure that it is sustainable into the future. This process involves the development of a new structure for the Foundation. Discussions between the Board of Directors and the CEO have jointly resolved to implement a new Management and Board structure to ensure a broader skill set and ongoing viability. Consequently, by mutual agreement between the Board and Dr Shona Blair, the current CEO role is being made redundant.

Dr Shona Blair has been in this role for the past two years and leaves the Foundation with good will between herself and the Board. Shona hopes to remain closely engaged with the beekeeping industry and involved in research. She is also looking forward to maintaining a positive relationship with the Foundation, and engaging with it in the future to work towards common goals. The Wheen Bee Foundation will be actively working to attract significant donations to enable it to support research and innovation projects to achieve its mission of food security through bee security.

Dr Max Whitten AM, FAA, Chairman

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THE FROST REPORT

Elizabeth Frost
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PROTECT HONEY BEES; KNOW YOUR PESTS AND DISEASES

NSW DPI Bee Team is doing its bit to help the honey bee. The Pests and Diseases of Honey Bees Online Course is the first of its kind in Australia. This course is for the responsible and enthusiastic beekeeper.

Created by NSW DPI Technical Specialist Doug Somerville, myself and Tocal College (Registered Training Organization: 91166), this vital tool allows beekeepers to improve their knowledge and management of pests and diseases of honey bees thereby influencing the health and profitability of their colonies. A range of pests and diseases are threatening honey bee populations across the globe, many of which are already in Australia.

This online course format allows beekeepers from across Australia, and the world, access to training on their own time, at their own pace. Course access is available for 6 months. To date beekeepers in NSW and NT are taking advantage of this course.

The course consists of the following seven modules:

1. The honey bee
2. Colony size
3. Diseases of brood
4. Diseases of adult bees
5. Hive pests
6. Surveillance and response for exotic pests
7. Honey bees and the law

Each module includes a tutorial and links to additional information. A short quiz is included so you can check your understanding of the topic. The quizzes are not included in the overall assessment. Participants interested in being assessed are eligible to receive units of competency that can count towards a national qualification upon successful completion of the assessment tasks. In-depth module descriptions are as follows:

1. The honey bee

Pests and diseases can attack specific stages in the lifecycle of the honey bee and they can also attack specific castes. An understanding of the lifecycle of the honey bee and its castes is essential for detection, prevention and management of the pests and diseases.

Topics in this module:
- Lifecycle of the honey bee
- Castes of bees and their roles in the colony

2. Colony size

Seasonal expansion and contraction of the hive population is directly influenced by temperature and available food. Hive pests, also influenced by temperature and available food, will opportunistically infest weak colonies. Weak colonies are also at greater risk of disease infection.

A successful beekeeper can distinguish between seasonal variation in bee population and the effects of pests and diseases on bee population. Knowledge of the seasonal factors that affect bee population will guide hive management decisions needed to maintain strong, healthy colonies.

Topics in this module:
- Population of the colony varies with season
- Location influences pests and diseases
- Food and its nutritive value
- Susceptibility to pests and diseases can vary within strains

3. Diseases of brood

If you understand the nature of the disease that could infect your colony you can begin to prevent, eradicate or manage it. Some diseases infect the brood while others attack adult bees. In this module we take a close look at the agents of all disease and then important diseases of the brood.

In this module we describe the general causes of disease and management strategies for disease prevention. We also describe the three main brood disorders and virus infection: you will learn how to identify them and what to do about each.

Topics in this module:
- What causes disease?
- Management strategies for disease prevention
- Inspecting the hive
- American foulbrood disease (AFB)
- European foulbrood disease (EFB)
- Chalkbrood
- Sacbrood
- Other virus diseases

4. Diseases of adult bees

Adult bees are also in danger of disease infection. In this module we describe two main diseases that can affect adult bees.

Topics in this module:
- Nosema disease (nosemosis)
- Chronic bee paralysis virus (CBPV)

5. Hive pests

Pests can attack the hive and cause loss of production or make the hive more susceptible to disease. Pests can easily travel from one apiary to another and can easily spread throughout an apiary. It is important to understand how a specific pest can get into the hive so that you can combat it.

In this module we find out about hive pests of the honey bee, exotic and endemic. Surveillance programs for exotic pests are described in Module 6.

Topics in this module:
- Pesticides
- Small hive beetle (SHB)
- Wax moth
- Other pests

6. Surveillance and response for exotic pests

An understanding of the surveillance methods currently used in Australia and knowledge of the appropriate response to a surveillance alert allows you to contribute to their success in keeping out dangerous pests.

Topics in this module:
- Sampling for the National Bee Pest Surveillance Program (NBPSP)
- Response to surveillance alert

7. Honey bees and the law

Become familiar with laws that regulate beekeeping in your State or Territory to avoid fines for non-compliance.

Topics in this module:
- Beekeeper registration
- Abandoned or neglected hives
- Notification requirements

For additional course information follow the link or call the number listed in the NSW DPI/Tocal College Honey Bee Promotional Flyer. Course registration is available online: www.dpi.nsw.gov.au/agriculture/profarm/courses/bees-pests-and-diseases-of-honey-bees-online

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EUCALYPT IDENTIFICATION WORKSHOP

Beekeepers – are you currently taking a haphazard guess when the honey flow is on and never being ready in time and miss half of the flow?

Do you want to know when your local eucalypts are likely to flower but cannot identify an individual species to educate yourself thoroughly?

Have you ever wanted to be more self-assured when identifying where your honey came from? This workshop will give you the confidence to identify the flora your bees are accessing.

Successful beekeepers are successful botanists, and the workshop will give you a solid foundation in the understanding and identification of eucalypts.

Workshop suited for Beekeepers, Bush regenerators, Botanists, Plant enthusiasts, or general interest

This workshop is aimed at improving your ability to identify tree species Angophora, Corymbia, with subgenus Eucalyptus, and others.

You will learn correct specimen collection, leaf, bark and fruit characteristics of trees. All helped with a comprehensive manual being a key to the identification.

Up to 20 specimens are examined in the laboratory with packed half day identification in the field.

If you have had difficulty using "Clemson" or many other books or keys you will find the guidance of Van Klaphake invaluable.

The trees identification using it's characteristics of the natural relationship of bark, leaf, fruit and the locality are selected uniquely and individually for each tree.

The SPECIES of the SYDNEY REGION are covered, as this is where the workshop is, but the characteristics learnt will enable you to use this in the rest of Australia.

The manual's key natural arrangement will allow the Flora, as the species are presented [exist] in the same order, to be used with much more confidence.

Workshop run by Eucalypt Expert: Van Klaphake

Date: Monday 29 & Tuesday 30 June
(in the Richmond area)

Cost: $150 per person

Workshop includes:

- Manuals
- Extensive number of Specimens to work with
- Field excursion in Kurrajong, Mount Boyce area covering sandstone and clay occurring species.

The identification of Eucalypts is notoriously difficult. Past identification using keys or grouping under for example bark or leaf, fail at the detail level. Identification is obscured as there are too many species [number] for artificial systems to work satisfactorily. Focusing on single characteristics does not indicate the relationships naturally occurring between tree and locality components.

All species Angophora, Corymbia, with subgenus Eucalyptus, Nothocalyptus, Symphiomyrtus plus Transversaria, Exsertaria, Maidenaria and Adnataria of the region are fully illustrated in the manual. A user friendly key compiled to work well for botanists and people who have never used plant keys before.

Course participants will learn which groups are actually related to each other and from this reach a definite identification. A feel for the subject will develop and when out of your own area, where you might not know the gum trees, it will still be possible to identify new species.

A map of the distribution of each [tree] in the region is also helpful for quick reference.

NSWAA Sydney Branch
sydneybranch@NSWAA.com.au

Workshop details Contact:
Tanya 0414 501 198
Paul 0403 175 708
Doyle 0412 27 28 27

OPEN INDUSTRY Q&A SESSION

Come and listen to presentations from the Australian Honey Bee Industry Council (AHBIC) and Plant Health Australia (PHA) on the proposed Biosecurity Code of Practice and National Bee Biosecurity Program.

Listen to what the implications are for all beekeepers in NSW and have your say!

When: Friday 22 May 2015

Time: 8:00am – 12:00pm

Where: Orange Ex-Services Club
231-243 Anson Street
Orange NSW

REGISTER YOUR INTEREST FOR THIS SESSION WITH: info@nswaa.com.au

Remember to bring along the Code of Practice for your reference at this meeting. The latest version of the Code will be uploaded to the AHBIC website by the 1 May.

The session will be chaired by NSWAA President Casey Cooper

After this session, you can go and enjoy Honey Week activities which are located at the nearby Orange Showgrounds

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- Fat Bees Skinny Bees (D. Somerville, 2005)
- Bee Friendly (M. Leech, 2012)
- Pollination of Crops in Australia and New Zealand (M. Goodwin, 2012)

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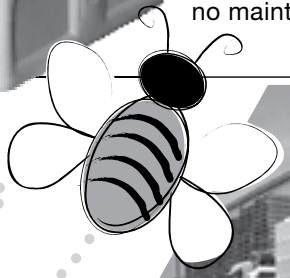

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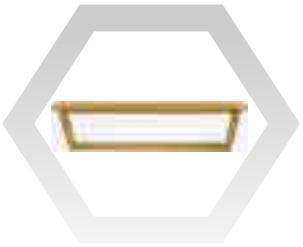

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INCREASING THE PROSPERITY OF BEEKEEPERS

This is the title of a round-table meeting I was invited to attend in Canberra, hosted by the Honey Bee program within the Rural Industries Research and Development Corporation. Essentially the meeting was to discuss in which research, development and education (RD&E) areas should investment be made to deliver the best outcome for the beekeeping industry.

The honey bee program is into its sixth RD&E plan (2012-2017), with the first starting in 1986. These plans are based on the priorities of the Australian honey bee industry as identified by the RD&E committee and the various industry bodies, including the NSW Apiarists' Association and AHBIC (Australian Honey Bee Industry Council).

The vision for the current plan is to work towards a productive, sustainable and more profitable Australian beekeeping industry. Four basic objectives are identifiable and they could be summed up as pests and diseases, productivity and profitability, flora, and communication.

The fundamental problem the beekeeping industry has is its size. It is a relatively small industry, but its importance to the economy in the provision of pollination services is large. Its significance in this field, more so than honey production, is likely to continue to grow for some years.

Australian beekeepers have traditionally obtained the lion's share of their income from honey production. Even though income to beekeepers from the provision of paid pollination is growing, for the near future this is still not likely to be big enough to change the honey production model dominating the industry.

As demand for pollination services grows, so will the price received for the rental of a beehive. Growers of crops requiring bees have no choice, they must have bees. Beekeepers have choice-honey production has been a long-term option for commercial beekeeping within Australia.

While the potential arrival of the exotic bee mite varroa is likely to substantially add to beekeeping production costs, it will eliminate virtually all unmanaged and feral honey bee colonies. This has had the immediate effect around the world of increasing the demand for paid pollination services.

At some future point the Australian beekeeping industry could copy the American beekeeping industry and make the shift to primarily being focussed on pollination. This happened in the USA in 2007 with the expansion of the almond industry within California.

Or maybe we will copy the New Zealand trend. Not that long ago their beekeeping industry produced light honey from clover and specialised in comb honey. The growth of the kiwifruit industry and its requirements for honey bee pollination saw a major swing by beekeepers to the provision of paid pollination services. This swing also saw an expansion in the beekeeping industry due to the increased profitability of beekeeping. Then came manuka. Historically avoided, this plant has now become the elephant in the room and honey production from manuka is the major focus for many NZ beekeepers.

So, where does the Australian beekeeping industry spend its very meagre funds in the RD&E sector that will have the biggest 'bang for its buck'? Does it go down the line of dealing with the threats? The two major threats to the Australian beekeeping industry which were identified at a workshop conducted in 2007, were varroa mites and reduction of access to floral resources. That workshop had a whopping 75 delegates to help focus its discussions. It was being driven by a desirable goal of creating a Cooperative Research Centre (CRC) which had the potential of attracting a lot more funds than the beekeeping industry alone could muster. Unfortunately, this bid failed and a CRC did not materialise.

There are two major ways of improving the profitability of your business. Either cut operational costs, or increase the income stream. This is a simplistic view. As a manager of beehives you also need to adapt and change to suit the market and the environment. If honey prices remain high there is very little incentive to chase income from pollination fees. Likewise, if the price paid for pollination services improves, then the attraction will be to focus your business on this enterprise.

Paid pollination services sound financially attractive, but there is a possible requirement to forfeit a honey crop or crops and manage your beehives to meet an agreed standard. The plant industry people, in most cases are not going to pay any more for pollination services than they have to. What it comes down to is supply and demand. Once you have a shortfall in bees for a crop then the price goes up. Unfortunately, not too many horticulturalists are familiar with what variations exist with honey bee populations between hives and, as a consequence, their ability to adequately pollinate the target crop. This is changing – but ever so slowly.

The Australian manuka story is a work in progress. Manuka is a New Zealand word for a common shrub belonging to the Leptospermum genus commonly called tea tree in Australia. There are at least 83 species of Leptospermum in Australia. Some produce honey crops, others do not. This is still a learning curve. Some of the honey produced demonstrates very high levels of antimicrobial activity which makes it extremely valuable. This is what gets our NZ beekeeping cousins out of bed.

Eucalypts and related species are the dominant source of honey within Australia. Even so there is significant variation in character sourced from a single species in the form of colour, flavour and aroma, which has hardly been touched in a marketing sense. The wine industry has gone from producing claret, moselle and riesling, to such a large variety of wines that there is insufficient space to list them all. The Australian beer industry was dominated by a handful of major breweries not that long ago. There are now over 200 micro-breweries in Australia and the number is growing.

We are told that honey in the supermarket, as a product, is price sensitive. The price goes up, people stop buying. I wonder if this is because its image is seen by most as 'just' a sweetener providing a honey flavour. It has an amazing image being a 'natural' unprocessed product. It sells itself in many respects. What is of concern is the shrinking

shelf space dedicated to honey in Australian supermarkets. Compare this to the never-ending range of dairy products. Even the shelf space dedicated to eggs is four to five times greater than honey. I mean, how much choice do you need when you want a dozen eggs?

The other lost marketing opportunity is the proliferation of farmers' markets. Yes, I know there are at least three and sometimes double this number of outlets selling honey, but aren't they boring. Putting a label on a jar and offering a taste is such a lost opportunity. Why not wear a beekeepers jacket, also a few posters wouldn't go astray. Add a comb of bees in a single frame observation hive. Include a story on the flora (blossom), location and time of year the honey was harvested. Sell the consumer a story and experience. The wine industry has done amazing things with fermented grapes – why can't the beekeeping industry follow this example with amazing honey? Smaller producers at farmers markets are in a strong position to add some flair to the honey marketing game.

In any workshop or planning event involving the beekeeping industry issues, pests and diseases are often the dominant focus. While the deluge of pests and diseases continues to increase in Australia and around the world, this area will be a major focus for any industry investment. Even so, how much do you spend on varroa preparation when it may take years to reach Australia? Hands-off beekeeping management is doomed to failure. Being aware of the major pests and diseases and having the skills to manage their impact is vital whether you keep bees, chooks or sheep. Traditionally this area has seen heavy government involvement through their various agricultural departments. This is rapidly becoming a historical fact, and industry at various levels is being asked to fill this role.

This is in the process of unfolding within the Australian context with Australian Honey Bee Industry Biosecurity Code of Practice. NSW Department of Primary Industries (DPI) have produced a publication "Healthy Bees" which covers the pests and disease subject very nicely. We have also produced an e-learning course on the same subject.

One area that concerns me greatly is that of industry structure and leadership. The beekeeping industry has a very well defined structure with a national peak industry body – the Australian Honey Bee Industry Council. This is supported by the various state bodies including the NSW Apiarists' Association. Increasingly fewer members are putting themselves forward to run these various organisations. The time commitment by individuals can be very expensive and is probably the major deterrent to becoming actively involved. Yet more so now than ever, industry organisations are being asked to do more and more. There is a very real need for corporate governance and leadership training. One area that will assist the industry into the future is well informed and highly skilled industry organisations.

Finally I will finish with the concept of public 'trust' – a concept that agricultural industries are endeavouring to master. The public must trust the beekeeping industry for the beekeeping industry to gain political support to use public lands and for the public to continue to consume honey. What are we doing in this area to ensure we do not dismantle the privileged position we currently hold?

It's a tough game making a collective decision as to where you should spend your meagre dollars for the best outcome. Only time will tell if the investments made now provide a handsome dividend for the Australian beekeeping industry.

(Acknowledgments - edited Annette Somerville, typed Vicki Saville)

New South Wales Apiarists' Association inc.

'The voice of the Beekeeper'

ANNUAL CONFERENCE PROGRAM

Penrith Panthers Event Centre,123 Mulgoa Road Penrith NSW

THURSDAY 2 JULY 2015 Ron Mulock AO Room	
8.00am	**REGISTRATION**
9.00am	Official Opening
9.15am	NSW Apiarists' Association AGM including welcome, remembrance pause, confirmation of previous minutes, business arising, financial report and President's, Branch, Show and Australia's Honeybee News reports – as published, Marcus Oldham session **Casey Cooper,** *President* NSW Apiarists' Association
9.45am	AHBIC Report - Activities for the year **Ian Zadow,** *Chairman* Australian Honey Bee Industry Council
10.15am	NSW Department of Primary Industries Reports **Dr Doug Somerville**, Technical Specialist Honey Bees NSW Department of Primary Industries **Mick Rankmore**, *Regulatory Specialist, Apiaries* NSW Department of Primary Industries **Elizabeth Frost**, *Honey Bee Development Officer* NSW Department of Primary Industries
10.45am	**MORNING TEA**
11.15am	The role of the new NSW Bee Biosecurity Officer **Dr Satendra Kumar,** *Chief of Plant Industries* NSW Department of Primary Industries
11.45am	Forestry policy and web booking system **Richard Rienstra**, *Regional Manager* Forestry Corporation of NSW Western Region
12.15pm	Nominations for Executive Council
12.30pm	**LUNCH**
2.00pm	Eat honey and bee well, Medicinal Australian honey **Dr Nural Cokcetin**, School of Biotechnology and Biomolecular Sciences University of NSW
2.30pm	Genetic testing for Africanised bees **Dr Nadine Chapman**, *School of Biological Sciences* University of Sydney
3.00pm	Finding the best honeybee genetics - first steps in a new approach **Dr Robert Banks,** *Director Animal Genetics and Breeding Unit* University of New England
3.30pm	The transformation of the New Zealand Beekeeping Association into the 21st century **John Hartnell**, *Chairman Bee Industry Group* Federated Farmers of New Zealand
4.00pm	The changing nature of the bee industry - where is it headed? **Trevor Monson,** *Beekeeper and pollination specialist*
4.30pm	General Business
5.30pm	**WINE & CHEESE NIGHT IN THE TRADE SHOW - sponsored by Ecrotek**

New South Wales Apiarists' Association Inc.

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ANNUAL CONFERENCE PROGRAM

Penrith Panthers Event Centre,123 Mulgoa Road Penrith NSW

FRIDAY 3 JULY 2015 Ron Mulock AO Room	
8.30am	**REGISTRATION**
9.00am	Australian Almond Board report **Ross Skinner,** *CEO* Almond Board of Australia
9.30am	Using satellites to move beehives **Jonathan Arundel,** *PhD student* University of Melbourne
10.00am	The New Zealand manuka debate **John Hartnell**, *Chairman Bee Industry Group* Federated Farmers of New Zealand
	Close of nominations for Executive Council
10.30am	**MORNING TEA**
11.15am	Netting of open entrance bee hives for transport - Expert Panel Session **Bill Weiss, Lindsay Callaway, Casey Cooper, Brian Woolfe,** *NSW & Victorian Beekeepers*
12.00pm	The impact of canola seed treatments on honey bee health - neonicotinoids and canola project **Dr Rob Manning**, *Apiary Research Officer* Western Australian Agriculture Department
	Close of voting for Executive Council
12.30pm	**LUNCH**
2.00pm	Overseas skilled workers, the subclass 457 visa and industry training **Joanne Kinslor**, *Principal Solicitor* Kinslor Prince Solicitors
2.30pm	Honey bee and pollination report from the Rural Industries Research Development Corporation **Dr Michael Hornizky** *Chair,* RIRDC Honey Bee and Pollination Advisory Committee
3.00pm	Beekeeping policy for NSW National Parks **Brian Leahy**, *Senior Policy Officer* NSW National Parks and Wildlife Service
3.30pm	Implementation of the honey levy **Trevor Weatherhead,** *Executive Director* Australian Honey Bee Industry Council **Ian Zadow,** *Chairman* Australian Honey Bee Industry Council
4.00pm	General Business
4.30pm	Close
7.00pm	**ANNUAL CONFERENCE DINNER**

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Queensland Beekeepers' Assoc.	11th & 12 June	Cleveland, QLD
South Australian Apiarists' Assoc.	18th & 19th June	Nuriootpa, SA
New South Wales Apiarists' Assoc.	2nd & 3rd July	Penrith, NSW

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NOT ALL LEPTOSPERMUMS ARE EQUAL

New Zealand Mānuka (*Leptospermum scoparium*) honeys regularly return $50/kg to the beekeeper. This reflects marketplace recognition for the wound healing and anti-bacterial activity of this honey. All honeys have an antibacterial action through; high sugar/hygroscopic nature, low pH and mild acidity, and hydrogen peroxide generation upon dilution. Mānuka honeys have an additional non-peroxide action through the presence of the dicarbonyl compound - methylglyoxal (MGO). MGO is not present in the nectar of the mānuka flower. Instead, the three carbon sugar, dihydroxyacetone, (DHA) which is present in the mānuka nectar, converts to MGO in the honey as it matures.

Australia has 83 species of *Leptospermum*, including *L.scoparium*. A collaboration involving the University of Technology, Sydney, (UTS), University of Sydney (USyd) and University of the Sunshine Coast (USC), which is supported by Rural Industries Research & Development Corporation (RIRDC), Capilano Honey Limited and Comvita Limited, are jointly investigating new sources of active Australian *Leptospermum* honeys. Carter et al. (2010) first showed Australian honey had antibacterial activity, and that *Leptospermum* honeys had non-peroxide activity (NPA). Researchers at USC Honey Laboratory (Windsor etal. 2012) later showed DHA and MGO were present in Australian *Leptospermum* honeys. The current research aims to identify new regions and species for *Leptospermum* honey within Australia, and to also increase returns to producers through further research into the wound healing properties of these honeys. Individual beekeepers are invited to become involved in the research by donating representative honey samples, and to receive back their test results.

The USC Honey Laboratory has analysed DHA and MGO in thousands of honeys samples. Some are highly active, with greater than 4000ppm DHA and 1000ppm MGO. Many were inactive with little or no DHA and MGO. There appears some confusion within the beekeeping community as to what is *Leptospermum*, and what is Teatree or Heath.

Also many honeys that appeared the classical *Leptospermum* "jelly like" consistency returned no activity. This led us to speculate that not all *Leptospermum* species are equal. The collaboration has shown that in Australian *Leptospermum* honeys, the antibacterial activity is a function of the MGO content. This MGO develops in the honey over time from the nectar DHA. At the USC laboratory, we have analysed the nectar from several Australian *Leptospermum* species, and found they are not all equal. Thus far in this work, *L. whitei*, *L. polygalifolium, L.scoparium* and *L.liversidgei* are active, but *L.leavigatum* and *L.trinervium* contain no DHA. Should the nectar of a single tree be converted into fresh honey, the typical DHA ranges present are:

Leptospermum species (currently investigated)	Equivalent DHA range in honey (ppm)
Leptospermum whitei	8500 - 21000
Leptospermum polygalifolium	6500 - 17500
Leptospermum scoparium	2000 - 7000
Leptospermum liversidgei	4000 - 13000
Leptospermum leavigatum	Less than 100
Leptospermum trinervium	Less than 100

The importance of this information to beekeepers is; targeting the right species for active premium honeys is important. Bees collect from available flowers within a 3 km radius. Single floral sources are impossible with overlapping flowerings, and multiple species present. However the most active species can be targeted, or for lower activity culinary honeys, mixed species are still fine.

The conversion of DHA to MGO as the honey matures is complex. The reaction is dependent on acidity, amino acid content, temperature and time. Some producers mistakenly heat treat honeys to accelerate the process. This is detrimental to the honey's value. Firstly, at lower temperatures the conversion is slower, but at a higher percentage conversion. At elevated temperatures, DHA is lost faster, but less ends up as MGO. Anecdotally, the conversion is two DHA to one MGO at 20° C, but three DHA to one MGO at 30° C. Further elevated temperatures produce the undesired hydroxymethylfurfural (HMF). A maximum level of 40ppm HMF has been set by the International Honey Commission for culinary honeys. Short heat treatments to blend, separate waxes or to de-crystallise are fine. Extended heat treatment not only produces HMF, but also does not allow maximum MGO development. In the USC laboratory, storing *Leptospermum* honeys at 37° C for 60 days produced on average an 88ppm HMF increase (Windsor etal. 2013). Tasmania has the other problem, where ambient temperatures are often too slow for commercial conversion. We recommend 20-25° C for 6 months – 2 years for development of MGO.

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SICK BEES

Colony Collapse Revisited
PART 18F2
PLANT ALLELOCHEMICALS

by Randy Oliver - ScientificBeekeeping.com

Plant Allelochemicals

How do pesticides relate to colony collapse? That sounds like a simple question, but as I said in the last installment, it's complicated (there are rarely simple answers in biology). In order to begin to understand the effects of man-made pesticides upon bee health, we must first back up and understand some of the complex biology involved in natural bee/plant/toxin interactions.

Nature Is Not Nice

Every form of life on Earth is a "survivor" in an unbroken lineage that traces back roughly four billion years. In some of those years, conditions were certainly not favorable, and each and every organism by necessity needed to have the ability to detoxify the numerous natural chemicals and toxic byproducts of volcanoes, natural radiation, ultraviolet light, and the free radicals created by exposure to oxygen. Things got even tougher as bacteria and fungi began to engage in chemical warfare—creating a slew of nasty toxins in order to kill off their hosts or competition. And once plants and their predators evolved, they developed an entire pharmacopeia of phytotoxins to repel, irritate, sicken, or kill anything that tried to eat them.

We humans tend to forget that plants are naturally full of toxic substances, but all one need do is to simply go outside and start randomly consuming wild plant leaves, fruit, and seeds to confirm that this is indeed the case! (Kids, do not try this experiment!). Plant breeders have intentionally bred some of the natural toxins out of our crops (or at least from the edible portions—e.g., breeding out the bitter alkaloids from potato tubers, while leaving them in the leaves to repel pests). One unfortunate effect of this sort of breeding is that it makes our crops more susceptible to herbivorous insects, which then forces farmers to spray synthetic insecticides to protect the crop [1].

Practical application: in order to reduce farmers' reliance upon pesticides, plant scientists can breed for naturally insect-resistant plants. The tradeoff is in repelling insects without making the plant too toxic for humans.

Toxic Pollen and Nectar

My point is that both humans and honey bees evolved in a world awash in poisons, and both eat diets brimming with natural toxins. As Gold [2] points out, the vast bulk of toxins consumed by humans are the natural poisons in our food. Honey bees also consume substantial quantities of natural phytotoxins—flower nectars and pollens contain a vast array of poisons.

Figure 1. It helps to understand the vernacular used by toxicologists.

DEFINITIONS

Chemical: A substance with a distinct molecular composition. Everything around you is made of chemicals.
Poison: A substance that, when introduced into or absorbed by a living organism, causes death or injury, esp. one that kills by rapid action. However, Paracelsus pointed out that all things are poisons, given a high enough dose.
Phytochemicals: chemical compounds naturally produced by plants; of varying structures and biological activities, including nutrients, allelochemicals, volatiles, proteins and peptides.

Secondary metabolites: chemicals produced by organisms which are not required for metabolism (i.e. growth, development or reproduction).

Toxin: a poison produced naturally by an organism (e.g. plant, animal, insect).

Allelochemicals (after allelopathy, from Greek *allelo-* and *-pathy* (meaning "mutual harm"), first used when describing plant-to-plant competition): secondary metabolites produced by an organism that are toxic or inhibitory to the growth of other organisms.

Phytotoxins: plant allelochemicals with known toxic effects.

Toxicant: a poison that is made by humans or introduced into the environment by human activity.

After Cory (2006) and Wikipedia.

Although analysis of the bee genome indicates that for some reason honey bees appear to possess fewer detoxification genes than other insects, they are apparently adept at detoxifying or eliminating the plant toxins commonly found in nectar and pollen.

Figure 2. A bee foraging on a species of Senecio. The pollen from this and a number of other related plants (comfrey, ragworts, and common groundsel) contain toxic pyrrolizidine alkaloids [3] - enough to raise concern by European health agencies about their levels in honey [4]. Honey bees must metabolically detoxify these alkaloids [5]. Photo courtesy Kathy Keatley Garvey.

The pollen and nectar from many bee-pollinated plant species contains toxic "allelochemicals" (alkaloids, cardenolides, essential oils, anthraquinones, flavonoids, saponins, coumarins, etc.). Some plants accumulate certain metals (e.g., selenium, manganese, copper) to levels that are toxic to plant-feeding insects [6], and onion

flowers may concentrate enough potassium in the nectar that it discourages bee visitation [7].

In order to allow us to avoid excessive amounts of plant toxins, humans have extremely sensitive taste buds to detect the "bitterness" of typical allelochemicals. All you need do is to taste almond nectar to find that it is surprisingly bitter, or bee collected pollen (one color pellet at a time) to notice the bitter chemicals. Yet bees (and humans) readily consume, either by choice or necessity, such clearly toxic plant products. German researchers Detzel and Wink [8] tested 63 different plant allelochemicals for attractiveness, deterrence, and toxicity to adult bees. Nearly 40 showed some degree of feeding deterrence.

Surprisingly, they found that several were toxic at levels that *didn't* cause feeding deterrence, meaning that bees might unwittingly consume a toxic dose! And remember that there is little chance for dilution of toxic nectar, since any individual nectar forager sticks to only one species of flower–which may be a good thing for the colony if an intoxicated bee is unable to return! But then those toxins are concentrated when bees process the nectar into honey.

And just how toxic were those natural allelochemicals? By my math, more than half of the tested compounds were acutely toxic to bees in the parts per million range–they would all have made Atkins' [9] ranking as "highly toxic"—some of them approaching the toxicity of imidacloprid [10]!

Practical consideration: if one were to be admitted to the emergency room suffering from poisoning, the first thing that the doctor would ask would be, "What other drugs (toxins) had you taken?" Yet if a beekeeper submits a sample of beebread to the lab for the standard pesticide analysis of 170 toxicants, no one's looking at the plant allelochemicals! When taken out of context of the bees' total exposure to toxins both natural and synthetic, the typical pesticide analysis would give only part of the picture.

Beekeepers have long noticed that particular nectar flows may affect their bees-some nectar flows are said to make bees "pissy;" and the Australians refer to "hot" or "cold" honeyflows [11]. And bees may fare poorly if they get too much of single nectar. For example, linden nectar (Tilia) contains the bee-toxic sugar mannose (as well as a bit of nicotine).

It makes one wonder why plants that depend upon insects to pollinate them would produce toxic pollen and nectar? Well, in the first place, pollen is precious to plants, and they only begrudgingly allow bees to eat it. Another theory is that toxins produced to deter herbivores from grazing on the foliage simply "wind up" in the flower products [12]. But it appears to be more complicated than that–in many plants the allelochemicals are either concentrated or diluted in the nectar and pollen (relative to the amount in the sap) or of different composition than in the leaves. So plants appear to be able to regulate their toxicity to pollinators.

Plants would then need to perform an evolutionary balancing act in being toxic enough to deter herbivores, yet keeping their nectar and pollen palatable to pollinators [13]. But nature abhors uniformity. The phytotoxins in plants differ in both mixture and concentration not only from species to species, but even from individual plant to plant (this is a common energy-saving strategy used by prey species to "train" predators). Linhart [14] studied wild thyme plants in the south of France, and found that *individual plants* varied in which of the six dominant monoterpenes that they produced. Thus, each individual plant exhibited a specific "chemotype." Foraging bees may thus face a bewildering smorgasbord of plant chemotypes, even in a field of the same species of flowers! When given a choice, they may avoid those that are too potent (or maybe not!).

Practical application: during nectar dearth, or the failure of a particular bloom, foraging bees may find their choices to be limited, and be forced to bring back plant products that they normally would have avoided.

Other hypotheses [15] propose that plants toxify their nectar to favor specialized pollinators, or to deter "nectar thieves" such as ants, or generalists such as honey bees. One intriguing hypothesis is that plants serve up stimulants in their nectar to "hook" bees—bees apparently prefer a little caffeine or nicotine in their juice [16]. Such stimulants may also cause the bees to become more efficient pollinators by inducing them to move more rapidly from plant to plant, or not grooming the pollen off their bodies as efficiently. Nature is not constrained by any ethical rules of "fair play."

Something of interest is that Baker [17] found that the nectar of flowers pollinated by butterflies (which don't eat pollen) tended to have a higher content of amino acids than did that from plants normally pollinated by bees. This certainly implies that nectar of some plants may be more nutritious to bees than that of others. Of even greater interest is that when he surveyed plants from tropical lowlands up to alpine tundra, he found that the lower in elevation (or further south), the greater the concentrations of alkaloids or phenolics in the nectar (presumably due to the greater intensity of insect pressure)! As we will see later, this has implications as to the differences in tolerance to manmade insecticides by honey bees as compared to bumblebees.

It is energetically costly to plants (meaning that it slows their growth) to produce these allelochemicals, so many annuals and biennials hold back until they start to flower (presumably to protect their future "offspring"). Anyone who has tasted lettuce after it has started to bolt has surely noticed the sudden increase in bitter allelochemicals! Plants may also upregulate the production of toxins when stressed by drought or by insect predation, or if neighboring plants communicate a chemical signal [18].

Practical application: floral toxicity may vary from plant to plant, region to region, or year to year, and increase in time of plant stress due to heat, drought, or insect attack.

At the colony level, incoming toxic nectar and pollen may be diluted or mixed with other pollens. Foragers intentionally seek out a diverse mixture of pollens, which may help to keep them from poisoning the broodnest, since some nectars and pollens are quite toxic (Table 1):

Some Plants Acutely Toxic to Honey Bees Largely from Atkins (1975), and Pellet (1920)

Black Nightshade	Mountain Laurel
California Buckeye	Oleander?
Corn Lily	Rhododendron
Death Camas	Seaside Arrowgrass
Dodder	Summer Titi
Henbane	Western False Hellebore
Horse Chestnut	Whorled Milkweed
Locoweeds	Yellow Jessamine

Table 1. The above plants are not in any sort of class by themselves—they are simply those that beekeepers in North America have reported ***under some conditions*** to cause serious adult or larval bee mortality. Most other plants produce a continuum of phytotoxins which may cause sublethal or beneficial effects that go unnoticed by beekeepers.

For example, in California, bees readily gather nectar from Buckeye (*Aesculus californica*) (Fig. 3):

Symptoms of buckeye poisoning usually appear about a week after bees begin working the blossoms. Many young larvae die, giving the brood pattern an irregular appearance. The queen's egg-laying rate decreases or stops, or she may lay only drone eggs; after a few weeks, an increasing number of eggs fail to hatch or a majority of young larvae die before they are 3 days old. Some adults emerge with crippled wings or malformed legs and bodies. Foraging bees feeding on buckeye blossoms may have dark, shiny bodies and paralysis-like symptoms. Affected colonies may be seriously weakened or may die [19].

Figure 3. Pretty, but deadly. This is the toxic plant with which I have the most experience—California Buckeye. In "normal" years my bees work it heavily for nectar, but I don't see them collecting much pollen; the nectar is diluted by the concurrent nectar flow from wild blackberries. But in years in which the blooms are out of synch, Buckeye can really hammer an apiary!

Although researchers have shown that the larvae of various species of bees vary in their ability to handle different pollens [20], and that some pollens are toxic to honey bee larvae [21], I'm not quite sure as to exactly what happens during buckeye poisoning, since incoming pollen is generally fermented into beebread, then eaten and digested by nurse bees, and finally converted into jelly for feeding the larvae and queen (actual pollen normally only constitutes a tiny portion of a larva's diet). So I'm unclear as to how the Buckeye nectar or pollen kills the brood (perhaps the toxin is passed via the jelly?).

Have You Ever Noticed Plant Toxic Effects?

The legendary bee toxicologist Larry Atkins [22] described the symptoms of natural plant toxicity to honey bees:

The substances in poisonous plants which are toxic to bees are specific in action and may be in both pollen and nectar or may be confined to the nectar or simply to the pollen. Symptoms of plant poisoning are sometimes difficult to recognize or to be substantiated by chemical or microscopical diagnosis…The presence of symptoms usually is limited to the blooming period of the plant if the nectar is poisonous…However, if the toxic substance is in the pollen, the symptoms may linger as long as the supply of pollen remains in the combs…When only the adult bees are affected, piles of them may be found dead in front of the hive entrance, and there may not be enough adults to care for the brood or cover the combs.

And this is not to mention bees simply getting drunk on fermenting nectar [23]. The nectar in flowers readily ferments into alcohol, and beekeepers have long noticed drunken foragers. Surprisingly, the alcohol in nectar appears to be the necessary substrate from which forager bees produce the primer pheromone ethyl oleate [24], by which the colony regulates the proportion of foragers to mid-aged bees [25]. So the presence of some amount of the toxin ethanol may be critical for the normal colony division of labor!

Bees show clear preferences when offered various pollens [26], and produce more brood when fed some pollens compared to others [27]. Even when placed in fields of some popular row crops, foragers seek out other sources of pollen, sometimes to the near exclusion of the crop that they are supposed to be pollinating! But when we speak of the poor nutritional value of some pollen sources, we're really not sure whether it is due to lack of nutrients, or to the presence of excessive toxins, or to some combination thereof.

Practical application: we really don't know just how often bee colonies may be living on the "toxic edge." We know that colonies build up (or maintain) better on some flows than others, but is the lack of buildup sometimes perhaps due to the bees being at the limit of their ability to detoxify the natural nectars and pollens that they are bringing in?

What Doesn't Kill You Makes You Stronger

Paracelsus, regarded by many as the father of toxicology stated that, "All things are poison and not poison; only the dose makes a thing not a poison." He recognized that something that can be toxic at a higher dose can be stimulatory or medicinal at a lower dose.

Early physicians carried strychnine in their bags and prescribed it as a tonic to their elderly patients—only in high doses was it considered to be harmful. Similarly, nicotine, caffeine, aspirin, and alcohol may be useful stimulants or have health benefits at low doses. The term for this effect is "hormesis" (from Greek *hórmēsis* " to set in motion") and is well described by Bniecki [28]:

If you haven't yet heard of "hormesis" you probably soon will. A revolution is taking place in toxicology which will eventually change perspectives radically about the hazards or otherwise of pesticide traces in food. Hormesis is described as the paradoxical effect of toxins at low concentrations. The paradox is that although most chemicals are toxic at high concentrations (or dose), the majority are likely beneficial at low concentrations (or dose). The common regulatory assumption is that if a chemical is toxic at high dose it continues to be toxic but with diminishing toxicity as the dose is lowered. In contrast, hormesis indicates that many chemicals have the opposite effect at low doses to those at high doses.

The above words were written in 2003. You might have noticed that "hormesis" (or its implications) has not yet become part of the common lexicon. Baldwin [29] explains:

The hormetic perspective also turns upside down the strategies and tactics used for risk communication of toxic

substances for the public. For the past 30 years, regulatory and/or public-health agencies in many countries have 'educated' — and in the process frightened — the public to expect that there may be no safe exposure level to many toxic agents… If the hormetic perspective were accepted, the risk-assessment message would have to change completely. Changing a dominant risk-communication paradigm is not as simple as flicking on a light switch. It changes beliefs, attitudes, and assumptions… It would certainly be resisted by many regulatory and public-health agencies…

Although the public has not yet resonated with hormesis, entomologists (who also refer to it as "hormogliosis") are well aware of the effect [30,31,32]. Such hormetic effects would certainly be expected to apply to honey bees and plant alleleochemicals:

As with all toxins, carefully conducted dose response studies with allelochemicals generally results in the finding of hormetic responses [33].

So, in general it appears that sublethal doses of many toxins, instead of being harmful, may actually promote health! This concept is certainly contrary to what we've been led to believe, despite Paracelsus pointing out the obvious some 500 years ago. It's funny that we haven't made the connection when we speak of "chemicals" in the environment, since, if you think about it, hormesis is the basis of modern medicine, in which doctors prescribe toxins at low doses to cure our ills

Figure 4. There is no difference between a medicine or a toxin, other than the dosage. More than half of the world's population still relies entirely on plants for medicines, and plants supply the active ingredients of most traditional medical products. Plants have also served as the starting point for countless drugs on the market today [34]. Photo credit [35].

I found a fascinating article on the problem of consumer acceptance of bitter fruits and vegetables, despite the healthful benefits of those bitter plant allelochemicals 36]. The authors point out that plant breeders and our cooking methods deliberately "debitter" our food, with the unintended effect of perhaps removing the most healthful (especially anti-cancer) components! The authors point out that, "When it comes to bitter phytonutrients, the demands of good taste and good health may be wholly incompatible."

Perhaps the bees' predilection toward bitter plant products may be telling us humans something important!

An Unintended Effect on Varroa?

In researching hormesis, I came across an item of interest—that low doses of some insecticides have the hormetic effect of increasing the fecundity of the insect that the chemical was intended to kill [37,38]! What especially piqued my interest was a study that found that the same applies to mites [39]. Could it be that miticide or insecticide residues in brood combs might increase varroa fecundity?

Self- Medication

We humans (at least some of us) intentionally eat plants rich in potentially toxic phytochemicals for their beneficial hormetic effects—think of the aromatic flavors of herbs, the tingling burn of spices, strongly flavored fruits, and "healthful" bitter salad greens. Bees may well do the same in seeking out allelochemical-laced pollen and nectar for its healthful benefits.

Some plant toxins help bees to fight parasites—Laurentz [40] found that despite the fact that it was metabolically costly to detoxify plant toxins, it may be of benefit to the insect in that those toxins help to defend it from parasites! Amazingly, there is even evidence that insects may actually self-medicate with plant products when they are sick—Singer [41] found that parasitized caterpillars consume plant toxins to excess in order to kill their parasites. And how about the toxic antimicrobial, ant-repelling, and mite-killing tree resins that we call "propolis"? Mike Simone-Finstrom [42] recently found that honey bee colonies experimentally challenged with chalkbrood went out of their way to collect extra propolis. But it gets even more complex than that…

Tritrophic Interactions

Just in case you're not yet overwhelmed by the complexity of nature, let's now move on to on "tritrophic interactions" (taking place at three levels):

Many insects live in close association with microorganisms (e.g., bacterial endosymbionts). Given the many enzymatic activities known to occur in bacteria and fungi, their role in detoxifying secondary plant compounds has been suspected but not yet clearly demonstrated. Further research will involve evaluating the role of endosymbionts in the detoxification of plant toxins [43].

Unfortunately, we don't know squat about how important the honey bee gut- or beebread symbiotic bacteria and fungi are in detoxifying harmful chemicals! But it's not just in detoxification that we have tritrophic interactions. In addition, bees are generally infected by one or more parasites (bacteria, fungi, viruses, mites, or nosema). There is evidence that any or all of these parasites may be affected by both the plant allelochemicals that bees consume, as well as any synthetic pesticides (or beekeeper-applied miticides) that they are exposed to.

So what's a "tritrophic interaction"? Let's say that a plant is preyed upon by grasshoppers, and that the grasshopper population is largely controlled by the presence of a gut parasite (say *Nosema locustae*). All that the plant need do is to produce allelochemicals that favor the gut parasite (perhaps by suppressing the grasshopper immune response), so that any grasshoppers that eat that particular plant would suffer greater parasitism. This is a common strategy in biocontrol using insect parasites—the parasite spores are introduced along with a synthetic insecticide that weakens the insects' defenses.

It also works the other way—a plant can favor a pollinator or animal that distributes its seeds by producing healthful allelochemicals. Can this phenomenon occur in bees? You bet!

Diet has a significant effect on pathogen infections in animals and the consumption of secondary metabolites can either enhance or mitigate infection intensity. Secondary metabolites, which are commonly associated with herbivore defense, are also frequently found in floral nectar. One hypothesized function of this so-called toxic nectar is that it has antimicrobial properties, which may benefit insect pollinators by reducing the intensity of pathogen infections. We tested whether gelsemine, a nectar alkaloid of the bee-pollinated plant Gelsemium sempervirens, could reduce pathogen loads in bumble bees infected with the gut protozoan Crithidia bombi…Gelsemine significantly reduced the fecal intensity of C. bombi 7 days after infection when it was consumed continuously by infected bees…Lighter pathogen loads may relieve bees from the behavioral impairments associated with the infection, thereby improving their foraging efficiency. If the collection of nectar secondary metabolites by pollinators is done as a means of self-medication, pollinators may selectively maintain secondary metabolites in the nectar of plants in natural populations [44].

Just as humans eat certain strongly-flavored plants to ward off disease, could plant allelochemicals protect bees from viruses and nosema? Cory, in the best paper on tritrophic interactions that I've seen [45], states that, "Thus far, only the tip of the pyramid of complex multitrophic interactions has been exposed." But she explains several mechanisms by which plant allelochemicals can protect bees from pathogens:

- The lining of the bee gut (the peritrophic matrix) is a key barrier to viruses and nosema. Phytochemicals can affect its structure, permeability, and physiology.
- Plant allelochemicals can damage midgut cells so that they are sloughed off before viruses or nosema can replicate in them.
- Plant-derived chemicals can cross the midgut and initiate signaling cascades to bring about cellular immune responses (hormesis).
- By improving the nutritional benefit of the bee diet, phytochemicals could indirectly reduce bee mortality due to infection by pathogens.
- Many phytochemicals, especially allelochemicals and nutrients, can modify the physiology and growth of the bee, affecting its susceptibility to infection.

Practical application: a number of researchers have found that sublethal doses of pesticides may make bees more susceptible to nosema or other pathogens. On the other hand, some may actually help to protect them. Perhaps the reason that bees do better on certain forage is because the phytochemicals in those plants help the bees to fight pathogens! I am especially excited by the prospect that there are likely natural plant products that we could supplementally feed to colonies to help protect them from viruses and nosema (I currently have several at hand that I plan to test against nosema).

Bee Detoxification of Allelochemicals

In the first place, bees may not need to detoxify allelochemicals if they simply don't absorb them in the first place–the bee gut is pretty efficient at simply shepherding some toxins straight through. Suchail [46] found that only a small percentage of ingested radioactively-tagged imidacloprid (an alkaloid) ever makes it in any form into the bees' haemolymph or thoracic muscles.

If absorbed, insects then depend largely upon three groups of detoxification enzymes to metabolize the toxins: the cytochrome P450 monooxygenases (P450s), the carboxylesterases (COEs), and the glutathione S-transferases (GSTs) [47]. The production of these enzymes is normally up- or down-regulated by the presence of allelochemicals in the diet. Bees use the same enzymes to metabolize synthetic pesticides.

Older texts gave credit to the insect fat bodies as being the site of that enzymatic detoxification, but recent research [48] suggests that even more important are the Malpighian tubules (Fig. 5), which play a major role in metabolism and detoxification of insecticides, as well as secreting antimicrobial peptides in response to infection [49].

Figure 5. Left to right, the bee midgut (or intestine), where most digestion takes place; the ileum (narrower tube) in the middle; and the head of the rectum to the right. The slender Malpighian tubules are attached at the junction of the midgut and the ileum. The Malpighian tubules and ileum perform detoxification, immune, and excretory functions analogous to the human liver and kidney. (I took this photo with a pocket digital camera held to the scope, illuminated by a flashlight clamped between my teeth).

Something of interest is that some toxins or toxicants ***only affect either the adult bees or the larvae***. For example, bee larvae are apparently completely immune to neonicotinoids [50]; yet the nectar of summer titi appears to *only* poison the brood [51].

Another oddity is that there may be instances of a "paradoxical effect," in which it may take a sufficiently high dose of a chemical to initiate the detoxification response [52], at which point the organism starts to exhibit "immunity" to that toxin. However, I have yet to come across any instances where this has been demonstrated in bees.

Summary

- Nectar, pollen, and propolis are chock full of plant allelochemicals, many of which may be toxic to bees at the levels found in natural settings.
- When other forage is unavailable, bees may be forced to work toxic plants that they would normally avoid.
- Sublethal doses of those allelochemicals may have beneficial hormetic effects upon bees.
- Some plant allelochemicals may help bees to fight parasites, and bees may self-medicate.
- The coevolution of plants and bees involves complex chemical interactions that we are only beginning to understand.
- Bees must first detoxify any plant allelochemicals in their diet before they can begin to deal with any additional manmade chemicals.
- We cannot fully understand the impact of synthetic pesticides upon bee health unless we also take into consideration the above fact.

To be continued

In the next installment, I will explore the interactions between natural allelochemicals and synthetic pesticides.

Acknowledgments

As always, I'm indebted to Peter Borst for his assistance in research.

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These articles were originally published in the American Bee Journal. All of Randy's bee articles be found at: www.Scientificbeekeeping.com. If you find these articles of use. Randy appreciates donations to fund his efforts.

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AUSTRALIAN LEPTOSPERMUM HONEY

Looking for more sources of Medicinal Australian Leptospermum (Jelly Bush) Honey.

The University of Technology Sydney is leading an exciting new research project looking for more sources of medicinal Australian *Leptospermum* honey (aka jelly bush, or Australian manuka).

We are asking beekeepers with access to *Leptospermum* (jelly bush / manuka) honeys from anywhere in the country to provide samples to include in this research project. We will test these honeys for antimicrobial activity and investigate the relationship between the activity and the plant source.

The project will run over the next three years plus, to allow us to collect and test as many Australian *Leptospermum* honeys as possible.

Why are we doing this?
Manuka (*Leptospermum scoparium*) honey from NZ is world famous, and it is sold at a much higher price than other honeys. However, although Australia is home to the largest diversity of *Leptospermum* plants in the world (we have more than 80 species compared to NZ's two!), most of our honeys do not enjoy the high prices of their NZ equivalents.

We already know that a handful of Australian *Leptospermum* honeys have similar levels of antibacterial activity to NZ manuka, but most of the other 80 plus Australian varieties have not been tested. We want to find more sources of active honey, which will help the Australian beekeeping industry by increasing the amount and value of medicinal Australian honey being produced.

If you have access to *Leptospermum* honeys from anywhere in Australia, and would like to include them in our survey, please get in touch with us. We'll be asking for approximately 500g and some information about the location it was collected, as well as samples from the plants the bees visited to produce the honey. We will provide a collection kit containing clear instructions, an address to send your samples to and other important information for our study.

We will keep the results confidential, but we will provide anyone supplying samples with a report on the results from the testing of their honeys.

The Research Team involved in this project includes Dr Shona Blair, Dr Peter Brooks and Professor Dee Carter, as well as the Principle Investigator, Professor Liz Harry and the Project Coordinator, Nural Cokcetin. The project is being funded by RIRDC, with support from Capilano and Comvita.

For more information on providing samples, please contact:

Nural Cokcetin, Project Coordinator
University of Technology Sydney
0405 284 718 Nural.Cokcetin@uts.edu.au

Professor Liz Harry, Principle Investigator
University of Technology Sydney
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This event will be held in conjunction with national Honey Month & is a fun-filled opportunity for you to stay abreast of changes in the industry and to educate the general public.

We're looking for any bee or honey-related stall holders to participate over the 2 days - with stalls starting at just $55.
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Mr Casey Cooper
President
NSW Apiarists Association Inc.
Darby's Fall Road
Tinghа NSW 2369

Dear Mr Cooper

Abandoned and neglected beehives policy and procedures

I refer to your recent letter to Bruce Christie, Deputy Director General Biosecurity and Food Safety, outlining the concerns of the NSW Apiarists Association Inc. about the 18 week period for a response to reports of abandoned or neglected beehives.

Eighteen weeks is the maximum period for a complainant to receive a response about an investigation into an abandoned or neglected apiary. The department's aim is to address these issues as soon as practical and many investigations are completed earlier with the complainant being advised of the outcome accordingly.

NSW Department of Primary Industries apiary inspectors are bound to comply with the *Apiaries Act 1985* and the Apiaries Regulation 2013. The Act and the Regulations stipulate time periods that must pass before inspectors can take action against neglected or abandoned beehives. These provisions were included in legislation to ensure that every attempt is made to find the owners. The regulation prescribes a minimum period of 20 days (clause 12 of the Regulations) after the initial inspection to locate the beekeeper of a neglected or abandoned apiary. The inspector cannot take any action unless the beekeeper can be located or 20 days have passed.

If the apiary is unidentified and is on private land, 28 days notice must be given (by way of notice in the immediate vicinity of the hive/s and published in a state-wide newspaper) before it is forfeited to the Crown (section 15A(6) of the Act). In cases where the apiary is suspected of being infected with American Foulbrood the inspector undertakes initial remedial work while making enquiries to locate the owner of the hives.

The construct of the current legislation means that a neglected or abandoned apiary complaint may not be resolved within a 4 week period.

A new NSW Biosecurity Act is currently before the NSW Parliament and, if passed, will provide greater flexibility in the way biosecurity issues are managed. The timeframes for review and resolution of such complaints will be reviewed as the supporting regulations for this Act are developed.

Consultation on the supporting regulations and the opportunities that the new Act may provide will occur during 2015. I will ensure that your recommendations are considered and that you have opportunity to contribute to the development of the legislation and supporting procedures as this project progresses.

I have attached a copy of our current policy and procedures. The draft NSW Biosecurity Bill may also be viewed at http://www.parliament.nsw.gov.au/Prod/Parlment/nswbills.nsf/0/0141A3CF4CEC16DDCA257D7AC0156190. Further information about the proposed new legislation may also be viewed at http://www.dpi.nsw.gov.au/biosecurity/legislative-review.

If you would like to discuss this issue and the development of the new legislation further, please do not hesitate to contact me on 9338 6662.

Yours sincerely

Dianna Watkins
Director, Biosecurity Compliance

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FOR THE LATEST NEWS GO TO THE AHBIC WEBSITE: **www.honeybee.org.au**

LATEST ON HONEY LEVY REFORM AND INCREASE
AHBIC has been advised by the Department of Agriculture that the levy increase should commence on 1 July, 2015.

WINDING UP OF FCAAA
On Monday 16 February 2015 the final documentation to wind up the Federal Council of Australian Apiarists Associations Inc. (FCAAA) was submitted to the Western Australian Department of Commerce. FCAAA was incorporated in WA.

The funds were transferred into an account within AHBIC for the Producer Contingency Fund as had been requested by the FCAAA and agreed to by AHBIC. These funds are now overseen by the Producer Contingency Fund Committee which is made up of representatives of the State Associations who were the members of FCAAA.

If you have any links or references to the FCAAA in your websites or magazines can you please delete them.

EXPORTS OF HONEY TO JAPAN
The quota system is now in place for exporting honey to Japan. AHBIC has been advised the current quota up until 31 March, 2015 has already been allocated. There will be a new quota in place from 1 April, 2015 with a reduction in the tariff which is the start of the Japanese financial year.

Not being able to get a quota doesn't mean you cannot export to Japan. It means the tariff reduction is not available on that consignment.

HONEYED CHICKEN?
Thought some might be interested in this article out of the US. See http://tinyurl.com/mwq97g6

NEW BEE BOOK OUT
RIRDC have now published a new bee book by Russell Goodman. It can be found at https://rirdc.infoservices.com.au/items/14-098

MYRTLE RUST FOUND IN TASMANIA
Myrtle rust has been found in Tasmania at Burnie and now in the southern part of the State.

Myrtle rust attacks plants in the Myrtaceae family and these include the eucalypts, tea trees both Leptospermum and Melaleuca plus the bottlebrushes which had been in the Callistemon group. Fortunately for Tasmanian beekeepers leatherwood is not in the family that myrtle rust attacks.

For further reading on myrtle rust see http://www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust New South Wales was the first State to find myrtle rust. It is now also found in Queensland and Victoria.

The long term effect on trees that beekeepers work is yet to be realised.

HONEY BEES DID A GREAT JOB
Seems the almond industry is looking at a record crop. See http://www.abc.net.au/news/2015-02- 26/2015-record-almond-harvest-starts/6263424 It is expected that it will be the biggest crop ever of 75,000 tonnes. With the Australian dollar where it is the growers can expect record returns.

So it all goes back to August when beekeepers took all those hives, I heard around 180,000 hives, to pollinate almonds. Remember no bees no almonds. So well done our honey bees. Guess you will be in big demand this August. Pity the bees don't get the accolades they deserve in these reports.

LATEST ON BEE BIOSECURITY PROGRAM AND CODE OF PRACTICE

The Industry Working Group of Ian Zadow, Craig Klingner and Sam Malfroy have been attending or are to attend meetings of the Executives of the various State beekeeping associations plus beekeeper meetings over the coming months. They have also been meeting with State Departments, and will continue to do so in the next few months.

Thank you to those who have submitted comments on the Code of Practice and Bee Biosecurity Program. These will now be considered and the next version of the Biosecurity Code of Practice and the National Bee Biosecurity Program will be placed on the AHBIC website by the end of April 2015. AHBIC will also provide a summary list of changes which have been made to the Code and Program.

Please continue to read your AHBIC newsletter and state newsletters/journals for details about any upcoming meetings in your state.

MEETINGS IN CANBERRA
Recently, Ian Zadow, Peter McDonald and Trevor Weatherhead attended a series of meetings in Canberra on 17,18 and 19 March.

Meetings were held with the Department of Agriculture Import Section re the checking of honey coming into Australia. We were informed that the Department is reviewing their honey import protocol. We are encouraged by this and will be keeping up our liaison with the Department.

A meeting with the National Residue Survey (NRS) staff revealed that the testing program for this coming year will be at the same level as last year. This is a good outcome for our industry as the NRS survey is a crucial part of our export capability.

We then met with the Assistant Health Minister, Senator Fiona Nash, re the attitude of State Departments of Health to enforcing the current Australian New Zealand Food Standard Code for honey. We also raised the issue of a new standard for honey in Australia. Senator Nash was very receptive to our submissions and we will be following up with her. Our thanks to Senator John Williams and his staff who made the meeting possible.

We then met with the Department of Agriculture staff who had authored the Government response to the Senate Committee's report on the beekeeping and pollination industries which is mentioned elsewhere in this newsletter. AHBIC will be making a formal response to the Government's response.

A meeting with Plant Health Australia (PHA) was held to discuss the Memorandum of Understanding that is being drafted for the servicing of the PHA levy, which is needed to run the Contingency Fund, which will be transferred over from Animal Health Australia. A final draft will be ready soon to send out to member bodies for their consideration.

Discussions were also held re the categorisation of three bee pests. This is detailed elsewhere in the newsletter.

The Rural Industries Research and Development Corporation (RIRDC) had called a Roundtable meeting on RD&E to increase the prosperity of beekeepers. This was attended by the full Honey Bee and Pollination Advisory Committee (HBAPAC) plus the Honey Packers and Marketers Association of Australia, Capilano plus Doug Somerville for the New South Wales Department of Primary Industries who acted as moderator for one of the sessions. The HBAPAC were meeting the next day to consider the applications for the coming year.

On 19 March AHBIC had been invited to a Horticulture Industry Day at Parliament House. This was attended by Trevor Weatherhead as Chairman Ian had pressing needs to shift bees. The meeting was sponsored by Horticulture Innovation Australia Limited (HIA) which has taken over from Horticulture Australia Limited. There were several presentations on how HIA works plus a new lobby group, Voice of Horticulture, see http://voiceofhorticulture.org.au/

Minister Joyce and the Parliamentary Secretary for Agriculture, Senator Colbeck, also addressed the meeting. Interestingly, Minister Joyce, when asked if the new Country of Origin labelling would include truth in labelling, said the beekeeping industry had been on to him about labelling of honey that was not honey. It is good to see that this issue we raised with the Minister is still on his agenda.

NATIVE TITLE CLAIM
AHBIC has been advised of native title claims that have been lodged over areas in the Scone, Muswellbrook, Maitland and Singleton areas. If anyone wants more detail they can email me and I can provide an electronic copy.

INQUIRY INTO THE BEEKEEPING AND POLLINATION INDUSTRIES
The Government has made a response to the Senate report. The AHBIC Executive will be studying this response and met with the Department in Canberra about the response and implementation of the recommendations. The response can be found at http://www.agriculture.gov.au/about/obligations/governmentresponses/aus-gov-res-srratrc-rep-future-beekeeping-service

ANNUAL MEETINGS
AHBIC will be holding its AGM on Saturday 4 July 2015 at the Penrith Panthers Leagues Club at Penrith. This will follow the NSWAA Conference. More details on the AHBIC AGM later.

PASSING OF NOELENE AYTON
Harold Ayton advised me that his wife, Noelene, had passed away on Sunday 8 March. There was a public church service held on Wednesday 11 March.

Noelene was a past Secretary of the Tasmanian Beekeepers Association. She was a regular with Harold at beekeeping meetings in various States. In recent years, Noelene had not enjoyed the best of health.

AHBIC had sent a card to Harold and family and we have received a very nice reply card.

CATEGORISATION
AHBIC has formally submitted three categorisation papers. They are for:

- Varroa destructor
- Varroa jacobsoni
- Tropilaelaps clareae and T. mercedesae

The affected industries now have a period of time to make comment before a formal meeting is held to discuss the categorisation of these pests.

ASIAN BEES FOUND IN BRISBANE
On 24 March, 2015 Asian bees (*Apis cerana*) were detected in a Quarantine Approved Premises in Carole Park, which is a suburb of Brisbane. They were found in a reel of cables which had been containerised and had come from Malaysia. The container was fumigated and 700 dead bees were recovered which, upon examination, showed no external or internal mites.

The reel was subsequently opened and comb was found plus more dead bees. The queen was found amongst these dead bees.

The bees have been sent to the Queensland Department of Agriculture, Fisheries and Forestry for further analysis and verification. So this was a good find. I would suspect the bees will be the Java genotype but we await that information.

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THE AMATEUR BEEKEEPER
Bi-monthly newsletter for
THE AMATEUR BEEKEEPERS' ASSOCIATION INC.
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THE NEW ZEALAND BEEKEEPER
Magazine of the National Beekeepers' Association of New Zealand - www.nba.org.nz
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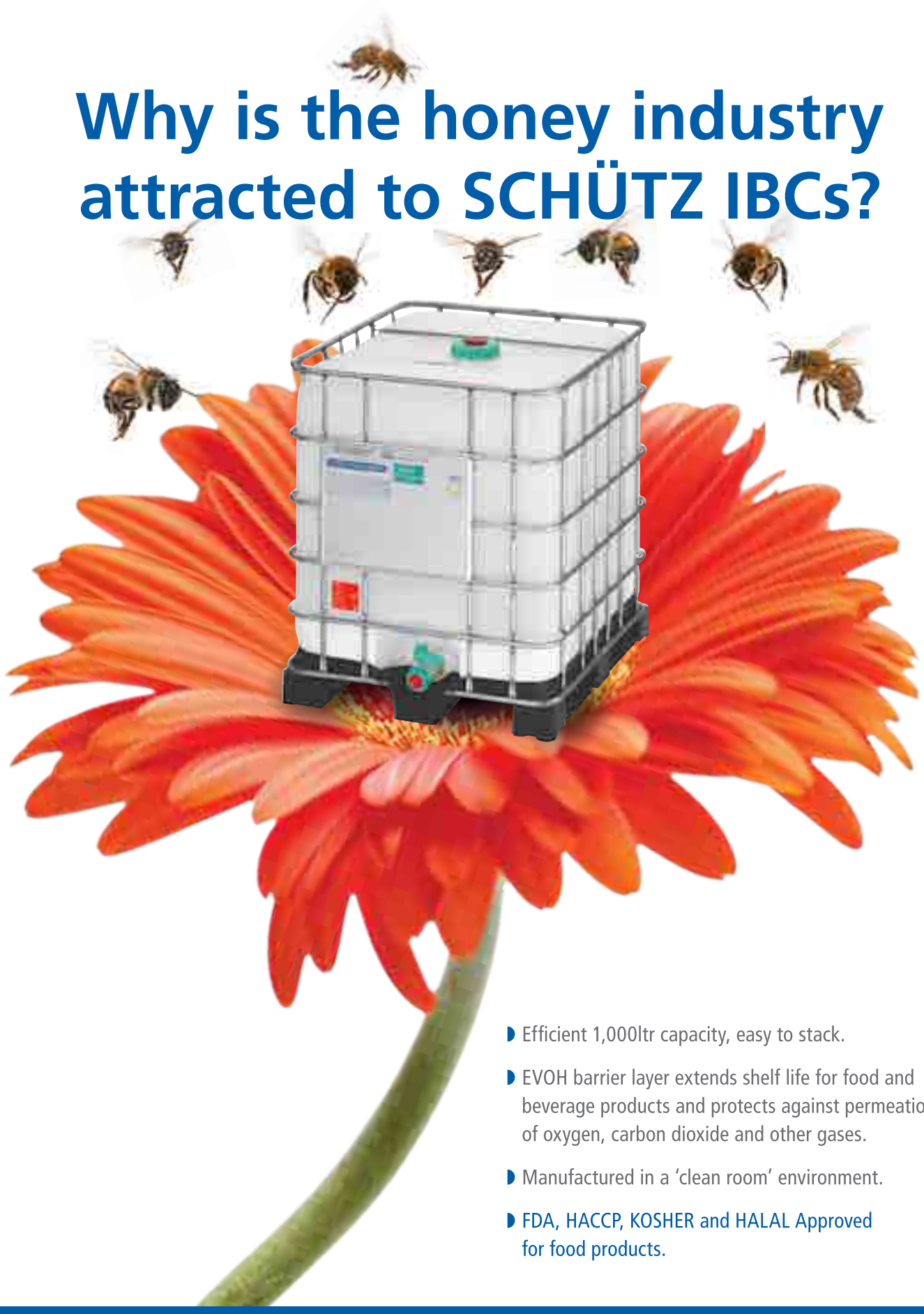

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