AUSTRALIA'S HONEYBEE NEWS

"The Voice of the Beekeeper"

Volume 8 Number 4 July - August 2015

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COVER: Dr Doug Somerville - Goodacre Award Recipient

PHOTO: Frank Lindsay

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PRESIDENT'S REPORT



CONFERENCE

Over the two days average attendance was 175, thanks to all members & guests that took the time to attend this year's Conference. Your presence and our sponsors have made the time and effort put in by many to organise this event worthwhile. I hope you all gleaned something useful from our Conference and ask you all to forward any suggestions for the 2016 event to either your Executive members or Secretary as soon as possible due to next year's Conference being only nine months away on the 12-13 May to be held in the Riverina, venue to be advised.

Thanks must go to Tim Burfitt – Manager Dairy & Intensive Livestock Unit DPI. Tim has worked tirelessly for the Apiary Industry managing the Honeybee Industry Team for the past 11 years, helping to find the best solutions for our industry. Tim retires in October and at our Conference dinner was presented with the Keith McIlvride Memorial award. [Presented for service to NSWAA].

Once again thanks Tim for your time and effort toward our industry.

Congratulations to Dr Doug Somerville on receiving the Goodacre Award, well deserved and long overdue.

Special thanks to retiring President Casey Cooper for your efforts at the helm for the past two years, I look forward to your continued commitment serving as Vice President.

Thank you to retiring Executive member Lamorna Osborne for you your input throughout the year. We welcome Steve Targett to the Executive and Dr. Shona Blair on her reelection.

Barbara Bingley announced her retirement from Conference desk duties and organizing speaker gift baskets. Barbara was presented with a certificate of appreciation at the Conference dinner. (Thanks Mum for your years of service to our association).

Thanks must also go to Therese Kershaw for the incredible job she does in organizing the trade shows for Conference, this year was one of the best.

Last and by no means least thanks to our Secretary Kate McGilvray for her exceptional organisation of Conference and her dedication over the past year, your input makes the Executive's job so much easier.

The Raffle held during Conference raised a total of \$2,785.45. Thank you to everyone that contributed by donating goods and purchasing tickets. The proceeds will be deposited into the Clemson Fund to be used to cover costs of future Conference speakers.

BIOSECURITY

The vote at Conference was overwhelmingly in support of the National Biosecurity Plan & Code. Our state BBO Advisory Group has been formed and will meet in the near future. NSWAA has requested DPI to progress the BBO position as soon as possible.

EDUCATION

NSWAA welcomes Elizabeth Frost back to DPI. Elizabeth is due back to Australia sometime in August, dependent on immigration and the appropriate visa. She has been offered a position as Education Officer Beekeeping, to be based at Tocal Agriculture College.

Elizabeth has also been appointed to represent NSW on the AHBIC Education Committee which she will also chair.

NATIONAL INDUSTRY REPRESENTATION

NSW now has three representatives on the AHBIC Board, Craig Klingner as Deputy Chair and Casey Cooper and Neil Bingley as Councillors. NSW has never been as well represented since AHBIC's formation and I urge all members to seriously consider financially supporting your National Peak Body. I have been on the board for past two years and realize the huge amounts of work done nationally for our industry. Without a substantial increase in financial support by industry AHBIC will struggle to gain industry's desired outcomes.

GOVERNANCE

Your Executive will next meet at Tocal on 14 September. Any branch not represented by an Executive member may apply to have a branch member attend.

RESOURCE

This year your Executive's priority will be to negotiate acceptable policy outcomes over all public lands. At present Forestry Corporation (FCNSW) has caused angst among members by uncertainty due to auctioning of 24 sites on the South Coast.

Your Executive Resource Committee of Neil Bingley, Casey Cooper and Doug Somerville will work tirelessly to ensure a practical and sustainable outcome. A meeting with Minister Blair's advisors on 19 June discussed the importance of resource security and we are awaiting a response. I would urge all members to make representation to their local members to voice concerns over the instability FCNSW will cause to our industry if resource insecurity is allowed to continue.

Your Executive has also enlisted the services of media consultant Suzanne Long who has been tasked with providing press releases as required, and updating both Facebook and Twitter pages. Members who have articles that are suitable to be posted on our Facebook and Twitter pages should contact Suzanne Long : suzanne@turnthetide. com.au or Shona Blair :shonaeblair@gmail.com.

National Park policy is also under review and not all aspects of the draft are as we would have hoped. Of major concern is the non-recognition of private lands that transfer to National Park estate, also sites that are not renewed are being lost to industry.

Could any members that have lost Public Lands sites due to transfer of tenure to National Park or on State Water country in the last 10 years please advise either myself or our Secretary Kate via email with documentation of sites at your earliest convenience. As noted prior your association is to meet with the Environment Minister and we require documented evidence that industry has lost and is losing valuable resource.

A meeting has been requested with the Minister for the Environment Mark Speakman with Minister Constance to also attend.

Local Land Services [LLS] Apiary Policy appears fragmented as individual regions are autonomous and I have written to Minister Blair seeking a uniform policy across the state.

The following are quotes from Minister Constance, made at our Conference opening:

HOW THE GOVERNMENT IS SUPPORTING THE INDUSTRY

Beekeeping in Australia relies heavily on access to public lands. Beekeepers have been utilising public lands for well over a century. The majority of honey produced in Australia comes from public lands. These public lands also provide an important role in either building up hives for pollination or rejuvenating hives after pollination.

After meeting with the leadership of this organisation, Minister Blair, Minister for Primary Industries has asked the Department of Primary Industries to investigate development of a consistent policy for beekeeper site access to public land.

As a result of Minister Blair's initiative the NSW Department of Primary Industries will work with the senior members of the relevant public land agencies to develop a coordinated and consistent policy for public land access for beekeepers.

SHOW

Once again your executive will be supporting the Honeyland stand at the Sydney Show on 17-30 March 2016. Please consider setting aside some good quality honey as the season progresses, Ironbark, Yellow box, Stringybark, River gum and other unique honeys are required. Donations are welcome but not expected, your association would be glad to purchase good quality honey to ensure floral sources are truly represented. Please contact the Honeyland Committee with any offers. The committee members are Rob Mitchie, Shona Blair and Bruce White.

The e-Bee

Our electronic newsletter was recently launched and has been a great success, any members that wish to receive this via email, please forward your details to Kate at info@ nswaa.com.au

HONEY MONTH

This year's event was held in Orange on 22-23 May. Once again thanks to the enormous effort put in by Karla Hudson, manager Superbee Forbes.

For next year's events Lamorna Osborne has agreed to be NSW committee member on AHBIC and I'm sure Lamorna will avail herself to the task. Lamorna's email is lmosborne13@gmail.com

Request for Leptospermum samples

As those at the 2015 Conference would have heard, there is a project being undertaken to look for more sources of medically active Australian honey. Project Coordinator, Dr Nural Cokcetin. Nural.Cokcetin@uts.edu.au

The researchers are asking beekeepers with access to Leptospermum (jelly bush/manuka) honeys from anywhere in the country to provide samples. The results from all testing will be confidential, but the researchers will provide anyone supplying samples with a report on the activity of their honeys.

They're asking for 100 - 500g, and some information about the location it was collected, as well as plant samples where possible. For more details see the article in this edition.

Neil Bingley State President

VALE - ALBY SCHULTZ 1939-1915

Former federal member for Hume and New South Wales State politician Alby Schultz has died aged 76.

It was Alby who instigated the Federal parliamentary enquiry that led to the *More Than Honey Report*, and he often advocated on behalf of the beekeeping industry.

STOLEN HIVES

I can confirm the theft of 60 double & single 8 frame hives from private property, Taggets Rd Annuello district Northern Victoria.

- these hives are fire branded S609
- boxes were multi coloured some white, blue & green
- some hives contained blue escape boards
- hives placed in Annuello approximately 14/6/15
- hives last sighted at Annuello approximately 9/7/15

This matter has been reported to Victoria Police Robinvale if beekeepers see beekeeping material matching this description or suspect you may know or have seen something about the removal of this equipment please ring **Robinvale Police Station 03 5026 3002**

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2015 CONFERENCE RESOLUTIONS

MOTION 2015/1 – CARRIED

MOVED: C Klingner SECONDED: R Michie 'That the NSW Apiarists' Association Inc. supports the adoption of the Biosecurity Code of Practice (Version 1.0, April 2015) as a mandatory requirement for Australian beekeepers and supports the implementation of the National Bee Biosecurity Program (May 2015).'

MOTION 2015/2 – CARRIED

MOVED: B Weiss SECONDED: C Cooper 'That the NSW Apiarists' Association request the Forestry Corporation of NSW to limit the number of hives permitted to be placed on each bee range at 150 hives.'

MOTION 2015/3 – CARRIED

MOVED: N Bingley SECONDED: C Cooper 'That the NSW Apiarists' Association request AHBIC to recommend that RIRDC fund research into chalkbrood in Australia – focusing on strain variants and control measures.'

MOTION 2015/4 – CARRIED

MOVED: M Porter SECONDED: J Kershaw 'That this Conference gives its full support to the incoming Executive in their endeavours to gain outcomes favourable to members when negotiating with all government agencies ie Forestry Corporation of NSW, National Parks & Wildlife Service, Local Lands Services, other crown lands'

MOTION 2015/5 – WITHDRAWN

MOVED: B White SECONDED: D Egelhoff 'Once a member has nominated a branch to the secretary that member stays attached to that branch unless the member indicates they seek to change the branch or not be a member of any branch.'

MOTION 2015/6 – CARRIED

MOVED: B White SECONDED: P Drew 'That the association secretary notifies all branches of the executive meeting dates time and location once the executive has set times and notifies all branches of any changes in advance. Also to be advertised in AHBN website ebee news.'

MOTION 2015/7 – CARRIED

MOVED: B White SECONDED: P Drew 'That the association provide the branches and executive with the agenda for all executive meetings at least three weeks before each executive meeting.'

MOTION 2015/8 – CARRIED

MOVED: N Bingley SECONDED: D Cowling 'that this Conference agree to alter membership fees to:

- 0 10 hives \$100
- 11 200 hives \$200
- 201-400 hives \$300
- 400+ hives \$1/hive
- to allow effective operation of our Association'

MOTION 2015/9 – CARRIED

MOVED: N Bingley SECONDED: D Cowling 'That this Conference requests the DPI to ensure the position of Bee Biosecurity Officer be filled as a matter of priority.'

NEW MEMBERS

A warm welcome to the following:

Nicholas Annand Aussie Growers Fruits Graham Bailey Ben Brown Neil Farrier Andrew Guzowski Honeylife Anthony Howard Justin Howard John Hudson Lynda Kay Kristie Kent Danielle Llovd-Pritchard Tamara Mantchakidi Trevor Morgan **Douglas** Purdie Carmen Pearce-Brown Alan Richards David Richards Superbee Honey Factory Greg Urquhart Justin Wall **Tobias White**

Bathurst Silvan VIC Belgravia Trangie Waroona WA St Leonards Haymarket Dubbo Dubbo Glenellen East Lindfield Parkes Warners Bay Chifley Streaky Bay SA Darlinghurst Nicholls ACT Waroona WA Waroona WA Forbes Parma Westdale Mowbray TAS

DIARY DATES FOR 2016

Show Conference

17-30 March 12-13 May

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GOODACRE MEMORIAL AWARD DR DOUG SOMERVILLE

Dr Michael Hornitzky

The Goodacre Memorial Award is presented for meritorious service to apiculture in Australia and commemorates the life and work of Bill Goodacre. Bill Goodacre served as Principal Apiary Offer and provided 35 years of meritorious service in the NSW Department of Agriculture in the 1930s to 1950s. This award, which was first presented in 1956, is recognized as the peak national award bestowed upon individuals who have provided outstanding service to the Australian beekeeping industry.

It gives me great pleasure to announce that the recipient of the Award this evening is - Dr Doug Somerville



Doug has provided an exceptional service to the beekeeping industry in Australia over the past 28 years. This benefit has not been limited to the beekeeping industry in Australia but has also attained international recognition.

Doug graduated from Hawkesbury Agricultural College with a Diploma in Applied Science in Agriculture in 1982 and then spent 3 years overseas managing commercial beekeeping operations in Alberta, Canada (1982) and in the United Kingdom (1983, 1984) before being employed by the NSW Department of Agriculture. He was appointed as an Apiary Officer at Goulburn in 1987 and since that time has had a number of roles and is currently the Technical Specialist Honey Bees.

Doug became heavily involved in extension activities for improving beekeeper management practices. He achieved this by publishing newsletters, organizing field days, regional meetings and a range of beekeeping courses. From 1981 to 2007, he was involved in teaching the only beekeeping correspondence course in Australia at that time. During this time Doug has been responsible for rewriting and improving various sections of the course, also delivering the practical training sessions.

Doug also has a proven track record in delivering beekeeping education programs and developing skill based training modules for different levels of industry and public. Part of this process was co-authoring the NSW DPI bestselling publications the AgSkills book on Beekeeping and the AgGuide titled healthy bees. In partnership with Nick Annand he developed a Bee Disease Course which has been very well received and provided in many states around Australia. More recently in partnership with Elizabeth Frost he has been involved in the development of an online course on "Pests and Diseases of Honey Bees".

Dr Somerville has had a long association with the NSW Apiarists' Association which he joined in 1996. He is considered by the Association as, and I quote:

"Dedicated to, and supports and assists development of the industry far beyond what is required from his professional position as Technical Specialist".

"He is passionate and dogged about fighting for the well being of the industry and supporting those within it"

He has provided and continues to provide guidance to the Association on:

- Technical issues
- Industry development
- Industry contacts both technical and government this extends far beyond his state capacity to Australian and international contacts
- Current and impending issues
- Governance and process
- Consultation and communications
- 'The big picture'

He is considered the expert in areas such as:

- Best management practices for keeping honey bees
- Seasonal management enquiries
- Disease/pest management processes
- Starting in bees
- Progressing from a amateur beekeeper to a business in keeping bees
- Honey bee nutrition
- Flora of value to honey bees

Doug has a distinguished record in honey bee related research. Since 1995 he has successfully completed 10 projects funded by RIRDC.

- 1. His first project dealt with the impact of honey bee pollination of faba beans completed in (1995).
- 2. Floral Resource Database for the NSW Apiary Industry (1999). The results provided a clear picture of the significant floral resources of NSW as they relate to the beekeeping industry – will talk about this later.
- **3.** Nutritional value of bee collected pollen (2001). This project involved the measurement of bee collected pollen which allows beekeepers to improve the process on which decisions are made regarding various management strategies regarding the nutritional requirements of honey bees.
- 4. Introduction and early performance of queen bees (2003). This project examined the quality of queen bees produced by a commercial queen bee breeder based in Queensland using standard production methods.

- 5. Small Hive Beetle in the USA (2003). This report presented information collected from the USA by an industry study group (led by Dr Somerville) to help determine what course of action is required to manage the beetles within Australia and what areas of future research could be considered.
- 6. Fat bees skinny bees A manual on honey bee nutrition for beekeepers (2005). This is an important manual on honey bee nutrition for beekeepers.
- 7. Field trials to test supplementary feeding strategies for commercial honey bees (2007). This research provided evidence of the vagaries of supplementary feeding honey bees over the winter. It also provided a direction for future research in this area and a number of suitable options to consider.
- 8. A study of New Zealand beekeeping Lessons for Australia (2008). A small group of Australians, led by Dr Doug Somerville, travelled to New Zealand to gather information on varroa and other topics of importance to beekeepers in Australia. The group was highly successful in identifying a number of key points that should be considered by the Australian beekeeping industry in preparation for the (possible) advent of varroa. The report also included the NZ experiences with American foulbrood, pollination and the marketing of honey.
- **9.** Forestry plantations and honey bees (2010). This research study was designed to investigate the potential capacity of plantation forestry to contribute to the Australian honey bee floral resource base.
- **10. Screened bottom boards** (2014). This report concluded that screened bottom boards may provide some advantages in an integrated varroa mite pest control program.

These projects have all had a practical benefit to beekeepers in Australia and beyond. The project report "Fat Bees Skinny Bees" has been downloaded 26,687 times from the RIRDC Website as of February 2014. That number is more than twice the number of beekeepers in Australia, which clearly indicates the international reputation Doug has achieved.

A series of YouTube videos on the bee disease American foulbrood have received very high viewing rates with over 46,653 views for one video over the past three years.

After Doug completed his Diploma of Applied Science in Agriculture in 1982 he continued his formal education and was awarded a Masters Degree in Applied Science from the University of Western Sydney in 1995. He further continued his studies and was awarded a Doctor of Philosophy from the Australian National University, Canberra in 2005. The PhD topic was "The Floral Resources of New South Wales of Primary Importance to Commercial Beekeeping". This study involved a survey of all commercial beekeepers registered with the NSW Government to determine which aspects were considered by beekeepers to be important pertaining to floral resources. The key features considered of primary importance by beekeepers were nectar secretion, ultimately measured by honey production and the nutritional impact of pollen collected by honey bees on the colony. Remarkably, the survey received an 81% response. A total of 51 floral species were identified to be of primary importance to beekeepers in NSW. This study also determined the number of apiary sites in NSW. The single

most important floral source at the time was determined to be Paterson's Curse (*Echium plantagineum*). The quality of pollen of the same species, collected from different locations, was determined. The fat and mineral content in a range of bee-collected pollens was determined and honey quantities and type delivered to Capilano Honey Ltd were also analysed.

Recognition of his knowledge and understanding of bee flora and associated honey bee issues on an international basis was highlighted when he was chosen to be the keynote speaker on "Pollination and Bee Flora" at Apimondia, Melbourne in 2007.

Doug also supervises and assists postgraduates including PhD candidates on honey bee related topics which also contributes significantly to increasing the capabilities of honey bee researchers in Australia.

Doug has also played an important role in assisting researchers with their projects. Speaking from personal experience – Doug has supported me with significant help in carrying out projects related to Nosema, American foulbrood and European foulbrood and been extremely generous with his time and expertise. The outcome of these projects would have been weakened without Doug's assistance. I have received similar comments from other researchers who have been helped by Doug.

Doug is a prolific writer of honey bee related articles. More than 500 publications have been printed in various scientific journals, beekeeping magazines and industry newsletters. The majority of publications have been written for a beekeeper audience on a range of technical subjects with the aim of improving the readers' understanding of the issues impacting on their beekeeping business. Scientific refereed journal publications have focused on aspects of honey bee nutrition, floral resources used by honey bees, honey bee diseases and queen bee management.

Doug regularly attends beekeeping conferences and gives presentations on a wide range of topics both within Australia and overseas. A small sample of these presentations is the following:

- Asian Apicultural Association Hanoi Vietnam, 1996
- Asian Apicultural Association Kathmandu Nepal 1998
- Forestry Research Colloquiu Canberra, Australia 1998
- International Lavender Conference 2000, 2001
- International Beekeeping Conference Bangalore India 2005
- Asian Apicultural Association Perth Australia, 2006
- New Zealand Annual Beekeepers Conference 2004, 2006, 2012
- Apimondia, Melbourne 2007
- Australian Almond Industry Conference South Australia, 2008
- Alberta Beekeepers' Conference Canada 2009

Dr Somerville has also been the recipient of awards for his service to industry. He received the Australasian Beekeeper Award in 1997, with a series of articles on beekeepers and their best management practices. This award is presented annually to the article or series of articles that are deemed to be of the most informative and value to the Australian beekeeping industry. He again received this award in 2001

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with a series of articles on pollen nutritional qualities and their impacts on honey bee management practice. In 2010 Doug received the Award of Excellence from AHBIC.

In January this year Doug was appointed Adjunct Associate Professor in the Forest Research Centre with the School of Environmental, Science & Engineering at the Southern Cross University (SCU). There is a citation associated with this appointment which summarises Doug's exceptional service to industry:

"This appointment recognises his [Dr Doug Somerville] contribution to the field, particularly in the delivery of distance education. A world authority in the nutritional requirements of honey bees, Doug has been integral in the development of online education resources at Tocal College, and the author of ebooks and ibooks. His appointment at SCU is an opportunity to reach a larger audience and share his knowledge and experience".

You may be wondering why it has taken 28 years for Doug to be awarded this accolade. There is no doubt the Doug would have qualified for the Goodacre Award some years ago. Well - its all Doug's fault! Doug has been the Secretary/Treasurer of the Goodacre Award Committee for more than 10 years. Members of this committee have not been able to receive this award. This problem was overcome when AHBIC supported an amendment to the Goodacre Award Constitution to allow committee members to be recipients of this award.

It gives me great pleasure to present Dr Doug Somerville with the Goodacre Memorial Award.



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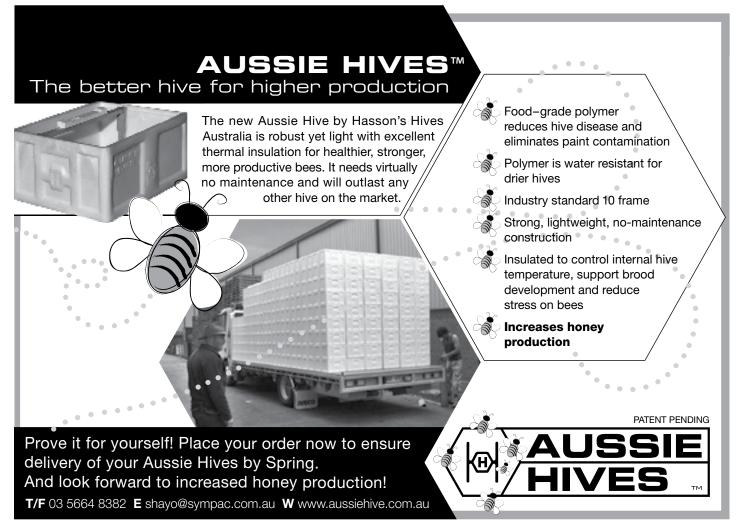
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DOUG'S COLUMN

Doug Somerville Technical Specialist, Apiculture - NSW Department of Primary Industries - Goulburn doug.somerville@dpi.nsw.gov.au

A CONFERENCE REPORT – MY PERSPECTIVE

The following are notes from this year's annual conference held at Penrith on the 2-3 of July. The agenda was comprehensive with some notable speakers. What I found particularly of interest, in summary, included - the public lands apiary use access which was a hot topic, the manuka story was extremely interesting in the New Zealand context and is unfolding in Australia, the almond industry will be increasingly interested in the beekeeping industry due to their need for bee hives to pollinate this crop, and nosema disease remains one of the major un-talked about serious diseases of adult bees in Australia. Read on -

- The Hon. Andrew Constance MP, Minister for Transport and Infrastructure, stated very clearly in his opening address that the current government supported a common approach across government agencies for access to government owned apiary sites. Currently the NSW Apiarists' Association is negotiating separately with Forestry Corporation, National Parks & Wildlife Service and Local Lands Service in relation to site access. This has proven to be frustrating and this was acknowledged by the minister.
- A speaker from the Forestry Corporation of NSW, Richard Rienstra, addressed a hostile audience in relation to the recent auction of bee sites. He indicated that his terms of reference in negotiation with the beekeeping industry were:
 - Allocation of ranges in a fair and equitable manner
 - Stability for the apiary industry
 - Efficient administration process
 - Delivery of value for money to the Forestry Corporation

He indicated that the auction had 32 registered bidders, with 27 active. A total of 8 bidders were successful in obtaining an apiary site. He justified the actions of Forestry Corporation, along the lines that they wanted to 'test the market' and understand the commercial drivers in the bee industry.

He emphasized that there had been no decisions made within the Forestry Corporation on 'where to go' as a result of the auction. Pleasingly, Richard indicated that there were already discussions with other government departments on how to manage bee sites.

Hopefully vegetation type layers will be added to forestry site maps and available on line by the end of the year. The audience emphasised that resource security is a key aspect of the bee business and that the Forestry Corporation had not taken their own terms of reference into account, i.e. point 2 above. Forestry was keen on a minimum 5 year term for a site. Various industry delegates and past NSW executive members including Geoff Manning and Craig Klingner indicated that decisions and guidelines between Forestry and the Apiarists' Association in the past seem to have been completely discarded by current the Forestry Corporation management.

• Dr. Robert Banks, Director of Animal Genetics and Breeding Unit, University of New England, gave an interesting talk on heritability and breeding values of honey bees. He indicated that hygienic behavior was 50 to 60% heritable and honey production ranged from 15 to 60%.

A vote was held to ascertain the NSW industry's support for the new industry National Bee Biosecurity Code of Practice. The final vote was: yes (in support) 298 – no (against) 48.

• John Hartnell, the Chairman of the Bee Industry Group of the Federated Farmers of New Zealand, gave a talk on the transformation of the NZ beekeeping industry associations. John outlined the history of the various associations in NZ and why there have been splits in groups and the force behind the need to recreate a single entity.

One of the primary reasons for amalgamating the groups was due to the poor image the lack of a single organisation provided government. In 2013 the decision to amalgamate occurred, but it was also noted that 80% of the stakeholders belonged to no organisation. He didn't make this clear if this 80% was of all beekeepers (recreational and commercial) or just the commercial group.

In NZ there are now 6,000 beekeepers with 600,000 bee hives. This is similar to the stats prior to the arrival of varroa in 2000. One of the primary reasons for an increased interest in beekeeping was the current wholesale price of honey, with a minimum price of \$9/kg up to \$100 plus per kg. There are now 800 commercial beekeepers in NZ.

John indicated that the recent combined NZ conference attracted 830 registrations, but also surprisingly stated that the branch structure of the organisation was dead, with very poor attendance at branch meetings.

- Brett Rosenzweig, Industry Development Officer from the Almond Board of Australia gave an almond industry overview. Most of his talk was a stats report:
 - ~ 188 producers





14



- ~ 28,967 ha (4ha to 15,000ha farms)
- ~ Farm gate value \$548m
- ~ Export 70% to 40 countries India the biggest market
- ~ 4 main processors including Olam, Select Harvest
- ~ Industry expansion took off in 2000
- ~ Plantings by state: Victoria 69%, NSW 12%, SA 19%. (NSW focus, Narrandera, Griffith and Hillston)
- ~ During the period 2009-2013 the domestic consumption of almonds increased 55%
- ~ Globally the USA accounts for 85.4%, Australia the second biggest at 6.1%, Spain 4.5%, Turkey 1.2%, Chile 0.7%, other 2.1% (2015 production figures)
- ~ California 6,500 farms with 344,000ha in 2014
- ~ Spain relies on rainfall, Australia and California on irrigation
- ~ Forecast 5% growth in demand for almonds per year worldwide
- ~ No carry over stock in Australian market, now forward sold
- ~ Very few locations in the world where you can grow almonds, needs winter chill and dry summer
- ~ Hull rot the number one fungal disease
- ~ Only other regions where almond growing possible include Middle-East and top of Africa, but political instability unlikely to see investment in these regions

By my calculations with the stats supplied by Brett of 28,967 ha of almonds with a hive stocking rate of 6.5 hives per ha, there should be a current need for 188,285 bee hives each August to pollinate almonds. There was no doubt that the almond industry will continue to expand and thus the demand for bee hives will also increase. Interesting times to come!

• John Hartnell, Chairman of the Bee Industry Group Federated Farmers of New Zealand gave another talk, this time on the NZ manuka debate.

John's talk was quite comprehensive and detailed. He pointed out how complex the marketing and grading of manuka had become. Many groups had set themselves up in the manuka space, but the public and the overseas markets were left confused. Ultimately the NZ Food Authority told the beekeeping industry to 'get your act together'.

The standard for manuka is not one-hundred per cent agreed on as yet, but will probably follow the international Codex Standard for honey and also be based on the MGO content (Methylglyoxal).

John also provided information on the pollination service fees being achieved in NZ per hive basis with kiwifruit at \$200, blueberries \$135-140 and white clover \$100. These prices possibly illustrate the lucrative manuka returns as any pollination service fees are now secondary, but these prices sure beat the Australian pollination service fees being achieved.

- A combined panel discussion on netting bees by four commercial beekeepers was informative (James Kershaw, Billy Weiss, Casey Cooper and Lyndsay Callaway). There are a number of options being practiced at present and we are likely to see an increase in netted loads of bees being moved during the day, rather than at night time as is traditionally the case.
- Peter Brooks from the University of the Sunshine Coast added to the manuka story. There is a new project in Australia looking at and identifying new sources and the bioactivity of Australian leptospermum honey. Peter stated that the current tests were not robust or reproducible. The MGO content in active honey will continue to increase from the point of extraction for 12 to 18 months. The DHA (Dihydroxyacetone) levels will drop over the time that the MGO levels increase. Thus, measuring the DHA levels is a more useful test when the honey is young. Ideally honey needs to be tested for DHA and MGO to get a more accurate idea of the levels of activity in the honey.

It was emphasised that the longer the honey was left in storage, the higher the HMF (Hydroxymethlfurfural) levels, but the method of storage was very important. Storage temperatures higher than the mid 20°Cs need to be avoided.

Peter stated that there were probably 83 species of Leptospermum. Not all will produce active honey. Jelly bush honey is traditionally associated with being produced from tea tree or Leptospermum but it is not always active.

When individual plant nectar contents are analysed for activity, there is also a wide variation in the activity of this nectar within the same species. Some species have also been categorised into subspecies with *Leptospermum polygalifolim* divided into six sub-species. NSW was said to have one of the largest numbers of Leptospermum species with approximately 60 species with the largest number of species along the coast.

The bottom line in handling active honey was not to store it above 25°C with a maximum storage time of 12-18 months.

• John Roberts, the resident CSIRO bee scientist, gave a report on the results from the national honey bee pathogen survey. Nothing too shattering, but the identification of a new virus to Australia was of interest. Lake Sinai virus 1 and 2 has not previously been reported in Australia.

The two nosema species were very prevalent with 78% of all the samples tested with nosema ceranae

and 67% of all the samples tested with nosema apis. Thus many samples had both nosema species. Nosema levels were high in 54% of all samples and at medium levels in 37% of all samples. Clearly with 91% of all samples tested in this survey with significant nosema levels, Australian beekeepers should be concerned.

A comprehensive NSW DPI report was published in the conference proceedings. Mick Rankmore provided a regulatory compliance report. In my report NSW DPI staff issues were discussed with the announcement of the imminent retirement of Tim Burfitt, the current manager of the Dairy and Intensive Livestock unit. Tim has served the NSW beekeeping industry well in this capacity and this was acknowledged at the annual dinner where the NSW Apiarists' Association awarded Tim the Keith McIlvride award for services to the NSW beekeeping industry. Tim was surprised by the award and very humble in his acceptance.

Nick Annand returned from leave in March 2015 after 12 months absence to find his whole office contents had been packed into boxes and stored in the old shearing shed with the resident possums. The research station at Bathurst is now being utilised by the adjacent university and Nick has had to find other premises in which to base himself at Bathurst.

Elizabeth Frost, a native of California, was hired in Nick's absence and based at Tocal Agricultural College. Elizabeth completed the development of the new e-learning course on Pests and Diseases of Honey Bees, plus reviewed the queen course notes from previous courses on that subject.

Elizabeth proved herself to be of great value to the NSW DPI and has been offered a job as Education Officer Beekeeping, to be based at Tocal.

New on the NSW DPI web site include:

- A YouTube video on the research results into the usefulness of screened bottom boards
- An e-publication version of Managing AFB Guidelines for the identification and management of American Foulbrood – a fatal disease of honey bee colonies
- Primefact on Testing for Hygienic Behavior.

All these can be obtained from the web site: www.dpi.nsw. gov.au click Agriculture, then Livestock, then Honey bees.

The NSW DPI beekeeping vocational training strategy was comprehensively outlined with the intended sequence of course roll-out. The development of an e-course on rearing queen bees is a priority including the production of an AgGuide book and a multi-touch version with embedded videos.

The role of NSW DPI in the National Bee Surveillance Program was detailed with acknowledgement of the volunteer beekeepers that carry out the necessary tests on a regular basis. The program is dependent on volunteer beekeepers. NSW DPI wishes to acknowledge the following for their efforts and contribution to the program:

- Neville Cutts Richmond
- Bob Ahern Goodward Island
- Eric Whitby Darling Harbour
- John Crouchley and daughter Justine Port Kembla, Port Botany and Kurnell
- Tamara Mantchakidi Chifley
- Bill Stratton Jervis Bay and HMAS Albatross
- Neil Livingstone and Ted Flower Newcastle

Finally, in the report to conference the role the NSW DPI staff has had with the NSW beekeeping peak industry body was communicated. NSW DPI values the close association with the NSW Apiarists' Association and thanks them for the opportunity to make a presentation to the conference.

For those who did not attend, possibly you had good reasons ... but! This year there was an excellent line-up of guest speakers, many of which the listener should have been able to glean very high quality information from. Add to this, the opportunity to be involved in the business of the industry and partake in the key decisions to be made.

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A Glimpse of Conference



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NICK'S NEWS

Nick Annand, Livestock Officer (Bees), NSW Department of Primary Industries, Bathurst Ph: 02 6332 8034 Email: nicholas.annand@dpi.nsw.gov.au

SHB HERE AND AROUND THE WORLD



There has been some recent activity in the distribution of *Aethina tumida* - Small hive beetle (SHB). So for this article I thought I would give an update of what has been happening with SHB for both around the world and here in Australia.

As most of you would know SHB was first identified outside its native sub-Saharan Africa range in the USA. The first SHB collected in the USA was back in 1996 but the beetle was not officially identified until 1998. Since then the SHB has spread throughout most of the states. Its distribution across the USA was rapid and no doubt was aided by the coming together of hives for large pollination events such as the almonds in California.

In 2010 SHB was also detected on Hawaii were it has since spread across and between islands causing major colony losses in the favourable humid tropical conditions.

Canada has had a number of SHB incursions from the USA and also from packaged bees from Australia. However the cool climatic conditions are not suitable for the SHB to establish and maintain a population.

The SHB from the USA have been more successful in establishing when heading south into the warmer tropical regions of Central America despite the bees being Africanised. Mexico first report SHB in 2007. El Salvador detected SHB in 2013 and Nicaragua in 2014. It is highly likely it is in other countries in the area but just has not been found or officially identified.

SHB is also in the Caribbean being identified in Jamaica as early as 2005 where it is now widespread and well established. In 2012 it was detected in Cuba.

I suspect strongly that all the SHB spread through America could be attributed and linked back to the initial incursion of SHB on the east coast of the USA back around or a bit before 1996.

Egypt detected SHB in a few locations in 2000 however in more recent years no SHB has been detected. Again climatic conditions have most likely limited the ability of SHB to establish with low moisture levels being the restrictive factor.

In 2002 we here in Australia identified the presence of SHB. I suspect the SHB had probably been with us for at least 2 years prior to this. I will discuss what has happen here in more detail later.



In 2004 Portugal had a scare when SHB larvae were found in queen cages of a shipment of queens from the USA. All were destroyed and the beetle never established.

The most recent outbreak of SHB, September 2014, was in Italy in the southern regions of Calabria and Sicily. Further surveillance found 61 infested apiaries. Italy swung into an eradication program and since December 2014 no new cases of SHB have been detected. I was in Italy for about 6 weeks (Dec 2014) and was oblivious to these findings and activities. Must have been busy daydreaming and sightseeing my way through Italy to notice. It will be interesting to see if it still remains the same after summer / early autumn, often the peak breeding period for SHB.

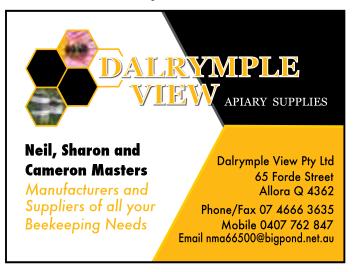
Also in 2014 for the first time SHB has been found in an Asian country. In June colonies of *A. mellifera* were found heavily infested with SHB in the Philippines. The majority of these hives collapsed because of the beetle. The SHB has not been found in non-managed colonies but its impact on stingless bees and other Apis species is an unknown. The Philippines have place movements restrictions on bees to minimise the spread of SHB between islands.

IN AUSTRALIA

I will not cover all relating to the spread of SHB across Australia but would just like to point out some of the main things that have occurred recently.

Yes SHB continues to cause the most trouble to those of you located along the eastern side of the Great Dividing Range north of Sydney up into SE Queensland. Wet weather over the summer months can substantially increase the threat of SHB damage. Where ever soil moisture, humidity and temperature are all high the potential for SHB breeding is high.

South Australia (SA) is the latest of the states for SHB to become established. Beetle had been taken into SA as far back as May 2011 but the infested hives were sent back over the border from where they had come. In May 2012 SHB were found in some SA hives 2 km from the Victorian border and 200 m from some suspected Victorian beehives.



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December 2014, hives in 2 separate apiaries near Renmark were found with SHB. These hives had only worked the local area. SHB were found in an additional 8 apiaries in the area in April 2015. The combination of these finds made the SA apiary industry and SA government question the handling of SHB in there state. The South Australian Apiary Association (SAAA) called an emergency meeting on the 15 May 2015 to discuss the issues particularly around movement restrictions as a result of SHB. Approximately 90 beekeepers attended. They heard from a range of speakers. I was fascinated to hear Peter McDonald's talk on the Victorian beekeepers perspective of the impact of SHB. Peter had done some homework and rang around Victoria to hear the views of many beekeepers from many different locations.

The general view from the Victorians beekeepers was SHB just had not been a problem to their bee colonies. Beekeepers did not need to manage the beetle in hives as the bees were doing this without assistance. The main issue for the Victorians was the storage of honey supers prior to extraction and the keeping of a tidy honey shed. Some beekeepers experienced SHB damage especially if brood was brought in with the honey. But this problem could be easily alleviated by either extracting straight away or with cool storage. Low humidity storage with good air flow through the supers can also provide protection. Again I suspect the climate has a lot to do with SHB not being a major problem in Victoria. Particularly the dry summers and parched soils over the summer and autumn.

So for SA I suspect the same will be true. SHB will have little impact on the apiary industry. The fact that SHB has taken so long to be found in and get "established" (which is still questionable) in SA, even though I would guess many previously unknown introductions had occurred, would clearly indicate conditions are unfavourable for SHB breeding in this state.

When preparing my talk for SA meeting I came across this climatic map which shows the summer rainfall which I think you can translate as a risk map for SHB with the higher the millimetres of rain equating to higher risk from SHB. So from this map I would extrapolate that SHB will never be a big problem in either SA or southern WA unless an exceptional wet humid summer is experienced which are rare.



As a result of the meeting the South Australians have removed interstate movement restrictions which were in place to prevent the entry of SHB and have removed it from being notifiable. Thereby accepting SHB is in their state and they do not want to limit the beekeepers opportunities to move their hives between states to optimise production.

Tasmania, the Northern Territory and most of Western Australia remain free of SHB. In WA the beetle is only found up in the Kununurra region where it is well established. It was introduced back in 2007 via empty hive gear that had gone to Queensland for irradiation.

After treatment the gear sat outside prior to being returned. During that post treatment time the SHB penetrated the gear and where then carried back to Kununurra where they established in the hot humid conditions on the irrigated country. In early 2008 some hives from the Kununurra area where taken down to West Swan and Jarradale west of Perth with beetle in them. These hives were destroyed and no further beetle have been found in the south of WA.

In Queensland SHB has spread throughout much of the state, but is predominantly along the wetter coastal regions. It struggles to establish in the drier western regions but gets regularly reintroduced by beekeepers transporting hives from the east. The main point of interest I have heard in the past few days is the finding of SHB larva infestations in *A. cerana* colonies. This would be interesting to further investigate to see if the SHB are going to impact on the Asian honey bee population around the Cairns district or are these bees more capable of defending themselves. Or do they just pack up and abscond as an effective survival technique to resist the beetle. Something *A. mellifera* do as a last resort but with very limited success.

The beehive and associated gear and equipment still remain the only places we have found SHB in Australia. I again call out to all beekeepers if you see beetles you think are SHB but they are found on something not associated with bees eg. silage, animal carcases, compost heaps, fruit please collect some specimens and forward them to me for identification and tell what they were found on.

Thank you.

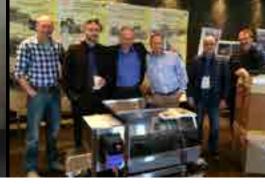








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AIR CTI Advertorial

There has been a lot of talk recently about Central Tyre Inflation management systems. This concept should be of extreme interest to beekeepers as they are environmentally aware and respected within the Australian community for the work they do in this great country.

A Central Tyre Inflation system is an in cabin, button operated system to match tyre pressures to terrain, speed and loading in a quick easy manner. This results in significant benefits to the road, vehicle, driver and environment. Low tyre pressures can be used on non-paved, low speed roads in order to minimize road and vehicle damage, maximize vehicle traction and mobility, allow reduced depths of surfacing on new roads, minimize sediment production, and provide a safer, more comfortable working environment for the driver. As vehicle speed increases, higher tyre pressures should be used to maintain stability and fuel economy on paved roads.

Let's look at some of those claims in a more detail

A CTI system revolves around a vehicle's impact on the road which is described by the use of the contact patch or "footprint" of each tyre. This is the area of the tyre that is in contact with the ground. A larger footprint means less shearing stress and less bearing stress. Both of these are important because higher shearing stress causes washboarding while higher bearing stress causes rutting. Both of these damage the road surface and increase sediment run off into streams.

However, what is more important for beekeepers and their vehicles is the damage that can be done to paddocks by their vehicles. One of the major causes of soil compaction is the traffic upon it. A very effective way to minimise soil compaction is to increase the tyre's footprint (area). This reduces the depth of soil required to support the vehicle and load. The weight placed on the soil is spread out over a larger area and results in lower pressure on the ground. With less pressure to distribute to the subsoil, a considerable reduction in the depth of compaction can be achieved. Rutting is a clear sign of soil compaction. Awareness and by adopting preventive measures shows the professionalism of the beekeeper.

If confronted by boggy ground, difficult terrain or a steep climb the driver can adjust the tyre pressure in-cabin. Changing the tyre air pressure allows greater traction and reduces bearing stress. The vehicle can thus easily cover the terrain and reduce damage to the paddock. The operator will also benefit by having their improved vehicle performance. The softer ride also benefits the bees and hives. Studies have shown optimising tyre pressure reduces shocks and vibration, lowers repair and maintenance costs and improves traction, braking and fuel economy. This is in addition to less tyre damage and longer tyre life.

In order to match the tyre inflation pressures with changing conditions, commercially developed "Central Tyre Inflation" systems are available to allow the driver to change tyre pressures from inside the cab. Quite clearly there are clear economic and environmental benefits to the beekeeper industry.

AIR CTI makes the best Central Tyre System on the market. The company designs and manufactures an in-cabin central tyre inflation system that allows drivers to push a button that automatically adjust tyre pressure to suit terrain and loading conditions. The system is Australian made and tested - proven in the outback. The process is quick and easy and just involves the pressing of a few buttons while seated in the cabin. It also allows the driver to match highway conditions and load for optimal multiple return on his investment.

A Central Tyre Inflation management system such as that made by AIR CTI allows benefits to flow to everyone. Beekeepers can not only benefit individually by the installation of one of these systems but can contribute to the wider community. It is always professional to adopt the latest innovations that benefit everyone.

Julian Taylor B.E. (Hons)., B.Acc., B.Comm (Ec)., B.A. (Maths)



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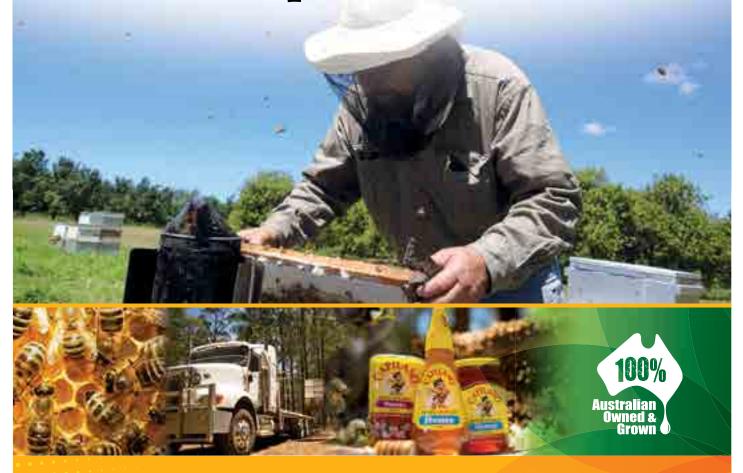
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SICK BEES

Colony Collapse Revisited PART 18F2 ENVIRONMENTAL TOXINS

by Randy Oliver - ScientificBeekeeping.com

I left off last month with the analogy of the bee colony being akin to a leaky boat needing to "bail out" (detoxify) numerous plant alleleochemicals. Generally, they do a pretty good job at this. But what if we now add more "leaks" in the form of manmade chemicals?

New Chemicals in the Environment

The modern era of chemical pest control began around the time of World War II, when the synthetic organic chemical industry began to develop. The first synthetic organic pesticides were organochlorine compounds, such as DDT. At that time, DDT was considered to be a wonder of modern chemistry. It was cheap, knocked the snot out of insect pests, and appeared (at that time) to be relatively safe to humans. DDT and other organochlorine insecticides were widely used until scientists noticed that they were persisting in the environment (they did not readily degrade) and, more seriously, could bioaccumulate in birds, humans, and other animals. In 1962 Rachel Carson, in her book Silent Spring, introduced the term "ecosystem" to the general public, and kick started the environmental movement. As a result, the EPA was created in 1970 [1], which subsequently banned most of the organochlorine pesticides [2].

Up until *Silent Spring*, "chemicals" had a good name, synonymous with "progress" (Fig. 1). The heyday of modern chemistry ran from WWII through the 1980's, during which time the number of newly-created chemicals grew exponentially [3].

In the 1950's, chemistry was considered to be our ticket to a better life, as exemplified by DuPont's motto, ""Better Things for Better Living ... Through Chemistry."

Environmental contamination, industrial accidents and spills, and the irresponsible dumping of toxic wastes, coupled with society's newfound environmental consciousness, led to widespread distrust and chemophobia by the public, which has stuck to this day (despite our



eager embracement of every new product).

To the public, "chemicals" are synonymous with environmental issues, despite the fact that they did not even make the Top 10 list of environmental problems as determined by ecology grad students (Gibbons 2006)!

Figure 1. Americans have gone

from embracing "chemicals" to now being fearful of them. Although I certainly wish to see chemical pollution of our air, water, and landscapes cleaned up, and am cautiously concerned about any manmade chemicals in my diet, I feel that public sentiment may have swung too far, based upon ignorance and unwarranted fear.



Chemists today have gone full circle, and now are at the forefront of analyzing and explaining how any pesticide or pollutant can affect health or ecosystems [4]. Unfortunately, the public confuses our newfound ability to detect chemicals in the parts per trillion with increased risk— a major misunderstanding which frustrates both toxicologists and the EPA risk assessors [5].

Scientific note: one thing that bugs me about studies on the sublethal effects of synthetic pesticides is that we have no perspective as to the degree of impact due the pesticide *relative to* the adverse effects of common plant alleleochemicals. I'd like to see some benchmarking of a few common plant phytotoxins that could then be run as "positive controls."

Fear of Chemicals-it ain't just pesticides

We live in a society obsessed with fear. These days you can't even find a merry-go-round or jungle gym on a playground any more for fear that some child might get hurt while playing outdoors! And in my chemical-phobic home state of California, every McDonalds and Starbucks are required by law to post warnings that French fries and coffee contain acrylamide–a lethal neurotoxin, carcinogen, and reproductive toxicant [6]. At the lumber yard, my receipt now warns me that:

WARNING: Drilling, sawing, sanding or machining wood products generate wood dust, a substance known to the State of California to cause cancer.

For Pete's sake, coffee, French fries, and sawdust are now considered to be "substances" that can cause cancer! Heaven forbid that they ever get hold of my smoker!

Irrational Fear of "Chemicals"

The term "chemical" has become emotionally loaded. In truth, there is nothing inherently good or bad about "chemicals"—everything that you can touch, taste, or smell is a chemical. And as Paracelsus pointed out 500 years ago, "All things are poison, and nothing is without poison; only the dose permits something not to be poisonous."

How about that proverbial grain (or teaspoon) of salt with which we should take the alarmists' warnings? Salt is an effective and nonspecific poison–1 tsp of salt is about 1/10 the lethal human dose [7]; salt is also mutagenic, can cause reproductive problems and muscular dysfunction. Even water or oxygen can kill you if you consume too much. It is all about the dose!

And don't let multi-syllable names scare you. Consider betadextro-fructofuranosyl-alpha-dextro-glucopyranoside. This chemical is arguably the leading cause of preventable death in the U.S.-strongly linked to heart disease (the #1 cause of death), Type 2 diabetes, obesity, hypertension, colon cancer, and tooth decay [8], yet there are people who feed it to their children! I'm sure that you've figured out its common name by now—table sugar.

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Manmade Chemicals

I'm going to get back to pesticides soon, but first we should realize that our ecosystem is full of plenty of manmade chemicals other than pesticides—a number of which should be considered when we are looking at the background level of toxins that the bees must deal with (as per my leaky boat analogy).

General Environmental Pollutants

Long-time bee researcher and toxicologist Dr. Jerry Bromenshenk points out that our focus on agricultural pesticides overlooks plenty of other toxic substances to which bees are exposed (which got plenty of attention from beekeepers prior to the distraction of synthetic pesticides). His research suggests that we could consider bees as "flying dust mops," and hives to be "air sampling devices."

Bromenshenk, funded at the time by the EPA, developed methods for using behives as monitors of environmental pollution. In 1989, based on his studies, EPA approved honey bees in their guidance reference manual for establishing and conducting ecological assessments of hazardous waste sites [9]. I've condensed his findings (from the book *Honey Bee: Estimating the Environmental Impact of Chemicals* [10] and personal communications):

A colony of honey bees is an effective environmental sampling device for volatile and semi-volatile organic Beehives located in uncontaminated compounds. environments contain compounds released by the bees themselves, from hive stores, and from the materials from which the beehives are constructed. In all areas they also contain compounds from vehicles, farms, industries, and households in the hive vicinity. Some of these are pesticides, but we also identified on average more than 200 other (volatile and semi-volatile) chemical compounds that occur simultaneously inside each and every beehive, as well as trace elements, heavy metals, and even radioactive materials, sometimes at levels that caused bee toxicity or queen mortality. Thus, these chemicals should be included in any discussion of honey bee health.

To our credit, we have cleaned up pollution significantly since the '70's, but there are still plenty of dusts, solvents, and volatile emissions that can be carried back to the hive by foragers (Fig. 2).



Figure 2. The EPA tracks the levels of 177 air pollutants such as acetaldehyde, arsenic, mercury, benzene, carbon tetrachloride, formaldehyde, methyl chloride, toluene, and several pesticides [11]. Dusts stick to bees due to electrostatic charge, and are carried back to the hive, where they are inadvertently mixed with the pollen in the beebread. Volatiles accumulate and may even bioconcentrate inside the bodies of bees and may be absorbed by the beeswax as bees ventilate the hive.

Bromenshenk pioneered using bee hives to track the distribution of trace element pollution downwind from smokestacks. Oddly, his seminal paper [12] is widely cited in environmental studies, but rarely in the bee literature! He also demonstrated that such heavy metal pollution could show up in hives even decades after a smokestack was shut down, and that such pollution could cause colonies to decline in strength [13]

Again, although we have made progress in reducing smokestack emissions, there is still plenty of heavy metal pollution going on (Fig. 3). Keep in mind that unlike pesticides, heavy metals never degrade, remaining in the soil forever, possibly being concentrated in the pollen of plants growing there. For example, lead-arsenate insecticides were widely used on cotton until they were banned in the '80's. But they've come back to haunt us when rice is then planted on previous cotton land [14].

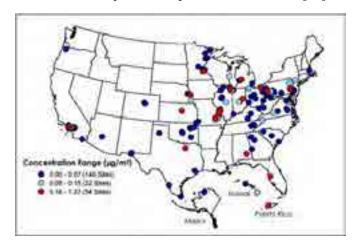


Figure 3. Heavy metal pollution is invisible. The above map shows the amount of lead in the air in 2010 (in $\mu g/m3$; maximum 3-month averages). Some plants exhibit the nasty habit of bioaccumulating heavy metals in their pollen [15]. Source EPA [16].

Update March 2015

One natural trace mineral in pollen is manganese (which may be elevated in areas of high manganese content of the soil). Manganese is also an air pollutant released by vehicle emissions, industry, and iron smelters. A team of researchers found "that manganese exposure negatively affects foraging behaviour in the honeybee... we found that honeybees treated with 50 mM Mn^{2+} showed a precocious transition from in-hive behaviours to foraging ... Surprisingly, precocious foragers completed significantly fewer foraging trips over their lifetime ..., which suggests that long-term exposure of beehives to Mn^{2+} could negatively affect colony fitness.

Søvik, E, et al (2015) Negative impact of manganese on honeybee foraging. Biology Letters http://rsbl. royalsocietypublishing.org/content/11/3/20140989

For releases of manganese in your state, see http://www. atsdr.cdc.gov/toxprofiles/tp151-c6.pdf

And now I wonder about the volatiles being released by the fracking of shale formations—common in many beekeeping areas (Fig. 4).



Figure 4. Fracking releases a number of potentially toxic petroleum hydrocarbons into the air, including benzene, ethylbenzene, toluene and xylene [17]. Do you place any hives near oil or gas wells? Source [18].

Bromenshenk points out that when looking for the causes of bee health issues, we should keep in mind the background levels of environmental pollutants, which to my knowledge, are rarely tested for.

Practical application: Do you know the history of heavy metal pollution where you place your bees? If there was ever mining, a factory, a smokestack, or use of lead-arsenate insecticides, the soils and plants in that area may be quietly poisoning your bees and you'd never know!

Scientific application: Densely populated urban areas tend to have high exposures to a vast array of pollutants as evidenced by the preceding maps. This fact should be taken into account in any trial of pesticide effects performed in such areas.

Natural Elements

So far, I've been speaking of manmade pollutants. But some plants concentrate natural soil elements to high concentrations in nectar and pollen [19]. Beekeepers should be aware of a couple of recent studies on selenium and bees. Quinn [20] found that some plants concentrate selenium in nectar and pollen to levels that could be toxic to bees, and that surprisingly, bees do not avoid those flowers! Hladun [21] then demonstrated that such naturally-occurring levels of selenium can cause the same sorts of behavioral and mortality effects upon bees as one would see in the standard testing of insecticides!

Practical application (?): commercial beekeepers often summer bees in areas of high soil selenium (Fig. 5). Some native plants in those areas concentrate selenium to toxic levels. Of special concern is that alfalfa and canola can also concentrate selenium.

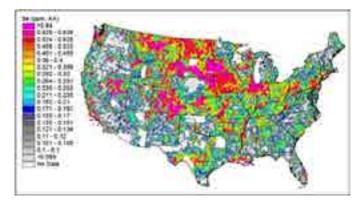


Figure 5. Map of selenium concentration in soils. Bees kept in the reddish areas stand the risk of being exposed to toxic levels of this metal via nectar and pollen, especially in drought years. Source [22]. You may wish to view a similar map for the arsenic content of soils [23]!

And if unavoidable environmental pollutants weren't enough, bees have the annoying habit of getting "into things."

Those Danged Bees!

Not only do bees get into soda cans and any other source of potentially harmful sweets (like cracked fruit, molasses, or ant or fly bait), but they are programmed to seek out toxic plant resins to use as propolis (Fig. 6).



Figure 6. I've heard from two different friends that when they pull into certain trailer parks, that bees come and scrape the caulking out of the seams of their travel trailers (note the caulking in the pollen baskets). In both cases the bees found the caulking of only one particular brand of trailer in the entire park to be attractive! I have no idea as to the toxicity of the caulking once back in the hive. Photo courtesy Kerry McDonald.

Poor Colony Survival

It's easy to blame poor colony performance at the end of the season on pesticides, but are they always truly to blame? I took the photo below (Fig. 7) in late July—about a month after the main honey flow ended.



Figure 7. This colony appears to be well fed—notice the distended abdomens full of nectar and the abundant beebread. However, if you look closely at the young larvae, you'll notice that they are only being given a minimum amount of jelly, and the brood pattern is shot (indicating poor larval survival). Despite the presence of pollen and honey, the signs are that this colony is under serious stress!

Australia's Honeybee News July/Aug 2015

If you inspected the above colony in late summer, you'd see pollen stores, well-fed adults, and active broodrearing yet it is clearly under severe stress. If the colony had previously been exposed to Ag chemicals, the beekeeper might suspect that they were to blame.

However, the colony was one of mine, and I feel that I can safely assume that it had not been exposed to any pesticides (no crops or commercial landscapes within flight range). I have no idea as to whether the stressed brood was due to an inadequate nutritional profile of the late-season pollen, plant alleleochemicals, or something else. In my experience, this stressed colony (which is typical for my area at this time of year), without nutritional intervention by the beekeeper, would dwindle in strength, be unable to produce a healthy winter cluster, and likely not make it through winter, eventually succumbing to viruses or nosema. The question then would be to what the beekeeper attributed that loss. In this case, something sure wasn't right, but it certainly wasn't pesticides or miticide residues!

Practical application: colonies require high-quality pollen to prepare for winter. Those suffering from poor nutrition may not be able to rear a healthy crop of "winter bees" [24,25]. Such nutritional stress can not only cause the population to dwindle, but such dwindling could be exacerbated by the effects of any toxins, natural or manmade. And an exposure to a dose of agricultural pesticides that a healthy colony might simply shrug off could be the kiss of death for such a nutritionally-stressed one!

Reality Check

Let me be clear that I'm not suggesting that pollution and plant alleleochemicals are the cause of most colony mortality, nor that pesticides aren't involved. Rather, the point of the discussion is that the local background levels of environmental pollutants and plant allelochemicals may help to explain why study after study has been unable to find a statistical relationship between colony mortality and pesticide residues [26]—it's hard to figure things out when you're working half blind! The problem may be that there were additional variables that were not measured (each analysis adds to costs). I have yet to see a study in which colony mortality was investigated in the full context of the sum total of all toxins (including those from plants, pollutants, air, and dust) to which the colony was exposed—these additional toxins are often present at levels that rival the toxicity of pesticides! Such additional variables could easily confound attempts to link [27] colony mortality to pesticide residues.

Practical application: It is relatively straightforward to nail the cause of an acute pesticide kill. It is much more difficult to separate any sublethal effects due to pesticides from those of the stew of natural and manmade toxins to which bees are exposed in the real world. Unless we take into account all the leaks in the boat, we really don't know how hard the colony is bailing to stay afloat. Colonies may be able to shrug off an exposure to an agricultural pesticide in one location or under certain conditions, yet suffer serious mortality in another location or under other conditions. Such variability makes it devilishly difficult to tease out the actual relationships between pesticide residues and colony health.

NEXT-on to (finally) manmade pesticides!

Acknowledgments

As always, I'm indebted to Peter Borst for his assistance in research, and to Drs. Jerry Bromenshenk and James Frazier for their helpful reviews and comments.

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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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AUSSIE BEE INDUSTRY CREATES A BUZZ IN ITALY

RIRDC's Senior Program Manager, Dave Alden, participated in the 'Beexpo' conference in Milan, Italy on 16 June. The conference, entitled 'Biodiversity and pollination: protection of bees and development of sustainable beekeeping' was part of Expo Milan 2015. Expo Milan runs from May through October and has more than 140 participating countries.

Dave was part of an international panel discussion that explored national strategies and practices that could inform policies and safeguard the beekeeping world.

Dave outlined how RIRDC and Horticulture Innovation Australia invest in high-impact projects of high priority to industry through the Honey Bee and Pollination Program, funded primarily from levies matched by the Australian Government. Delegates were envious of Australia's funding model.

The extent and causes of bee colony losses in various countries were discussed. This was timely as the day before the Australian Government announced funding for a survey by the Australian Bureau of Agricultural and Resource Economics and Sciences of the beekeeping industry - this will provide up-to-date information on the physical and financial characteristics of honey bee businesses.

The provision of bee forage was discussed and mention was made of the US President's 'National Strategy to Promote the Health of Honey Bees and Other Pollinators'. The strategy will seek to manage the way forests burned by wildfire are replanted, the way offices are landscaped and the way roadside habitats where bees feed are preserved. In this context, Dave outlined RIRDC's 'Bee Friendly: a planting guide for European honeybees and Australian native pollinators'.

The conference concluded that cooperation was the key to ensuring sustainable beekeeping, through relationships between beekeepers, farmers, researchers and government officials. This very much reflects the basis on which Australia's Honey Bee and Pollination Program is managed.

Dave attended 'Beexpo' at the invitation of, and with travel and accommodation paid for by, the Italian Ministry of Foreign Affairs and International Cooperation, on the recommendation of the Australian beekeeping industry.

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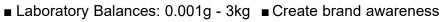
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Executive Director: Trevor Weatherhead Phone: 07 5467 2265 Mailing Address: PO Box 4253 Raceview QLD 4305 Email: ahbic@honeybee.org.au

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

AHBIC AGM

The AHBIC AGM was held on Saturday 4 July 2015 at Penrith. The officer bearers for 2015-16 are:

Chairperson	-	Ian Zadow
Deputy Chairperson	-	Craig Klingner
Executive members	-	Trevor Morgan
Peter McDonald		-
Neil Bingley		
Casey Cooper		
Executive Director	-	Trevor Weatherhead

Rod Pavy had previously served as Deputy Chairperson and was not elected again to that position. Rod had served the Executive for several years now and we thank Rod for his participation over that time.

Committee Chairs are:

Food Safety	-	Ben McKee
Honey Month	-	Lamorna Osborne
Quarantine	-	Peter McDonald
Resources	-	Ian Roberts
Education	-	Elizabeth Frost
Disease	-	Craig Klingner
National Beekeeping		
Conference	-	Ben Hooper

Ian Roberts is Chair of the Producer Contingency Fund which met immediately after the AHBIC AGM.

A range of issues were covered at the AGM. If you have a particular interest please contact your member body representative on the Council.

The morning session provided some media training for the AHBIC delegates. This was done to give delegates some background on media and also give them information that would make them more confident if they have to do a media interview.

B-QUAL BOARD VACANCY

Just a reminder that there is a vacancy on the B-Qual board for a Director. Expressions of interest have been received. The B-Qual Board will meet in October 2015 and will examine the applications. So if you have been thinking about supporting the beekeeping industry by serving on the Board you will need to get your application in now and forward it to me at ahbic@honeybee.org.au

ASIAN BEES IN DARWIN

In late June 2015, a nest of Asian bees was found in a campervan at Darwin. This van had been transported on the back of a truck from Cairns for a show in Darwin. The van had been stored at East Arm Point in Darwin for 3 days prior to being taken to the camping show. The nest was destroyed.

Subsequent testing showed that the Asian bees were the same genetic cluster as the Cairns bees. This would be

expected. No mites were found with the bees in Darwin which would also be expected.

Surveillance was carried out around the camping show site and the East Arm Point area. To date no Asian bees have been found.

CATEGORISATION

The paperwork to have the two Varroas and two Tropilaelaps categorised has been submitted. It is expected that the categorisation meetings will be held in early September. They could not be held earlier due to the unavailability of the Commonwealth Government Technical expert. The Commonwealth needs to be represented to form a quorum.

APIMONDIA

Not long to Apimondia in Korea. If you are interested go the website: http://www.apimondia2015.com/2015/eng/ sub_01-01_tab1.jsp

The AHBIC representative for meetings at Apimondia will be Lindsay Bourke.

MYRTLE RUST FOUND IN NORTHERN TERRITORY

Myrtle rust has been found on the Tiwi Islands north of Darwin in the Northern Territory. It is most likely that wind will take the spores from the Tiwi Islands to the mainland.

Myrtle rust affects species in the Myrtaceae family. For beekeepers this is the family with the main species from which they obtain honey and also build bees. All Eucalypts, Lophostemons, Melaleucas and Leptospermum are in the Myrtaceae family.

Since being found in New South Wales in 2010, myrtle rust has also been found in Queensland and Tasmania.

SMALL HIVE BEETLE NO LONGER NOTIFIABLE IN SOUTH AUSTRALIA

The South Australian Department have taken small hive beetle (*Aethina tumida*) off the notifiable list. See http://www.abc.net.au/news/2015-07-07/small-hive-beetle-removed-from-notifiable-pestslist/6601298

NATIONAL PLANT BIOSECURITY STATUS REPORT 2014

The National Plant Biosecurity Status Report for 2014 has just been published. It can be found at http://www.planthealthaustralia.com.au/nationalprograms/national-plant-biosecurity-status-report/

WORLD HONEY AND BEE PRODUCTS SHOW CHINA

I have received advice about a world honey and bee products show in China from 7-11 November, 2015. If anyone is interested in the information let me know and I will email it to you.

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Thank you for supporting AHBIC to continue supporting your in St is gratefully appreciated.	dustry at a national level.				

BIOSECURITY COST RECOVERY IMPLEMENTATION STATEMENT

The Department of Agriculture is redesigning its biosecurity and export certification fees and charges.

The draft Biosecurity Cost Recovery Implementation Statement (CRIS) has been released and is available on the department's website at www.agriculture.gov.au/ costrecoveryreview

HONEY LEVY

As previously advised, the honey levy increases from 1 July, 2015 from 2.3 cents per kilogram to 4.6 cents per kilogram. The increase is for the Contingency Fund segment which will be used to fund the Bee Biosecurity Officers in each State plus industry's commitment to the National Bee Pest Surveillance Program.

The other change that comes into effect on 1 July is that the threshold for paying the levy increases from 600 kilograms to 1500 kilograms. This was done in an effort to reduce the collection costs charged by the Department of Agriculture to collect the levy. It was costing more to collect the levy at these lower levels than the levy raised.

Under the old legislation if you paid under \$2,000 in levies in a year you could apply to the Department to provide an annual return and not a quarterly return. AHBIC had asked that this be lifted to \$4,000 to reflect the intent of the old legislation. This was inadvertently overlooked.

However the Department is preparing the necessary regulations to have this happen. In the meantime, it has been decreed that if you submitted an annual return previously this will be the same for now even though you may go over the \$2,000.

I would encourage all levy payers to examine what their level of payment is. If it will be below the \$4,000 and you are still submitting quarterly returns, once the regulations come out please apply to the Department to submit an annual return instead of the quarterly returns. This will help reduce the collection costs and make more money available for the purposes for which it is collected.

ALMONDS AND CANOLA

Almond grower, Select Harvest, are looking to plant canola in their almond orchards so that bees will have a good protein source whilst pollinating almonds. See http://www.abc.net.au/news/2015-06-15/almond-orchard-trialling-canola-for-bee-food/6546364

POLLINATORS IN PERIL

The link is to a very interesting talk given by Marla Spivak who many in Australia will have met when she came to Australia several times in the past to talk at beekeeping conferences: .https://www.youtube.com/watch?t=12&v=bKjzKxHwUfg

RIRDC RESEARCH PAPERS

Over the years some of the research work carried out under the Honey Bee Research Development Committee and Honey Bee Research and Development Council have been deleted form the RIRDC website. I have received advice from RIRDC that they now have some of that data backup. It said: We have now digitised and uploaded the following reports onto the RIRDC website and will feature the links in the next Honey Bee and Pollination R&D News:

Honeybee Research Report 1995-1997 https://rirdc.infoservices.com.au/items/97-58 Honeybee Research and Development Council Research Report 1980-1995. https://rirdc.infoservices.com.au/items/96-999 This will now allow anyone wishing to check up on previous research to be able to access this data.

AQBBG BREEDING PROGRAM

The latest report on the hygienic testing of the Australian Queen Bee Breeding Group program is on the AHBIC website. See http://honeybee.org.au/queen-bee-breeding-program-june-2015-update/

Remember there needs to be support for the program by beekeepers ordering queens. It would be a pity for this stock to be lost through non-support.

GREAT NEWS - NATIONAL BEE SURVEY

Agriculture Minister, Barnaby Joyce, has announced that the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) will be carrying out a national bee survey. His press release follows.

Our industry representatives, Ian Zadow, AHBIC Chairperson, Neil Bingley, AHBIC Executive, and Jodie Goldsworthy, Chair of the Honey Packers and Marketers Association of Australia met with Minister Joyce at Parliament House on Tuesday 16 June, 2015.

Minister Joyce and his advisor spent about 20 minutes with our representatives and they were able to raise several issues with him including:

- The NSW bee site auctions. Minister Joyce promised to raise this at the COAG meeting.
- The testing of imported honey and the problems we have had with mislabelling, substitution and possible testing of imported honey for C4 sugars.
- The attempts by industry to have a new honey standard put in place were also raised along with possible allergens that may be in imported honey if it is not labelled correctly.
- Country of Origin labelling is a current topic with AH-BIC having put in a submission on this and the Minister now putting out possibilities for public submissions which AHBIC will do.
- The topic of levies on pollination fees was raised and we were advised to take this up again when the current Levy Inquiry is finished. This is an issue that AHBIC has been raising for many years and we have been previously advised that it will need changes to legislation but that is on the agenda.

With the raising of these issues, we have been told that the Minister's advisors will be preparing some correspondence and AHBIC will be checking back with the staff at a later date to see how things have progressed. All in all it was a successful day.

The opportunity was also taken to have meetings with Animal Health Australia (AHA) and Plant Health Australia (PHA) on the winding up of the Contingency Fund and the transfer of money to PHA which will be managed under a Memorandum of Understanding.



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The Hon. Barnaby Joyce MP

RELEASE

Minister for Agriculture

MEDIA

A hive of activity as Australia's commercial bee keepers are surveyed

An upcoming survey of the Australian honey bee industry will collect baseline data that will provide information on the current economic situation of Australian beekeepers.

Minister for Agriculture, Barnaby Joyce, said the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) survey would provide a thorough picture of changes to the national industry along with an up-to-date profile of the physical and financial characteristics of honey bee businesses.

"In addition to data on the demographic and socioeconomic circumstances of people in the industry, the survey will capture the adoption of research and development initiatives, the state of honey bee health and the size of the commercial pollination services sector," Minister Joyce said.

Minister Joyce said the value of Australia's bee industry extended far beyond the quality products produced to the valuable pollination services of honey bees.

"More than 12,000 registered beekeepers are tending to more than 520,000 hives across the country that produce about \$90 million worth of honey and beeswax each year," Minister Joyce said.

"Bees are important not just because of the honey they produce. About 65 per cent of Australian agricultural crops respond to honey bee pollination. Among others, Australia's \$346 million almond crop depends entirely on bees for pollination.

"It's not just beekeepers and the honey industry that rely on bees, it's Australia's agriculture industry as a whole."

The ABARES survey will allow for comparison with survey data collected from previous surveys in 2001 and 2008.

ABARES will consult with the Federal Department of Agriculture, State and Territory Government agriculture departments, RIRDC, Plant Health Australia and industry representative organisations, such as the Australian Honey Bee Industry Council in designing the industry survey.

A sample of commercial bee keepers, registered on state and territory lists, will be selected to participate in the survey with ABARES to conduct face-to-face interviews starting in late February 2016. The survey results are expected to be available in July 2016.



For all enquiries call 1800 630 890 or go to www.bqual.com.au

LOOKING FOR MEDICINAL LEPTOSPERMUM 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. *Leptospermum* honeys are usually dark, relatively strongly flavoured, and often hard to extract because they tend to "gel" in the comb. We will test these honeys for antimicrobial activity and investigate the relationship between the activity and the plant source.

The project will be running over the next few years (until 2018), 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 200 - 500 g, 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 an information sheet with 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 0404 643 181 or 02 9514 4173 Elizabeth.Harry@uts.edu.au

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Australia's Honeybee News July/Aug 2015

BEEKEEPERS ON THE BRINK AS AGENCY CHAOS THREATENS INDUSTRY

NSWAA Media Release - 3 July 2015

NSW's beekeepers are being shut out from sites they have used for generations to maintain healthy hives, due to recent changes in policy, internal confusion caused by departmental restructures, and lack of coordination on the part of NSW's multiple land management agencies.

Mr Trevor Monson has kept bees, produced honey and provided commercial pollination services to the agricultural sector for 40 years. His father was involved in beekeeping, as is his son. He is well respected by the industry and is an active member of the NSW Apiarists' Association (NSWAA). This week he received a letter from NSW National Parks and Wildlife Service (NPWS) informing him that 30 km of Murrumbidgee river frontage - which he has been using as apiary sites for 30 years - will no longer be available for any beekeeping activities.

"We had a long-standing arrangement with the previous owner, while it was private property," explained Mr Monson. "Now NPWS is saying that because it was private land, they can't renew our beekeeping licence for the area, even though beekeeping is permitted in some national parks."

(Under the *National Parks & Wildlife Act 1974*, beekeeping licenses can be renewed in some national parks where activities were occurring before the land was reserved, as long as certain conditions are satisfied. Unfortunately, privately-held lands are not mentioned in the conditions.)

The tree species that grow there are floodplain red gum and black box, which produce some of Australia's highestquality, most-highly sought-after table honey. "So if we can't get access to those sites, we're looking at a total loss of honey production from that area," said Mr Monson. But it's not just honey production that's at stake.

"Because these tree species flower in summer and have high-quality pollen, we can use them to make sure our hives are healthy and strong through into autumn and winter," explained Mr Monson. "So by the time spring comes along, the bees can do a good job pollinating almonds and other crops. If I can't get access to river red gum and black box any more, I'll have significant extra expenses because I'll have to feed the hives supplementary protein over winter, to keep them in good enough condition to provide pollination services."

This Government-inflicted instability isn't good for a family business that otherwise could be carried on by a third generation of Monsons.

Unfortunately, Mr Monson's experience is not an isolated example. Beekeepers are suffering increasing uncertainty and losing access to apiary sites on public lands all over the state, at the hands of middle-managers from a number of land management agencies such as NPWS, Forestry Corporation of NSW, Local Land Services, and Roads & Maritime Services. At the same time, the agricultural sector's demand for pollination services has increased dramatically, and climate extremes such as droughts mean that each beekeeper needs access to a greater diversity of sites to remain viable each year. NSW Transport and Infrastructure Minister Andrew Constance, who opened the NSWAA Annual Conference in Sydney yesterday, noted that the success of the NSW beekeeping industry had always

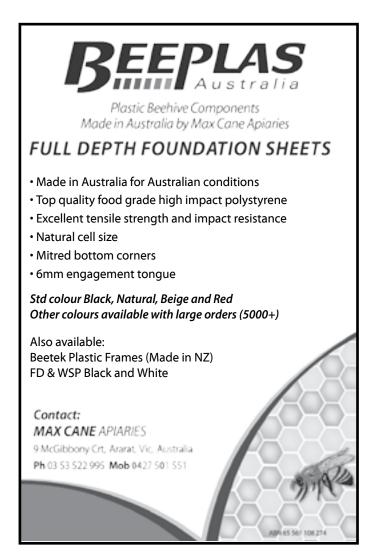
relied on access to large tracts of native flowering vegetation, much of which is on public lands.

"The Government recognises how important it is for the industry to have access to public lands," he

said. "We also acknowledge concerns that current governance and administrative arrangements – which differ across a range of different land management agencies in NSW – are unfair and inequitable for beekeepers."

"I am committed to working hard with my ministerial colleagues towards developing a whole-of Government, coordinated, consistent policy for public lands access for NSW's beekeepers," he concluded. "And I hope that the NSWAA will continue to negotiate and advocate on behalf of this industry, which is a very important one for our State."

General media enquiries: Suzanne Long, 0429 600 746, suzanne@turnthetide.com.au



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