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HONEYBEE NEWS

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Volume 6 Number 6

NOVEMBER - DECEMBER 2013

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PRESIDENT'S REPORT

As we move towards the end of the year it is nice to have seen rain in some areas of the State and the new growth this has stimulated, but we'll need more in most places if our beekeepers are going to have much of a season.

With Christmas rapidly approaching it's only going to be a blink of eye before Easter is upon us. Our Show sub-committee is already hard at work on planning for the 2014 Show, and now we are calling for help with donated honey and volunteers to help sell it. *Please do what you can to help*. We rely on the Show as a major fundraiser for the Association, but this only works with generous donations of honey and time. Contact Bruce White if you can help (blwhite11@hotmail.com 02 9634 6792). *The 2014 Sydney Royal Easter Show will run from 10-23 April. Mark these dates in your diary now.*

Many show volunteers and honey exhibitors will be saddened to hear of the death of Phillip Carter. Beside his role as an RAS Councillor, Phil was very supportive of the Apiculture Exhibits, the National Honey Show and the *Honeyland* stand.

2014 Conference and Association Planning Workshop
The 2014 Conference will be held at Narrabri at the Crossing Theatre Centre, on Thursday 8 and Friday 9 May, and the program is shaping up to be very interesting. In particular we will be hearing about, discussing and then voting on potential changes to the honey levy (see below and detailed article in this edition of *Honeybee News*).

We are very happy to be able to move ahead with the Association Planning Workshop, and the Executive will be contacting State Branches shortly to ask for a nominated representative to attend, on Wednesday 7 May, at Narrabri.

See the 2014 Conference article in this edition for more information. Put the dates in your diary now, and remember to plan on joining us on Saturday 10 May to see some of the beautiful Pilliga scrub and join us for a BBQ lunch.

Updates on advocacy activities of the Executive
After the visit of myself and some of the Executive Council to Sydney in August to meet with Minister Constance (Minister for Finance and Services), Minister Parker (Minister for the Environment, and Minister for Heritage) and David Dawson the senior advisor for Minister Hodgkinson (Minister for Primary Industries, and Minister for Small Business), as well as follow-up correspondence from the Executive to this group, we have had some promising responses.

Minister Parker has indicated that the Office of Environment and Heritage (OEH) is currently reviewing its beekeeping policy, which will include looking at streamlining administrative processes. Key stakeholders, such as the NSWAA will be consulted as part of the review and the Executive expects to be contacted in early 2014 to participate. The OHE is also planning on undertaking discussions with other relevant agencies regarding broader issues around access to public land in general.

At the beginning of September the Executive sent a letter to the Minister Hodgkinson (Minister for Primary Industries, and Minister for Small Business) with regards to the safety issues around beekeepers moving un-netted bees.
We have received a response from her recommending that rather than looking for an amendment to the Apiary Act we instead look at adopting a code of practice for the transport of beehives, which would be a benefit to the industry and individual beekeepers. This is something the Executive plans to follow up on.

The Executive has also prepared three submissions to the Natural Resources Commission. The first was in regards to the thinning of cypress pine plantations, and the impact of plantation densities on the beekeeping industry. We argued that thick areas of cypress pine do not allow growth of eucalypts species, our major industry resource. With a second submission we contended the importance of understory and rich biodiversity in thinned cypress pine areas, to allow the growth of pollen and nectar plants. The third submission was to the Review of Weeds Management in NSW. We were able to demonstrate that although some parties classify certain plants as "weeds", others, such as beekeepers, may view them as a valuable resource. We also reiterated that any management strategy for weeds should include an understanding that any spraying of plants while they are flowering should be avoided, otherwise there are likely to be detrimental effects for bee health and possibly for human health.

Honey levy reform and increase
The Australian Honey Bee Industry Council (AHBIC) is proposing that changes be made to the existing honey levy, which is collected by the Levies Revenue Service of the Department of Agriculture.

AHBIC are proposing to raise the honey levy from the current 2.3c/kg to 4.6c/kg to pay for improved industry biosecurity – via endemic pest and disease management, and surveillance of exotic bee pests and pest bees.

Make sure you read the detailed article about the proposed levy changes in this edition of *Honeybee News*, and think about the hugely detrimental potential impact of Varroa and other pests and diseases, and how much they could cost you and the whole industry. Improved biosecurity could help protect us from some of the worst consequences.

Attending 2014 conference will give you further opportunity to learn more about the proposed changes, to discuss them with AHBIC representatives and to have your say.

From myself, and on behalf of the Executive Council, we wish you and your families a very Merry Christmas and a Happy New Year.

Casey Cooper
President

BEST WISHES FOR
CHRISTMAS & THE NEW YEAR
from AUSTRALIA'S HONEYBEE NEWS

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****IMPORTANT NOTICE****

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has a new email address:

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YOUR EXECUTIVE AT WORK

The Association Executive Committee met on the 11 November 2013.

The following items were key topics of discussion and action:

- Progression of the development of a NSW Forestry Policy
- Policy support through NSW Farmers' Association
- Transport of bees – current issues
- Industry workshop on the future direction of the Association (7 May 2014)
- Nomination conditions for the inaugural Keith McIlvride Award
- Speaker line up for the 2014 Conference
- *Honeyland* promotion at the 2014 Sydney Royal Easter Show

The next meeting date of the Executive Committee will be Monday 17 February in Dubbo to allow the Executive Committee to meet with key Forestry staff.

NEW MEMBER

A warm welcome to the following new member:

Kylie Meldrum Lostock

VALE

PHILLIP CARTER

Mr Phillip Carter served for 30 years on the Council of the RAS until his retirement in 2000. He remained an Honorary Councillor until his death in 2013. Over the course of his career with the RAS he had served on the cattle, horse, dairy produce, pig, agriculture, veterinary, fodder and meat industries committees. He was Chair of the Other Livestock Committee for 5 years. He served as Chief Steward of the Heavy Harness and Small-Goods Sections.

With his wife Margaret, he competed in countless country and Royal show events for more than 50 years. He has been a Judge at numerous country shows and every Australian Royal Show, with the exception of Sydney.

A Quirindi district resident his whole life, Mr Carter started on the land in the pig industry. He had always kept bees as a hobby, but chose pigs as his major agricultural pursuit. His first show was at Tamworth in 1949 and he went on to show pigs at the Sydney Royal Show for the first time in 1952.

He was known to boast "Showing has always been a great part of our life. Every day of my life ever since 1952, I have had something on my place being prepared for Sydney Royal Show".

Some years when swine fever prevented the pig competition from going ahead, the Carters showed horses, competing in show jumping and three-day events throughout the 1960s and hacks during the late 60s-70s.

From 1978, they showed cattle from their own Poll Hereford stud.

In 1996 Phillip Carter again took up apiculture as a hobby, it wasn't long before he was winning first place ribbons.

Before moving to Warrawoona, the Carters lived at their historic family property, "Woorak" at Pine Ridge, near Quirindi, for 50 years. They ran a large and very successful piggery, Woorak pig stud. The Carters bred and showed Tamworths, Large Whites and Landraces, boasting one of the best Tamworth herds in the world, with their stock attracting buyers from England, the US and Korea.

In 1979 the Carters left the pig breeding world and moved into breeding of super fine wool Merinos.

Horses were also another sideline interest for the Carters. Mrs Carter was a keen horsewoman, competing in show jumping, hacks and dressage events.

In 2003, Phillip Carter was awarded the Medal of the Order of Australia for service to the community of Quirindi and to the Royal Agricultural Society of NSW.

Phillip Carter served the Sydney Royal Easter Show as competitor, official and Councillor for 61 continuous years. He is honoured by the Phillip Carter Perpetual Trophy for Champion Multiple Horse Business Turnout and the Phillip Carter Memorial Annual Trophy for Champion Commercial Honey Exhibit.

(Information sourced from the Heritage Centre, RAS of NSW and with thanks to an article that appeared in The Land Newspaper 13/07/2000)

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2014 CONFERENCE & ASSOCIATION

PLANNING WORKSHOP

The 2014 Conference will be held at Narrabri at the Crossing Theatre Centre, on Thursday 8 and Friday 9 May. The program is really starting to shape up.

In particular, we will be hearing about, discussing and then have the opportunity to vote on potential changes to the honey levy to support the new industry driven biosecurity initiatives (see detailed article in this edition of Honeybee News). This is a very important matter for our industry, because we know that whether we like it or not, government is increasingly walking away from the management of our biosecurity issues, and if we don't pick up the slack no one else will. A change in the honey levy system will provide greater funds for biosecurity, and although this might cost some individuals a little more, it could potentially save our whole livelihoods.

We will also be securing speakers on the following ,Resources, EPA, The Chinese Industry - An Australian Beekeeper's Perspective and much more .

The trade show which is proving a very popular feature of the conference will again be held. This event has been very capably managed by Therese Kershaw since its inception.

The Executive is very happy to be able to move ahead with the Association Planning Workshop, which will be held the day before conference (Wednesday 7 May) at Narrabri. We will shortly be contacting State Branches to ask for a nominated representative to attend and participate.

Greg Mills (General Manager, GoAhead Business Solutions) will facilitate this workshop. Greg knows about the importance of agricultural industries and Associations like ours. It is important to have well thought out and documented plans for the management and governance of our organisation. We need to have a plan for what we are trying to achieve and how we want to do it. This includes deciding what we will be involved in and what we won't, what direction we should take and how we should allocate our (limited) resources. A plan like this would ensure that we are not just reacting to issues as they come up, but that we are considering the long-term viability and usefulness of the Association and working to help with the major challenges we as an industry face. Greg has presented a number of our past conferences and is very familiar with the association and the NSW beekeeping industry.

So, we would like all NSWAA members to start thinking about where they think their Association should go, make this a topic of discussion at branch meetings between now and conference so that your ideas are carried to the 2014 Workshop.

Things to think about:

- What are the biggest issues we face as an industry in NSW?
- What is the main purpose of the Association?
- What should the Association concentrate on?
- What should the Association leave to others?

To close off the 2014 Conference we'll be inviting you to join us to see some of the beautiful Pilliga scrub and for a BBQ lunch (Saturday 10 May). One of the iconic landscapes of inland Australia, the Pilliga is a vast forest that spans more than half a million hectares. It is one of the most important areas for biodiversity in eastern Australia, home to at least 300 native animal species and over 900 plant species. This vast woodland is characterised by native white cypress and iron bark forests, broom bush plains and vivid spring flowers. A great place to finish the conference activities before we all head home.

With all of this going on at Conference in 2014, you should make sure you plan to attend your industry meeting: 8-10 May, 2014, hear what is happening and have your say!

Dr Shona Blair

BUILDING & MAINTAINING SUCCESSFUL INDUSTRY REPRESENTATION

For many industry bodies the success of their organisation depends on the leadership team having a shared and clearly defined and articulated vision and the mechanisms to implement this vision. The leadership team may be made up of a combination of paid and unpaid individuals, some who work part-time or full time, including individuals with different agenda's and priorities. In order to develop and articulate an organisational vision despite having a diverse leadership group it is essential to first achieve agreement on the organisation's identity, scope and focus.

In examining the organisation's identity the leadership team need to understand the makeup of their organisation and their leadership team (part-time vs professional). They need to identify their organisation's role in either identifying problems or developing solutions, they need to identify the activities that are important to them and if their role is in advocacy, marketing, providing social events for members, lobbying etc

The scope of their activities for the leadership team as well as the organisation as a whole is important. Whilst the leadership team need to be in agreement about what their organisation does and does not do, they also need to have clearly defined roles and be in agreement about what the leadership team and each of its members do and do not do.

The focus of the organisation needs to be led by the leadership team. The leadership team needs to ensure activities and attention are directed on their agreed issues and activity occurs according to a targeted timeframe. It is important that the focus of the organisation is not distracted by the many other worthwhile activities and topics that could quickly absorb their time and energy. It is important that their activities are directed to important rather than urgent matters.

Once the leadership team has developed a shared and clearly articulated vision they then need to implement the mechanisms required to bring that vision to fruition. This requires having the right People, Planning and Processes.

The right people for the leadership team are those that share the vision, have the reputation and credibility to promote the organisation's vision, have the skills (or are willing to obtain the skills required) and are willing to be actively involved in the ongoing development and implementation of the organisation's vision. The right people are also those that have the foresight to accept the need for, and to actively implement appropriate strategies to attract and develop new leadership members to take over their roles in due time.

Due to the limited resources (people, time and $) of many organisations, good planning is required to optimise their resources. The leadership team need to invest time into planning in a regular and structured manner. Taking time to think, involving stakeholders and having an appropriate structure provides a strong return on the investment of the time and resources of the leadership team and the organisation.

Organisations need to have defined processes to ensure that activities are implemented effectively. The outcome of the planning needs to be clearly documented and distributed. Good administrative housekeeping is important, use of agendas, adherence to meeting processes, regular communications, appropriate delegation of responsibilities and activities, and effective induction and development of leadership team members.

Greg Mills
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(*Greg will be conducting the NSWAA Planning Workshop on 7 May)*

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GM CROPS & BEES

GM is an acronym for Genetically Modified. Another common acronym is GMO – Genetically Modified Organism.

Very recently I was sitting a doctor's surgery waiting patiently, as you do, when the doctor passed by and noticed the book I was reading, "GM Crops – The impact and the potential", and immediately passed the comment that they were no good (GM anything).

The book in question was written by Jennifer Thomson and published by CSIRO (2006). I believe the publisher, CSIRO, and the forward, written by Professor Sir Gordon Conway, Imperial College, London, gave the book a certain level of credibility. Unfortunately, like many scientific endeavours there is often a high degree of mistrust and ignorance by the majority, mainly driven by a major lack of understanding on what the subject is all about. (I just realised I have gotten this far in my writings and have not mentioned bees yet!).

So, what is the relevance of GMOs and honey bees?

1. There is a trade advantage in having no GM crops being grown in your region. Currently, Tasmania and South Australia do not allow the commercial cultivation of GM crops. Thus, the beekeeping industries in these states can claim that their honey crops cannot be contaminated with plant derived material such as pollen from GM crops. This gives these two states an advantage when it comes to selling bee products into GM sensitive countries such as Europe.
2. There is a possibility that the plants that have been genetically modified may contain a substance deleterious to honey bees. When bees forage for nectar and pollen, this material has the potential to contain substances that may be toxic to bees. Although I did not come across any examples of this happening while researching this article.
3. The use of pesticides in modern agricultural systems is a given. There is no escaping this fact. The issue for bees and beekeepers is the exposure of pesticides to honey bees and the impact on the health and productivity of a hive. Insecticides are the main group of pesticides of major concern to beekeepers, although fungicides and herbicides are not completely harmless to bees. In some cases, GM crop varieties have reduced the use of potentially hazardous insecticides. I will provide more on this story later …

Whether we like, dislike or even have a neutral view on GMOs, the fact is they are here to stay. Humans have been manipulating the genetic make-up of plants and animals for countless years, using selection and cross breeding. The growing world population is very heavily dependent on agriculture becoming more productive and efficient. Where once the world's population was mainly rural based, this has become the opposite at least in the more affluent countries such as Australia, with urban areas and cities growing exponentially.

It is thought that about 7,500 years ago farmers in Mexico domesticated a wild plant called teosinte. The selected and modified plant that originated from teosinte is called maize. The crop maize is the second largest crop planted by area in the world. Maize does not look anything like teosinte and until recently, both plants were classified in different genera. Only the arrival of molecular genetic tests was it possible to demonstrate their relationship.

With the advent of technology, what took 7,500 years is now probably going to take a few hundred years. The scary part is trying to keep up with the understanding of the technology that can drive such scientific advances. In most cases we don't understand (and thus tend towards fearing) such developments and believe any negative press on the issue.

With the advent of the mapping of the genome of many organisms it is becoming possible to identify the roles played by individual genes within these organisms. Thus beneficial genes can be characterised and identified. It is possible to make copies of a particular gene from the cells of a plant, animal or microbe and insert the copy into the cells of another organism to give it the desired characteristics. The organisms that have had their genetic material altered in some way are thus referred to as genetically modified organisms.

Food Standards Australia and New Zealand (FSANZ) require a safety assessment and approval process to be undertaken of foods produced using gene technology before they can be sold or used. Up to September 2013 there have been 65 applications to FSANZ involving soybeans, canola, corn, potatoes, sugar beet, cotton, wheat, lucerne and rice. Some of the product modifications included: herbicide tolerance (34 products), insect protected (24 products), high oleic acid, high lysine, drought-tolerant and reduced lignin.

The list of companies submitting these applications is also of interest. These include Monsanto Australia, DuPont, Bayer Crop Science, Pioneer H-Bred, Dow AgroSciences, BASF Plant Sciences, Aventis Crop Science and Syngenta.

Crop by crop – soybean 15 products; canola 5 products; corn 22 products; potato 3 products; sugarbeet 2 products; cotton 13 products; wheat 1 product; lucerne 2 products and rice 1 product. The herbicide tolerant crops are pretty well self explanatory. In most cases, the GM crop is planted and germinated. Once germinated the crop is sprayed with something like glyphosate (Roundup®) which kills all the competing plants except the GM crop.

Insect protected crops have mainly a Bt protein added to the plant. *Bacillus thuringiensis* is a naturally occurring soil bacterium that produces Bt proteins which are toxic to certain insects. Over 40 varieties of these proteins have been identified which have specific toxins targeting the larval stages of butterflies, moths, flies, mosquitoes and beetles. An individual Bt protein may only be toxic to one type of insect.

Products containing *Bacillus thuringiensis* such as the product DiPel® have been available for many years to apply to crops, to control pest caterpillar stages of moth and butterfly species. This product is considered harmless to honey bees. One product Certan® was developed using *Bacillus thuringiensis* to control wax moth in stored combs and is also considered to be non-toxic to honey bees. Both these products consist of different strains of *Bacillus thuringiensis*. The use of Bt toxins are considered environmentally friendly alternatives to broad-spectrum insecticides.

About 25% of all insecticides used in agriculture are applied to cotton (as published in 2004). Conventional cotton crops received 7 to 12 broad-spectrum insecticide sprays per growing cycle to control the bollworm *(Helicoverpa armigera)*. With the introduction of GM cotton containing the Bt toxin that is effective at controlling the bollworm, the use of insecticides in cotton is reported to have dropped by 70%.

Unfortunately, the few broad-spectrum insecticides which continue to be applied to cotton have the potential to be deadly to honey bees, but where cotton was not long ago an insect desert, now with the adoption of Bt cotton, beneficial insects have a chance of establishing in cotton crops.

There is still the possibility for a company to develop a crop (product) that has potentially negative consequences to foraging honey bees. In Australia, the Office of the Gene Technology Regulator (OGTR) oversees the development and environmental

release of GM organisms under the Gene Technology Act 2000. Most dealings with GM organisms must be licenced, and licences will not be issued unless the OGTR is satisfied that any risks posed can be managed in such a way as to protect the health and safety of people and to protect the environment.

In 2008 a review of genetically modified food safety assessments in Australia was carried out by Dr William Yan, the Director of the Health Effects Division in the Pest Management Regulatory Agency in Health, Canada. The review was favourable, but indicated that FSANZ could further strengthen its expertise to meet new and emerging challenges with mention of GM animals. This is because, in future, FSANZ will receive applications for GM foods derived from species other than plants.

Whether you agree or disagree with the concept of GMOs, they are on their way to a supermarket near you. GM crops were first commercialised in 1995–96. Claims that a GM potato variety can be developed within 5 years rather than 8 to 15 years through conventional breeding suggests that if there is economic advantage to be gained, then this is where investment will be made. Farmers will constantly consider the advantages and disadvantages of growing one crop or the other – whether it is a conventional, organic or GM crop will ultimately be driven by the market.

Those in the GM game include the Bill and Melinda Gates Foundation who are funding the development of nutritionally-enhanced GM cassava which will have a higher vitamin A and E content. As cassava is a major crop for Africa's population, this project is considered very important.

Zambia refused GM maize from the World Food Program from 2002 despite widespread famine in that country, obviously there are a lot of strongly held beliefs about GM derived foods. Some of the countries involved in the development of GM crops include Egypt, Kenya, South Africa, Zimbabwe, China, India, Indonesia, Malaysia, Pakistan, Philippines, Thailand, Argentina, Brazil, Costa Rica and Mexico, besides Canada and USA.

Crops being developed include apples, cassava, cotton, cowpea, cucumber, grapes, lupins, maize, melons, peal millet, potatoes, sorghum, soybeans, squash, strawberries, sugar cane, sweet potatoes, tomatoes, watermelons, wheat, bananas, cabbage, cacao, cauliflower, chick peas, chilli, citrus, coffee, eggplant, ground nuts, mangoes, mung beans, mustard, rapeseed, palms, papayas, rice, shallots, sugar cane, lucerne, canola, sunflowers and wheat.

The bottom line, GMOs are not going away. In fact, we are likely to see this area of science grow. There are potential benefits to honey bees and beekeepers and there are potential risks, as you can't stop field bees foraging on flowering plants producing nectar and pollen which they find attractive.

Generally, technological innovation is seen as a positive thing. We are no doubt at the beginning of a new and evolving area of science. Moving genes within a plant species to enhance their economic advantage may be acceptable – what happens if (when) we move genes between bacterial and plant or animal species. Perhaps a degree of caution is required and hopefully the Office of the Gene Technology Regulator is doing its job.

NOTE
In the Australian context honey which contains more than 1% of a genetically modified component must be labelled as being genetically modified. This mandatory labelling came into affect in Australia in December 2001. Research has shown that the pollen content of canola honey is around 0.2%, thus honey derived from GM canola does not require a label indicating that it is genetically modified.

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CROP REPORT

CENTRAL WEST
In the Central West of the State there isn't much to report on if you are looking for honey.

The Canola was good for a couple of boxes of honey and then there was the Paterson Curse which was very helpful in requeening and another couple of boxes of honey as well.

We were all waiting for good rain at the end of October and the start of November, that the Weather Bureau was reporting here for the Central West, but it never happened.

There are some patches of Yellow Box flowering and some beekeepers are lucky enough to have got some honey, but the season has not been that favourable for honey with the windy days and cool nights.

The River Gum has got a reasonable budding, and there are bees being moved onto it but once again the days are too cool with southerly winds and cool nights. So there may only be costs for those beekeepers running out to try and get some honey.

While the Paterson Curse in the latter country was looking good it has also dried up from the lack of rain. The outlook at the moment of writing this report is not looking very promising for any production for the rest of 2013.

With the lack of honey produced since spring we are still seeing pretty poor honey prices being paid by the packers.

As this is the last chance for me to speak to you all through our newsletter I would like to take this opportunity to wish you and your families a safe and merry Christmas.

Mal Porter

NORTHERN NSW
North of the state has had some good rain in past week which has seen good pollen and a small shake of nectar from some Ground Flora / Red and River Gums. Bees are breeding along well.

With more good rain needed to see White Clover and chance of late Silver Leaf though time is running out. Still a good chance of Blood Wood and Mallee Box in the Pilliga Scrub.

Yellow Box was short lived with small amount of honey produced.

Coolibah budded well in most areas but with a risk of cotton spray and flood waters.

White Mahogany and Iron Bark has kept bees in average shape and producing some honey. Blackbutt been producing. Good bud on Bloodwood (which is starting to flower eight weeks early) and some bud on Brush Box.

Casey Cooper

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HONEY LEVY REFORM & INCREASE

The Australian Honey Bee Industry Council (AHBIC) proposes that changes be made to the existing honey levy which is collected by the Levies Revenue Service (LRS) of the Department of Agriculture.

- **What is the honey levy?**

Australian honey producer levies are set at 2.3c/kg for annual honey sales greater than 600kg. These levies fund:

1) Research and Development (R&D) – a levy of 1.5c/kg is matched by the Australian Government and managed by the Rural Industries Research and Development Corporation (RIRDC).
2) EADRA Biosecurity – a levy of 0.7c/kg provides resources for the Emergency Animal Disease Response Agreement (EADRA) and is also used to meet industry's contribution to the National Bee Pest Surveillance Program.
3) National Residue Survey (NRS) – a levy of 0.1c/kg manages the risk of chemical residues and environmental contaminants in Australian food products including honey. This is a requirement for Australian to be exported to the European Union.

- **Who pays and submits the returns?**

The producer, or the person who owned the honey immediately before sale, or the person who uses the honey in the production of other goods is liable to pay the levy. Where the producer sells the honey to a buying/selling agent (e.g. Capilano), processor or shopkeeper, it is the buyer's responsibility to lodge a quarterly return, on behalf of the producer.

Where the producer sells the honey directly via markets or other retail opportunities, it is their responsibility to pay the levy via an annual return.

- **Are there exemptions in the levy payments?**

Exemption from payment of the honey levy only applies when the producer sells less than the 600kg of honey per year. Any producer selling over 600kg annually for honey must pay the honey levy. No other exemptions apply.

- **What changes do AHBIC recommend?**

AHBIC are proposing to raise the honey levy from the current 2.3c/kg to 4.6c/kg to pay for improved industry biosecurity – endemic pest and disease management and surveillance of exotic bee pests and pest bees.

The current R&D levy and the NRS levy will not be changed.

AHBIC promotes the following administrative changes:

- Changing the Emergency Animal Disease Response Agreement (EADRA) biosecurity component into an Emergency Plan Pest Response Deed (EPPRD) biosecurity component.
- Increasing the newly established EPPRD biosecurity component from 0.7c/kg to 3.0c/kg to help industry fund established and exotic pest and disease biosecurity activities.
- Establishing a Plant Health Australia levy of 0.1c/kg to pay for AHBIC annual subscription fees. This 0.1c/kg PHA levy will be established by reducing the newly established EPPRD biosecurity component by 0.1c/kg from 3.0c/kg to 2.9c/kg.
- Changing the management of the AHBIC Contingency Fund from Animal Health Australia to Plant Health Australia
- AHBIC are also proposing to raise the threshold of honey produced from which the levy applies from 600kg to 1,500kg per annum

- **How is the consultation being carried out?**

Consultation with the honey bee industry will be carried out over an 8 month period from between December 2013 – July 2014 in a variety of industry and association newsletters, journals, websites, popular media articles, and state department of agriculture mail outs. This consultation will be inclusive of all beekeepers which could be affected by the proposed changes.

Presentations on the proposed levy changes, with an open floor discussion on the proposed changes are scheduled for each of the six state beekeeping association conferences in 2014. At each of these conferences, voting on the proposed changes will also be undertaken.

- **Why is there a need for the proposed increase to the honey levy?**

The proposed increase in the honey levy will fund endemic pest and disease management and provide industry's contribution to exotic pest and pest bee surveillance.

Established pests cause significant financial and emotional harm to beekeepers. In particular American Foulbrood (AFB) is present in all Australian states and territories and is the most fatal and costly established pest. Evidence shows that problems caused by pests, such as AFB, are only getting worse and the current state based policies and systems are not working. Overseas experience also suggests that if major established pests such as AFB are not properly controlled when an exotic pest such as Varroa mite arrives, the dual effect is worse than expected. For these reasons, greater national coordination, industry leadership and funding are urgently needed.

Australia is currently free of some of the most significant pests of honey bees, namely the Varroa mite and Tropilaelaps mite. The establishment of these pests in Australia would be catastrophic for the honey bee industry causing huge losses in production. An industry – Government partnership known as the National Bee Pest Surveillance Program is in place to provide an early means of detection of exotic bee pests and pest bees. A sustainable source of funding is required to meet industry's contribution to its partnership agreement with Government. The National Bee Pest Surveillance Program also provides valuable trade support for exports of queen bees and packaged bees from Australia.

- **How will the increased levy benefit levy payers?**

The proposed honey levy increase will be spent on two national biosecurity programs that will both bring numerous benefits to beekeepers.

The National Honey Bee & Pollination Industry Biosecurity Management Strategy (The National Biosecurity Strategy) has a vision of increased productivity and profitability in the Australian honey bee industry through the control of endemic bee pests and diseases (National Bee Biosecurity Program), and improved surveillance and preparedness for exotic pests and diseases (National Bee Pest Surveillance Program). The 5 major benefits for the establishment of the National Bee Biosecurity Program are for:

1) Greater industry communication, training and educational material to be produced and provided to beekeepers which will focus on surveillance, identification, prevention and control of honey bee pests and diseases;
2) Improved level of overall biosecurity of commercial beekeepers in Australia through the development of the Australian Beekeeping Code of Practice;
3) Reduced incidence of established pests and diseases, such as AFB, thereby lowering the economic losses presently experienced by beekeepers;
4) Improve surveillance for exotic pests (such as Varroa mite) as beekeepers will be required to inspect hives more frequently and have better knowledge of identification of pests and diseases;

5) Establish an effective working management and coordination structure between industry and government, which will help in the event of an incursion of exotic bee pests (such as Varroa mite)

The National Bee Pest Surveillance Program (NBPSP) is an early warning system to detect new incursions of exotic bee pests and pest bees. The Program involves a range of surveillance methods conducted at locations considered to be of most likely entry of bee pests and pest bees throughout Australia. The NBPSP benefits beekeepers in 2 critical areas:

- The NBPSP acts as an exotic bee pest and pest bee early warning program
- The NBPSP provides critical trade support data to facilitate the export of queen bees and packaged bees

- **How much levy is needed? How will it be spent?**

Around $460,000 per annum is needed to help fund industry biosecurity activities. This includes:

- AHBIC's estimate for their contribution to the National Biosecurity Strategy is approximately $385,000 per annum. For more information, go to www.honeybee.org.au (under the Programs tab)
- AHBIC's contribution to the National Bee Pest Surveillance Program which is $75,000 per annum. For more information about this program, go to www.nbpsp.com.au

- **Why are you raising the threshold?**

AHBIC are proposing to raise the current threshold of 600kg to 1,500kg. Therefore, producers would be exempt from paying the honey levy if they sold less than 1,500kg of honey per annum. The reason for raising the current honey levy threshold from 600kg to 1,500kg per annum is because the costs of collecting the levy in these lower ranges are far exceeding the revenue raised. These proposed changes are an effort by AHBIC to make the honey levy more cost efficient.

- **What am I paying more levy and hobby beekeepers are not paying anything?**

The simple reality is that research funded with the honey levy and managed by RIRDC has not been able to identify a cost effective or legal mechanism for collecting levy from very small producers including amateurs. See for instance Granger and Woodburn (2010) and Ryan (2013).

Currently, the only model available for the honey bee industry to raise funds is through an increase in the honey levy.

The majority of the funds raised as part of this proposed levy increase will be spent on the proposed National Bee Biosecurity Program. Therefore, Stage 1 of the proposed National Bee Biosecurity Program will be targeted at commercial beekeepers which are registered for more than 50 hives. Therefore, this commercial honey levy will be spent directly on commercial producers with a direct benefit.

Stage 2 of the proposed National Bee Biosecurity Program will focus on raising additional funds from hobby beekeepers, where the benefit from this separate source of funds will be spent directly on hobby beekeepers.

- **Why should I pay more levy?**

AHBIC is mindful of low honey prices, high production costs and the perilous state of the industry's profitability. The proposed levy increase has been carefully costed, will be directed at biosecurity and is at the request of Australian beekeepers and beekeeping associations. The National Bee Biosecurity Program and the National Bee Pest Surveillance Program will be industry driven and reviewed on a regular basis to ensure they are meeting industry's aims.

Currently, the only model available for the honey bee industry to raise funds is through an increase in the honey levy. Since the raising of the honey levy will be paid for by commercial beekeeper, stage 1 of the proposed National Bee Biosecurity Program will be targeted at commercial beekeepers which are registered for more than 50 hives. Therefore, honey producers and levy payers will receive a direct benefit from the levy.

Stage 2 of the proposed National Bee Biosecurity Program will focus on raising additional funds from hobby beekeepers, where the benefit from this separate source of funds will be spent directly on hobby beekeepers.

- **Who is eligible to vote?**

Every beekeeper in Australia who is registered for more than 11 hives, and is therefore considered a levy payer is eligible to vote on the proposed levy changes. Because of the current levy threshold of 600kg, it is estimated that using the average production of 54kg from each hive (ABARES 2008), only beekeepers that are registered for 11 hives or more would be producing the current 600kg per year.

- **How can I vote?**

A formal ballot will be held at each of the six state beekeeping conferences held between May – July in 2014. At these conferences, every registered beekeeper owning more than 11 hives will be provided with the opportunity to vote. The vote will be tallied on both a yes/no basis, as well as using a weighted production basis.

- **How can I vote if I can't attend the state beekeeping conference to vote in person?**

If you are unable to attend the ballot held at the state beekeeping conferences in 2014, you are able to submit a postal vote. **The postal votes open Australia-wide on 1 March 2014**. You can download a ballot form and post it to your relevant state department of agriculture representative for counting when the ballot is tallied. Each state department of agriculture has nominated an independent voting scrutineer for the ballot. For more details, and to print out a ballot form and vote, go to www.honeybee.org.au (under the Programs tab). If you are unable to access the internet, contact AHBIC about how to receive a postal ballot form on (07) 5467 2265

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- **How do I get more information about these proposed changes?**

More detailed information about the proposed levy reforms and changes are contained on the AHBIC website. Go to www.honeybee.org.au (under the Programs tab).

For more information about specific changes contact AHBIC on (07) 5467 2265 or by email on ahbic@honeybee.org.au.

NICK's NEWS

from DPI NSW

Nick Annand
Livestock Officer (Bees), NSW Department of Primary Industries, Bathurst
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Lets get the most out of Apithor

Small hive beetle (SHB) continues to be a major pest to the beekeepers in NSW, Qld and to a lesser extent Victoria. The severity and damage caused by the beetle is greater in warmer, humid localities such as North Coast NSW, however it can be as big a problem throughout much of NSW if suitable conditions prevail. This was seen two years ago when a wet summer was experienced across the state causing the loss of colonies throughout NSW. So who is to know what this summer is going to be like?

One certainly is that the methods available to manage SHB have improved since its discovery in NSW in 2002 due to many devices that have been developed. One of the best SHB management tools currently available is Apithor. We need to use Apithor wisely so we do not shorten its useful life expectancy. Here I am talking about the product and not individual units.

Why am I raising this issue? Because of the potential risk of SHB developing resistance to the chemical (fipronil) which is used in the Apithor device. We are currently using the chemical of best fit for the job description. If resistance was to develop a lot of time and effort would be required to find the next best alternative chemical and register it for this purpose. The research was conducted by Dr Garry Levot of NSW DPI in collaboration with RIRDC and Ensystex Australasia P/L taking several years of experimental work to become a fully registered product available for use in bee hives.

But what about using a different type of insecticide?
Understanding and knowing the time and effort that went into the development of Apithor provides strong reasons for beekeepers to use Apithor wisely and reduce the development of resistant beetles. There would be no guarantee that we could find a suitable alternative chemical for the job. The expertise of Garry may also become unavailable with the passing of time (retirement).

Garry looked at a range of insecticides he considered would be best for in hive use (from memory 21 different chemical compounds). Despite the high toxicity of fipronil to honey bees he found this product was the by far the best for the job. It was very effective at killing insects including bees and SHB, it is undetectable by insects, so they do not learn to avoid it and it is also a very stable product with a very low vapour pressure, meaning is does not evaporate/vapourise easily. This reduces the opportunity for residue issues from vapour being absorbed in either honey or wax. This is exactly what was found with residue trials conducted in 2012/2013 with either no or extremely low levels (detectable but not measurable) of residue detected.

If adult bees gain access to the fipronil within the SHB harbouage, then there is a high probability that the colony of bees will be killed, thus reducing the possibility of contaminated bee products entering the market.

How would resistance develop?
By leaving the product in the hive longer than the maximum 3 months as prescribed on the label. Leaving the same Apithor harbourages in your hives for long periods of time allows the concentration level of the active chemical to decline. This means that the chemical level is not as effective at killing the SHB. If a beetle with some level of resistance to fipronil is exposed to a sub lethal dose it may then breed spreading its resistant genes into the population. As a result the SHB resistance level to fipronil in the population increases to a point where the Apithor may just become a home for SHB rather than a killing device. To reduce the opportunity of this happening write the date on the Apithor and/or the hive exterior to help prevent confusion when the Apithor needs replacing/removing. It is also a legal requirement to record this information in your chemical application records. Doing all this should help remind beekeepers to remove the Apithor's after three months.

Similarly try to use relatively "fresh" stock of Apithors rather than bulk buying and storing for years and years before use. Apithor can be used for up to four years from the date of manufacture if kept in there plastic packaging as purchased. As with prolonged use the concentration level of the active chemical fipronil will decline over time. This allows for greater opportunity for a sub lethal dose being delivered that may advance resistance development. The boxes the Apithor come in have the date of manufacture on them.

The other thing beekeepers should contemplate is the use of a variety of control measures for SHB rather than just relying on one, such as Apithor. Using alternative control measures (or more commonly known as a Integrated Pest Management program – IPM) will help reduce the development of resistance.

So use Apithor sparingly when most effective at stopping SHB damage to bee hives but in collaboration with other devices such as reservoir traps or chux clothes will help prevent resistance development.

So for the sake of all beekeepers please follow the label directions and use Apithor wisely. We want it to remain a useful SHB management tool for the industry for many years to come.

Label details and Material Safety Data Sheets for Apithor can be found on the website: www.apithor.com.au

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MURIEL ELSIE CLEMSON

31 Jan 1925 – 17 Nov 2013

Muriel was born on the 31January 1925, she was the third of four children to Robert and Elsie Parker who were farmers on the Nepean River at Agnes Banks. The farm was small and although she spoke of a happy childhood, life was pretty tough for mum and her family.

She grew up in the great depression and attended the local one teacher primary school a few kilometres from the farm. As she was needed to help her mother in the house and her father on the farm her education was very brief, finishing at the end of primary school. Her teenage years were filled with work and little play and of course life became harder when her brother Lenny left the farm to go to war. Mum spoke of her love for the family pets, the horses, cats and particularly her pet dog Toby. She gained much joy from reading books. Mum was a voracious reader and enjoyed books on all subjects and there is no doubt it was from her reading she gained the education she missed by not attending high school. Mum's one regret on having a shortened schooling and spending her teenage years working at the family farm was that she missed out on her great desire to become a nurse.

Our father and mother started their friendship and courtship soon after dad returned home from serving in New Guinea. The main form of entertainment in their courtship and throughout their time together was attending dances. They even travelled as far as Luna Park where there was a floating dance hall that they enjoyed a great deal. Transportation for them was dad's motor bike fitted with a side car. I am uncertain of the bikes general reliability but I know it had no headlight as mum loved telling the story of her sitting in the side car holding a torch at night … not to see where they were going but to warn other motorists of their impending approach.

They were married in the small, wooden church at Agnes Banks where mum had worshipped throughout her childhood.

Unlike mum, dad had enjoyed a full education and gained a diploma at Hawkesbury Agricultural College. He started a job with the Department of Agriculture that involved him visiting beekeepers throughout NSW. Mum went off with him on his travels. She loved the freedom that her new life gave her. She enjoyed the people she met and the places she visited and she continued to enjoy travelling far and wide including many extensive overseas trips later in her life.

Her first child Jim was born in 1949 and the family of three moved to Randwick. Dad had been made head of his department and worked in the city by that time. Mum loved the suburban life and enjoyed herself by walking with Jim to the beaches and exploring Centennial Park and going to the pictures with new found friends.

I came along in 1952. When I contracted polio at the age of 18 months mum was completely devastated and inconsolable. Mum withdrew from the world but fortunately dad managed in time to bring her around which was a true test of the strength of their relationship. Polio was a highly contagious disease and the hospital staff would not allow mum to visit me for many weeks. So early every morning she would go to the hospital and sit in a chair outside the door to the ward, waiting for any snippet of news about my health. Such was her devotion.

The next few years allowed mum to fulfil, at least in part, her wish to be a nurse as I was in out of hospital and recuperating and she nursed me well. In this time the doctors recommended a move to the country for my health. Mum and dad built a small weatherboard cottage at Castle Hill which was in those days still considered a little country town.

It was then that mum really started to hit her straps. She made friends and quickly became an important member of a closely knit community. It was in Castle Hill that she started joining volunteer groups. From then on volunteering became her passion. Initially joining the associations and auxiliaries at her children's schools and our activities out of school like Scouts, Brownies and so on. She saw doing that as just a part of being a good mum. Other groups she volunteered with were Pink Ladies Ryde and Blacktown Hospitals, Old Government House, Meals on Wheels, St Vincent De Paul, Castle Hill Show Society, Anglicare, Legacy and many others.

Her family grew by another when my Sister Debbie was born in 1960. By then mum had gained her driver's licence and took full advantage of it. Dad rarely saw the car. She and Deb became a team. , Mum would go from meeting to meeting, the shops in Parramatta and her visits to schools picking up and dropping off the neighbourhood kids always with Debbie in tow.

Mum was the early president of the Castle Hill High School ladies auxiliary and was at the school often. Debbie treated the place as if it were her own and I recall the shock I received when the headmaster was addressing the school assembly one day and Debbie came out of the canteen area and held his hand and said loudly "hello uncle Eric". He simply said 'this is Muriel's daughter' and continued to talk.

As well as looking after Jim, Debbie and me, Mum still had lots of love left over for others. She treated her nieces and nephews as one of her own. She encouraged us to bring friends home and they soon became part of her extended family. Neighbour's kids spent more time in our house than in their own.

All three children married and then the grandchildren came along. Firstly Mathew followed soon after by Rebecca, then a gap of a few years to Sarah and Jake. The love, devotion and sense of duty she had shown to her three children was now eclipsed!! No more devoted grandma ever walked this earth. She cared for all four equally and was always there for them. She taught them all the gift of giving love through her example. The greatest joy in mums last few weeks was being visited by her great grandchild Fletcher at the hospital. She held on to his picture to give her strength and even in her last day or two she gained sufficient energy to tell the nursing staff about her little boy.

I could talk for hours about mum's life, of her happy days and sad days. Our father's death many years ago saddened mum immensely but it didn't weaken her. She enjoyed horse racing but never bet, she was a regular churchgoer but didn't preach to others, she was a good cook but never used a recipe. Her hobbies were few as she had no time for them. She did the crossword every day and the highlight of her week was always her visit to the hairdresser. She loved having parties and her special salmon cases were always a hit. She was a loyal friend to many.

After dad's death she moved to Eastwood to be close to Deb and I. She enjoyed her life there, quickly becoming a pink lady at Ryde hospital, meals on meals driver, Probus club and legacy group member. As she was now close by to her youngest grandchildren she became very much involved in their lives, driving them to school and babysitting regularly. From time to time she would drive from Eastwood to the old family farm and gained much pride talking to my brother Jim about what he was farming and the improvement's he had made.

Her last few years were spent living at Ermington in the aged care facility Arrunga. She was loved and very well looked after by the staff there, particularly in her last few days. She died in peace and comfort due to their care. The family thanks them very much for their kindness.

My mother in law Jean Hill who had been a friend of mum's since the early Castle Hill days also lives at Arrunga. Jean, although now well into her 90's, spends much of her time watching out for the less able residents in the home. She was a wonderful companion to mum and assisted her a great deal as she became less mobile. My great thanks to you Jean for what you did for mum and the many things you have done for me and my family over all the years.

Mum was a truly devoted mother and wife. She saw doing the best for her family as her number one, two and three priorities. She saw being our mother as her job and she did that job far better than can be described in words. She loved and she adored us.

Peter Clemson (803/1 Cary Street, Drummoyne NSW 2047)

INTERNATIONAL HONEY NEWS

By Ron Phipps, President, CPNA International Ltd, Co-Chairman, Committee for the Promotion of Honey & Health

NOVEMBER 2013
This past September, as the international honey industry gathered in Kiev, Ukraine at Apimondia, hoping to find enough crystal balls to foresee the direction of the honey market in 2014, back in the USA a powerful earthquake erupted when Groeb Farms filed for bankruptcy protection from its creditors and for re-organization on October 1. This earthquake revealed realities and relations that had been hidden in the subterranean realm. This major bankruptcy, which arose from and follows the deferred prosecution agreement between the US Department of Justice, and Groeb Farms and Honey Holding, for the massive and systematic circumvention of Chinese honey which has been described by some in the press as the "largest food fraud in USA history," will continue to have a big impact on members of the industry. The amount owed by Groeb Farms to secured and unsecured creditors is approximately $27,000,000. The question has been posed, what incentive is there to buy a company with this amount of debt and the history of a deferred prosecution agreement?

The US Department of Justice announced sentences for several co-conspirators in honey circumvention, in one case involving a fine of $3,000,000 and a 3-year jail term for a former Chinese national residing in Texas. "Inescapable harm" to the US honey industry was cited by the judge who imposed the sentence. The case, conducted via a sting operation, involved over 32,000,000 pounds of honey valued at about $23,000,000 which was falsely declared coming from Malaysia or India, but originated in China.

The protracted government attempt to curtail circumvention, the deferred prosecution agreement of February, 2013, and the Groeb bankruptcy filing of October, 2013, have occurred in the context of a honey market that has been distorted and contorted by a multiplicity of unprecedented events.

USA
The US honey crop was about what we can call the "new normal," that is to say, plus or minus 150,000,000 pounds, with considerably lower levels of productivity as yields per hive have fallen from 120-150 pounds per hive to 40-75 pounds, depending upon several variables. In the Dakotas, which produce the prime white clover honey, yields in 2012 were 55 pounds per hive and fell to 45 pounds in 2013.

The decline in overall production and productivity, coupled with increasing costs of production, compelled the higher prices that prevailed in the market in recent years. The serious problems of production have prompted the National Honey Board to investigate by surveying beekeepers to establish a more systematic understanding of the major causes of the declines.

Such causes may include:
1. the extensive use of pesticides on numerous crops used for producing honey (like citrus groves) and non-honey producing crops (like corn and soybeans);
2. bee diseases like varroa mites and foul brood, and the general phenomenon of Colony Collapse Disorder;
3. continuing reduction of CRP lands and the extensive expansion of acreage devoted to grains, corn and soybeans, reducing sources of forage for bees,
4. stresses upon bee populations due to migratory bee practices and mono-diets for bees used to pollinate huge modern agribusinesses;
5. the difficulties provoked by increased volatility and severity of weather patterns; 6) difficulties of finding adequate labour and the rejuvenation of older operations with "new blood."

Urban and suburban beekeeping is seen by some as a promising trend. However, urban sprawl is also reducing forage for pollinators in certain areas. With the price of corn falling from $7 per bushel to half that, beekeepers are hoping that lands will be returned to alfalfa and clover pasturelands in future years. As the US moves towards far greater energy self-sufficiency, the demand for ethanol will decline which may be an important contributing factor to opening land for honey production.

In both the US and Canada packers reported concern that retail honey sales were sluggish as winter approached and consumer resistance to higher price levels rose. US packers of honey are also concerned that the scramble for tight supplies, the effective efforts of Homeland Security, the CBP to stop fraudulent imports, and the struggles of a major packer to re-organize in Chapter 11 are artificially forcing prices upward and payment terms shorter as an inducement to suppliers. When prices are already so high as to threaten consumption of bottled honey and re-formulation of industrial products using honey, many honey packers do not want to see prices go into the uncharted stratosphere.

The National Honey Board's assessments in honey transactions at the end of October 2013 were up 3.5% over the previous year, and imports accounted for 75% of assessments. The steady increase in the volume of honey purchased and steady or increasing prices brought the total value of imported honey to a total of $395,866,000 as of September, 2013. The NHB's marketing efforts are helping to create a bright future, with increasing demand for honey, new honey products and greater consumer knowledge of the diversity, health benefits and quality of this ancient natural sweetener. At the annual meeting of the NHB, an independent study was presented that quantified the positive effect of the NHB programs on honey demand and consumption during the last 5 years, indicating overall return on investment of 14.12%. Dr Ron Ward, professor emeritus of economics at the University of Florida, has prepared econometric analyses for several national commodity boards in other product areas, and his report for the NHB is available on the AMS website.

In November, Washington State voters rejected a bill requiring GMO labelling for foods sold within the state. A multimillion dollar campaign was organized against the bill by the Grocery Manufacturers and Monsanto, among other groups. Opponents of labelling laws prefer that all GMO labelling be voluntary. Last year's vote on GMO labelling in California was also rejected by voters.

North American honey packers remain concerned that the historically high prices of honey are discouraging purchasing of honey by industrial and retail buyers and possibly encouraging reformulation to other sweeteners among industrial users.

Argentina
The Spring (Sept-Dec) crop began with much more promise than a year ago in the early producing regions for white citrus honey and other spring blooming trees that produce gourmet white honeys. In November the citrus and lemon harvest in Salta, Tucuman and Jujuy was very good. White carob was collected in Chaco, and prairie floral sources provided white and 40mm honey in the Buenos Aires region.

A larger crop is anticipated to be a real possibility compared to the past 3 years. The total crop will not only be constrained by the contingencies and patterns of weather and bee health, but also by the conversion of Argentina's pasture and prairie lands to soybean production for export to China and India. Soybeans in Argentina are grown at latitudes that do not yield enough nectar to warrant beekeepers' efforts to produce soybean honey.

In 2011 Argentine world honey exports ranked #2 in quantity, reaching 72,356 kilograms (159,516,000) pounds.

Argentina's top 5 honey export destinations as of mid-November, 2013

USA	37,819,604 kilograms
Germany	6,304,448
Japan	3,297,340
Saudi Arabia	2,095,757
Canada	1,949,814

Imports from Argentina to the US ranked number 1 in quantity and value at the end of the 3rd quarter, and were almost double those of Vietnam and India, which ranked 2nd and 3rd during that period, respectively.

The Argentine government had instituted a policy in 2013 requiring Argentine importers of many different products to export Argentine products. This policy is significantly changing the landscape of honey exporters within Argentina. Their political and economic situation remains characterized by turmoil and transition. The Peronist Party lost seats in the parliament as a result of the elections in autumn 2013. The government's position on issues such as high inflation rates is unclear. Argentina's large national debt has the potential to provoke a second default of bond obligations. Inflation is running at 25% per annum which puts upward pressure on prices. Prices for fuel and transportation are up. Even with a sharp decline of the value of the peso, which would tend to decrease prices, the high rate of inflation balances the devaluation of the peso, with a net effect of stability. The major determinants of honey prices are international supply and demand relations.

Nonetheless, the prevailing fear is the direction of the Argentine peso. While the government is trying to stabilize the peso's value, which declined rapidly during 2013, there is a potential for a two-tiered market due to the differential between the official and the black market exchange rates. When discounts of 40% can be obtained in the currency markets, the potential impact could be similar to the two-tiered market the US honey industry has suffered, for different reasons. The decisive question for Argentina concerns the nature of the efforts and the effectiveness of those efforts to reign in the illegal black market in US dollars.

On Nov 21 an article in *Bloomberg News* stated "by exploiting the illegal currency market, buyers are extracting 39% discounts on luxury imports such as the Porsche 911 and creating the biggest foreign auto boom in 5 years... It is also exacerbating the fastest drain on the nation's dollar reserves in a decade, sparking a government clampdown as it tries to preserve a primary source of cash for creditors' payments. Argentina, whose reserve dropped below those of Angola, Lebanon and Romania this year, is boosting its currency controls as consumers faced with 25% annual inflation turn to everything from luxury cars to gold to bitcoins as a store of savings." Argentinians sell dollars in the black market for 9.8 pesos whereas the official exchange rate is 5.97.

The exploitation of the two exchange rates has been implicated in a two-tiered pricing structure for the export of various Argentine commodities. The government is seeking to impose bureaucratic hurdles to the manipulation of the black market rate by some exporters.

In October and November of 2012, many large and low priced contracts for deliveries of honey January to June 2013, were initiated on pure speculation and a grab for market share. The result was delays, cancellations and re-negotiated contracts, not because of legitimate *force majeur* causes which arise from time to time. In late 2013 the climate for speculation within Argentina's honey export industry has dampened. Some exporters are reluctant to offer and confirm any significant quantities until 1) the major extraction is completed in January, 2014, 2) the strength or weakness of the Argentine peso is clearer (from beekeepers' perspectives, the longer they wait to sell, the more pesos they will obtain – if 2013's patterns persist – for every dollar acquired) and 3) the durability of the two-tiered currency market and whether or not Argentine exporters are effectively constrained from participation therein.

Obviously, Argentina plays a central role in the market for white and extra light amber honey with flavour profiles attractive to the North American palate. The next months will clarify the impact of Argentina on the overall market.

Brazil
Brazil remains the major international authentic producer of white, extra light amber and light amber organic honey. The 2013 crop was negatively affected by adverse weather, especially in southern Brazil where there were excessive rains. Bee losses were a problem in the region near Rio de Janeiro. In the northeast, drought has been a problem for over 2 years now. During the time of the visit of Pope Francis last summer, 100 cities had snow on the ground. The honey colour was darker than expected, affecting the supply of extra light amber. Contracts were delayed, re-negotiated or cancelled. Competition for supplies intensified under these conditions and prices firmed, especially after September when Apimondia was held. Producers are hoping for rains in the northeast in December in order to have a good crop in 2014. The Brazilian government has been acting to keep the US dollar exchange rate stable, and it is anticipated that minor changes in the *Real* will not affect the honey prices.

Brazil's total honey exports to the world in 2011 were 22,399 metric tons (49,380,835 pounds). US imports from Brazil as of October 2013 reached 22,070,165 pounds.

The BRIC nations of Brazil, Russia, India and China all suffered economic declines and financial difficulties in 2013, as the malaise in the world economy asserted itself upon those rapidly developing economies in which much hope had been placed.

Vietnam
The Vietnamese 2013 honey harvest was completed by October and some new crop coffee and cashew honey began in December. The super cyclone Haiyan caused evacuations, but for the most part skipped past Vietnam. As of October, imports into the USA were 56,955,801 pounds, with a surge in volume after June. This amount will increase before the end of the year and may reach 60-65,000,000 pounds.

Vietnamese beekeepers are utilizing honey from the wild forests of *Acacia mangium*, which now constitutes 30-40% of the total Vietnamese honey crop. The acacia is not only an increasingly important source of honey in Vietnam, but is a species of the acacia family which is regarded as "green or environmentally friendly" in virtue of its high capacity to absorb and store carbon dioxide. Unexpectedly, honey from this species tends to darken rapidly, especially if produced and stored during high summer temperatures. The colour of the harvested honey was generally darker this year than before. Problems of darkening colour have caused the delay or cancellation of some shipments. People are working to adapt to these changes.

The steady growth in Vietnam's export volume has been dependent upon the development of the *Acacia mangium* floral source. To sustain such volumes will require learning how to use and blend this valuable source of industrial honey which has helped provide both the volumes and attractive prices that are needed to compete with other sweeteners in the industrial market. Other traditional sources of honey in Vietnam are coffee, cashew, rubber, lychee and longan. Some scientific experiments have been proposed to study how to find ways to use the acacia that will allow a return to the continuity of quality and quantity which has made Vietnamese honey a prized and important component within the US market. Studies of the chemical profile of *Acacia m.* began in the summer of 2013.

China
China was the top-ranked world honey exporter by quantity in 2011, at 220,433,544 pounds. China's role in the international honey market remains shrouded in mystery that transcends the anti-dumping/circumvention/transhipment phenomena that has distressed the US market and led to indictments in Chicago, Seattle, Los Angeles, Jacksonville, etc. China remains a formidable producer of honey and while issues of adulteration persist, there is no doubt that China has the capacity to produce large quantities of pure honey ranging over all the colours. This includes honey from many floral sources, including white honey from rapeseed, acacia, clover, linden, chaste, extra light from sunflower and cotton, light amber from wildflower and amber from buckwheat. Its ability to export to the USA and Europe will, however, depend upon strong intervention by Chinese authorities to clean up the corruption that has plagued many segments of China's economy, inclusive of its agricultural sector. The Chinese government may either be part of the problem or part of the solution. Hopefully, China's honey industry will act in accordance with international law.

This is a vital looming question since in 2016, per the bilateral agreement between the US and China regarding China's membership in the WTO, China is scheduled to have anti-dumping petitions assessed by Department of Commerce according to the Department's investigation of China's own economic data, not via surrogate country analysis that has resulted in prohibitively high anti-dumping duties.

The economic, geo-political and environmental importance of US-China relations makes continuation of surrogate country

analysis unlikely, in my judgment. American agricultural interests from many states and sectors, such as almonds, soybeans, grains, agricultural machinery, etc., make bringing China into a more normal trade regime more, not less, likely. The facts must be faced.

A major re-structuring of the Chinese agricultural system has recently been announced by China's new reformist leadership. A dual program of 1) creating a new network of cities and towns, into which the majority of the rural population would be re-located; and 2) the consolidation of what are called "family farms" by the Chinese into large agricultural farms, will inevitably lead to the creation of agribusinesses in China.

China's program of Direct Outside Investments (DOI) is leading to the purchase of energy resources, agricultural lands in Africa, South America and California, food companies (Smithfield in the US), Manhattan real estate (the J. P. Morgan skyscraper), textile mills in Italy and mines in Africa. Australian family farmers expressed concern about changes in their rural culture as a consequence of China's land acquisitions. There are credible reports that honey companies may also be acquired as part of this policy. It is unlikely that this trend will be stopped, especially since for decades the US and Europe have been establishing joint ventures and sole ownership of factories, companies and large retailers in China.

There are reports in China that there has been excessive investment in domestic factories. This practice is reported to have created a huge portfolio of non-performing loans on the municipal and provincial levels. Some economists predict that this will lead to a hard landing for the Chinese economy.

Standards, Tolerances and Testing Levels

More beekeepers, packers and trade organizations are becoming aware of the need to establish reasonable and realistic tolerance and testing levels for honey. These standards should move towards an international harmonization, since the imposition of European standards on the US, US standards on Europe, Canadian standards on Europe, and so forth, lead to inconsistencies, unpredictability and arbitrariness in the honey trade.

Plants and animals are both vulnerable to diseases. That includes the plants bees pollinate and the bees whose pollination activities account for the production of one-third of America's food production, including phyto-chemically important fruits and nuts. As a result, farmers use pesticides to protect their plants and beekeepers use miticides and antibiotics to protect their bees. Residues inevitably appear in the by-products of the interactions of botanical and zoological life. Other food industries have long recognized these realities and have established tolerance and testing limits that are reasonable and far higher than what is present for honey.

Both health risks and health benefits must be based upon good science, realism, average daily intake levels (ADI's) and a commitment to protect both the food supply and human health. If the mythology of ultra-purity were imposed, there would be inadequate air to breathe, food to eat and water to drink. The industry cannot paint itself into a corner, since imports are needed to bridge the serious gap between consumption and domestic production.

Far sighted members of the US and international honey industries realize we need good science and good medicine to establish reasonable and realistic standards to reduce self-destructive policies. That means we need serious efforts by independent agricultural scientists and medical researchers to establish through a more open dialogue with government ways to protect both human health and agricultural production, both of which are interrelated each with the other. There are some ideas that have been presented to achieve that dialogue and a science-based rationality and realism to our industry's dual commitments to adequate food supply and protecting human health.

The serious contrast between using the word "Honey" for labelling and marketing products and the actual use of physical honey in those products continues to be of concern to the American honey industry.

Climate Change and Agricultural Production

There is no doubt that the international honey market will inevitably be influenced by a confluence of factors including: bee health, sustaining the incentive to produce honey, land suitable for bees to produce honey, national and international economic health (and debt) and environmental factors.

On Nov 13, 2013, the BBC News section on science and environment reported that 2013 was one of the top 10 warmest years on record. The President of the World Bank, Jim Yong Kim, stated that warming could no longer be ignored. All of the warmest years have been since 1998. Atmospheric concentrations of carbon dioxide and other greenhouse gases reached new highs in 2012. The impact on the water cycle is expected to result in droughts, floods and extreme precipitation.

Dr Steve Rintoul, research team leader at Australia's CSIRO Marine and Atmospheric Research division, said, "A more significant point is that global average temperature in each of the last three decades has been warmer than any prior decade dating back to 1850….[this is] compelling evidence that human activities are primarily responsible for the warming over the last 50 years."

The intensity, volatility and unpredictability of severe natural disasters have alarmed scientists, governments and people throughout the world. The increasing differential of temperatures of air, sea and land creates changes in winds and currents, which can lead to wild fires, heat waves, extensive droughts and massive hurricanes and super cyclones like Irene, Sandy and Haiyan. The human toll of these events is tragic, and their economic costs undeniable and incalculable. For the most comprehensive scientific analysis of the global data gathered over the past several years regarding the human role in climate change, see data gathered by the Intergovernmental Panel on Climate Change (IPCC).

Just as it is possible only to predict general trends, not specific climatic events, we may see that global honey production patterns tend to shift over time, which means the American and international markets for consumption of honey must have greater flexibility than would be the case if climate change did not affect, in unpredictable ways, the scale and location of honey production around the globe.

Conclusion

The dramatic events of 2013, including indictments, fines, jail sentences and bankruptcy, were beyond the American honey industry's expectation. The consequences will continue to unfold step by step, with doors closing to some and opening for others, as whole networks of relations have been revealed which underlay the troubles which have been tormenting the international honey industry for the past decade. Despite the challenges of production, the effects of a two-tiered marked and the historically high prices, honey consumption has managed to increase and the consumer's perception of honey as a valued healthy and natural sweetener has improved over the past year.

SwarmPatrol

There has been an increased awareness lately of the importance of bees on our planet. The bee population around the world has been decreasing at an alarming rate which is already having an effect on the harvest levels of such food items as Almonds. Almond orchards rely exclusively on pollination by bees. Beekeepers have lost so many colonies that they are finding it impossible to keep up with the demand.

Having been an amateur beekeeper for many years and some IT developers at my disposal, I decided to help a little in providing a tool which will hopefully enable more swarming colonies to be collected and properly managed by beekeepers. This will have a multiple effect:

- Quicker collection of swarms thus reducing the inconvenience to the general public
- Prevention of setting up house in wall cavities, awnings and roof spaces
- Better disease control
- Return of the bees to managed production

www.swarmpatrol.com allows the general public to quickly register the location of a swarm that they have noticed and the system will immediately send out a text message to the nearest 3 registered SwarmPatrollers. This is all done by using the latest GPS technology and Google Maps. The notified SwarmPatrollers will contact the person reporting the swarm and one will take on the task of the swarm removal.

We decided on the notification to 3 persons so as to allow for being out of range, on holidays or simply not reading the message. With this in mind, it is important that SwarmPatrol has many beekeepers registered on the site so that it provides a good geographical coverage.

With the technology available today, we hope that SwarmPatrol.com will be the first stop shop for anyone bothered by a swarm of bees anywhere in the world, with a SwarmPatroller responding within minutes.

We also hope that the site becomes popular enough so that the general public will be able to source their supply of honey as well as any other bee products directly from the beekeepers. It should also stimulate interest and encourage more people to take up the hobby of beekeeping.

SICK BEES

PART 17 B

NOSEMA - THE SMOLDERING EPIDEMIC

by Randy Oliver - ScientificBeekeeping.com

You may have noticed that I'm doing a sort of "about face" in my assessment of the impact of *Nosema ceranae* upon colony health. I feel that I owe the reader an explanation. I just get this nagging feeling that there's more to the invasion of this new parasite into the U.S. bee population than meets the eye. To truly understand the potential impact of nosema, we must look beyond its effects upon individual bees, and rather focus on its impact upon the superorganism that we call the honey bee colony.

The Scientific Method
Science is not about microscopes and laboratories (that's technology); it is about the thought process that we use to make sense of our observations of the world around us. One can think in a scientific manner just as well while wearing dirty white coveralls as when wearing a clean white lab coat!

The true scientist holds no positions, frees himself of beliefs, and avoids any prejudices or biases. His only firm conviction is to remain completely open minded and objective in the never ending quest to understand why things are the way they are.

Science is based upon the free sharing of data (accurate observations) and its interpretation. Not every scientist will interpret the data in the same way. So long as good scientific method is followed, there is nothing wrong with floating highly controversial interpretations, and indeed good scientists relish having an established paradigm challenged.

As an aside, please realize that the editorial filtration process of scientific publication is hardly perfect. I'm personally sometimes dismayed by the poor quality of peer review of late, and have serious criticisms of both the methodology and interpretation in a number of recently published papers.

Warning: unless you are willing to research more deeply, I caution you to take any new scientific findings that get splashed across the headlines with a grain of salt, especially when "hot" topics, such as CCD, pesticides, the environment, or human health are involved!

(Back to the Scientific Method): any new interpretation as to why something is the way it is, or works the way it does, is subject to testing by proposing a "falsifiable" hypothesis. You can't scientifically prove that anything is true (or that anything is "safe"); you can only "disprove" a hypothesis (such as that something does not cause measureable harm) by putting it to actual test in a well-designed experiment.

The best that you can do toward seeking truth is to find that the results of multiple experiments "support" your hypothesis. When a hypothesis has eventually been supported by enough robust data, then it is accepted as a scientific "theory"—a word that has much stronger meaning in science than it does in the common vernacular. A scientific theory becomes the paradigm by which the scientific community "understands" things—and is of course subject to revision should any new data come to light that falsify it.

When Dr. Mariano Higes found that *Nosema ceranae* was highly associated with the collapsing colonies that he observed in Spain, he proposed the hypothesis that the parasite was the cause. He further tested that hypothesis in various experiments by inoculating healthy colonies with spores, applying fumagillin or not, and then tracking the buildup of nosema and colony strength. He found that his results supported his hypothesis.

Other researchers, including myself, at first also found his hypothesis to be attractively plausible—it appeared to reflect the typical high mortality associated with the invasion of a naive host population by a novel parasite. However, when we sought to replicate Dr. Higes' results in our own bees, we simply didn't see a compelling cause and effect relationship, and as a result then questioned the validity of his hypothesis.

I myself fell into the skeptical camp; but I go out of my way to truly understand alternative viewpoints; to that end I have maintained a friendly ongoing conversation with Dr. Higes for the past five years—constantly challenging and questioning him. Such frank discussions are the best method to arrive at the actual truth of matters.

I want to be clear at this point that in this series I'm doing a lot of thinking aloud. I will try to be clear as to which conclusions (always subject to reevaluation) are based upon hard data and actual experimental testing; and which ideas or opinions are inferential—based upon suggestive data or observations. I also want to emphatically state that the evidence to date does not suggest to me that *Nosema ceranae* is directly responsible for either CCD or major colony losses; but it does appear to often be associated with them, and may be a contributor in some way. I'll return to the subject of colony collapse in a later article.

Effect of the Invasion
So, how can we tell if the invasion by *Nosema ceranae* is having any substantial negative effect upon the health of our colonies? *N. ceranae* invaded East Coast apiaries as early as the mid 1980's without anyone even noticing it, until it was discovered twenty years later by researchers investigating CCD. But then again, it was discovered in colonies suffering from CCD, which may be a telling point!

The effects of infection by the new nosema seem, in general, pretty similar to those of its cousin, although it appears to cause somewhat more gut damage, and may be a bit more resistant to fumagillin. The most notable aspect that is different about *N. ceranae* is that it apparently "has better mechanisms to evade host immunity to allow for faster growth and reproductive capacity than *N.apis"* (Chen 2009). Antúnez (2009) found that it up- and down regulates bee immune response genes differently than its cousin. Plus it is able to thrive over a wider range of temperature (Martín-Hernández 2009), so it exerts its negative influence over a more prolonged period each year. I suspect that it also has better mechanisms for transmission from bee to bee. All the above differences make it a more virulent pathogen --in the sense that it reproduces more efficiently, rather than necessarily causing increased individual bee or colony mortality.

Then Again, Why Would *Nosema ceranae* Not Cause Problems?
With the majority of U.S. bee samples currently being infected by nosema (presumably *Nosema ceranae*), it seems to me that perhaps the question that we should be asking ourselves is, "Why wouldn't we expect this level of infection to be causing problems?"

There is a vast body of "classical" research on the fundamental negative effects of *Nosema apis* infection upon colony health and productivity. Nosema is an age-old nemesis of beekeepers. Why would we not expect similar effects due to the new nosema, which is even more successful at infecting bees?

Understanding Nosema
Nosema is adapted to turn a bee into a spore-producing factory; there is no benefit to the parasite in killing the bee. And therein lays the problem, because it makes nosema so insidious and unnoticeable. But a widespread increase in the prevalence of such an insidious infection could still exert major effects upon colony buildup, production, and survival.

Understanding the Honey Bee Superorganism
In order to understand the effect of nosema upon the colony, one must stop thinking of the honey bee as merely an insect. Rather, we must think of it at the level of the superorganism, similar to an intelligent, warm-blooded, fast-growing ten-pound animal. But not just any animal; specifically one whose rapid growth makes it ravenous for energy and protein—exactly the precious commodities that nosema steals from the colony.

So I did some research on the effects of gut parasites upon other animals. In humans, microsporidian infection of the gut results in mal-absorption of nutrients (Kotler 1999). It is no surprise that a common result of gut parasitism is reduced growth rate and poor energy metabolism, due to less efficient digestion and utilization of food rations (McRae 1993). This made me think that I should compare the normal growth rate of the honey bee colony to that of other livestock. So I looked for a similar-sized, exceptionally fast-growing organism. I arrived at the modern day broiler chicken.

When I ran a farm store some thirty years ago, a broiler took 19 weeks to grow from egg to slaughter. Today, with better rations and breeds selected for rapid growth, it only takes about six weeks to grow the same chicken! As with the bee, this incredibly rapid growth rate requires a high energy, high protein diet, which must be optimally digested and utilized.

Next I downloaded data for the growth rate of a broiler, and transformed it into graphical form (Fig. 1).

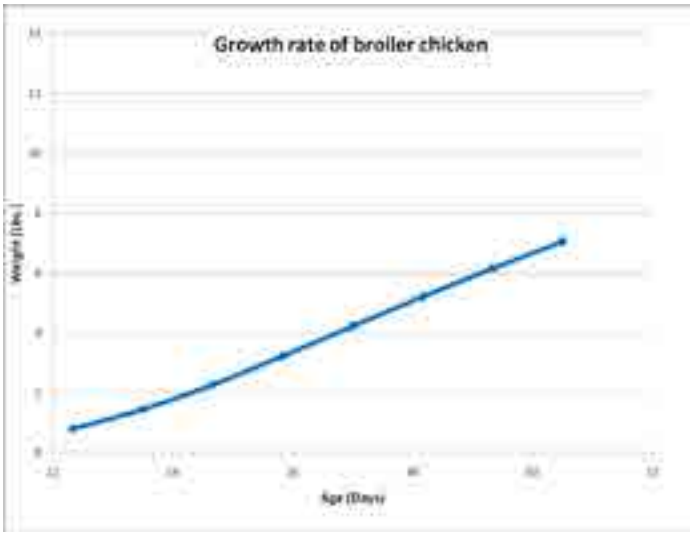

Figure 1
The growth rate of a modern broiler chicken. The chicken grows from 2 lbs to 7 lbs in 36 days. For perspective, the growth slope for a normal 12-month-old human child would appear dead level on the scale of this chart. Data from Jacob 2011, CDC 2012.

Since the chicken's weight crosses the 2-lb line early in this graph, we can handily compare its growth rate to that of a small colony of bees—a freshly-hived 2-lb package. In the following chart, I took data from two studies that measured package bee growth over time, and overlaid them on top of the chicken growth plot.

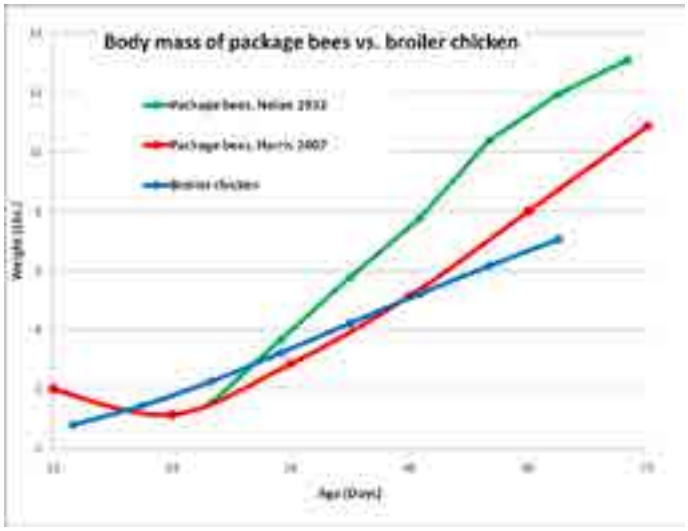

Figure 2
Comparison between the weight gain of package bees vs. that of a broiler chicken. The red curve shows how a package loses population until the first brood emerges. After that point, packages grow considerably faster than even the fastest-growing chicken! If our human child were to grow as rapidly as a bee colony, its weight would increase from 24 lbs to 250 lbs in the two months following its first birthday! Data for 3-lb packages calculated from Nolan (1932) and Harris (2008),

Clearly, a bee colony grows at an amazing rate. But that ain't the half of it! The chicken has the immense advantages of being penned in a warm room and provided with optimally-formulated chow, and maintains a compact body size, insulated by feathers. On the other hand, the industrious bee colony has to forage over a dozen square miles, spending a tremendous amount of energy in the process, as well as wasting a vast amount of body heat to the environment.

But I'm not done yet! If the chicken manages to store any excess energy or protein, it puts it on as fat or muscle—which then adds to its body weight. The analogous storage "tissues" of the bee colony would be the honey and beebread accumulated in the combs, but the above graph doesn't reflect this fact. So let's adjust the graph to take into account the bees' stores (Fig. 3).

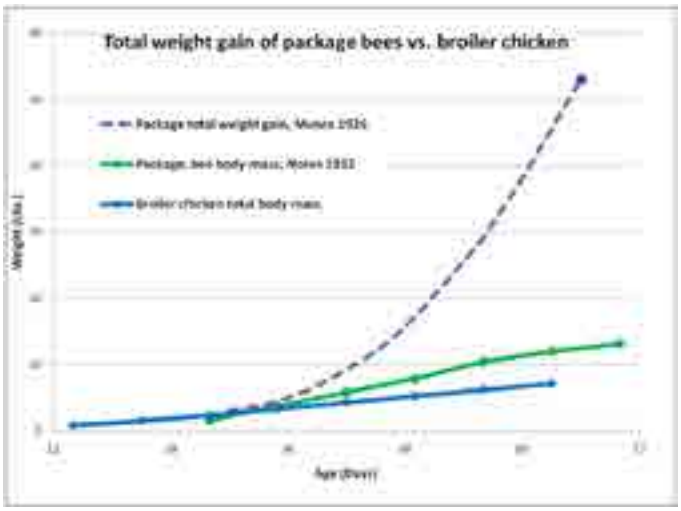

Figure 3
Total weight gain (including honey and beebread) of a 3-lb package installed two weeks before the main flow, compared to the gain in body mass alone of bees or a broiler chicken. When we measure total colony weight gain, the bees leave the broiler in the dust! The end points of the dotted line are actual data Munro (1926); I estimated the intermediate curve based upon measurements by Nolan.

By the end of the above chart, the broiler was essentially done growing. On the other hand, the colony was approaching its

maximum population, but it was hardly done "growing." In the next two months, it gained yet another 218 pounds! It is not unheard of for a colony with a bee body mass of 12 lbs to gather, process, and stockpile its body weight in surplus honey each day!

So what's my point? It's that we beekeepers expect our bees to perform a feat of rapid growth beyond the capability of perhaps any other animal! But the bee superorganism can only pull this prodigious feat off by being extremely efficient at digesting and utilizing protein and sugar (energy). That is why it is completely dependent upon two of the richest foods in nature—pollen and nectar. A bee colony would starve to death on the sorts of diets that most organisms are adapted to.

A strong, foraging colony during spring or early summer must consume and efficiently process, ***every single week***, a minimum of 2-3 pounds of high-protein pollen plus several (about 10-15) pounds of sugar. By comparison, a rapidly-growing chicken eats only about 2-3 lbs. of total dry ration; a similar sized growing cat eats only about a pound of dry chow a week.

The point: The goal of a colony is to convert nectar and pollen into bees and honey. The main deleterious effect of nosema may not be bee mortality, but rather the fact that infection suppresses efficient food conversion.

Nosema and Energy Metabolism

The point of the above graphs is that we beekeepers are keeping an exceptional animal! In order for a colony to perform to our expectations, it can't afford to be handicapped by a parasite that messes with its digestion or saps its energy. Yet nosema does exactly that!

Dr. Dhruba Naug and Chris Mayack (2009) have been pioneers in this avenue of research. Allow me to quote some excerpts from their paper:

"Parasites are dependent on their hosts for energy to reproduce and can exert a significant nutritional stress on them. Energetic demand placed on the host is especially high in cases where the parasite-host complex is less co-evolved" [perhaps as in the case of *N. ceranae* and *Apis mellifera*?].

"Some pathogens such as microsporidians are particularly severe on their hosts in terms of exerting an energetic stress because they lack mitochondria and therefore have little metabolic ability themselves" [nosema is unable to digest sugar by itself, and steals energy directly from the bees' metabolic pathway].

"These results demonstrate that energetic stress is the probable cause of the shortened life span observed in infected bees."

The authors also noted that bees exhibiting an infection of only a quarter of a million spores per bee were hungrier than uninfected bees. They exhibited greater responsiveness to sugar and consumed about half again as much sugar per day.

At this point, I suggest that if you haven't yet read Bernd Heinrich's (2004) seminal book "Bumblebee Economics" that you stop right now and order it! Heinrich clearly explains how bee survival is all about energy balance and efficiency. This readable and fascinating book will give you a far greater appreciation and understanding of the economics of the hive, and of ecology in general.

Take home message: As Bernd Heinrich explains, for a colony to be successful, every worker bee must, over the course of its adult life, not only repay the colony's investment of protein and energy used in rearing that bee to adulthood, but must then additionally forage for enough resources to support itself and to provide for additional broodrearing. Prior to its death, it will ideally produce a surplus of energy stores in the form of honey, which the colony can later use to survive dearth or winter. Any bee that, due to being parasitized by nosema, is unable to fulfill the above responsibilities would then be a net liability, rather than an asset, to the colony as a whole.

Heinrich focused upon bumblebees, but other authors soon followed suit with studies on honey bees. One excellent model of honey bee economics was published by Jon Harrison and Jennifer Fewell (2002). They worked up calculations for net forager caloric gain to the colony after subtracting the costs of colony metabolism and the energy necessary for foraging flight (Table 1).

Energetics of 'typical foraging' for *Apis mellifera* at an air temperature of 86°F	
Nectar load	30µl
Nectar energetic content	9 J/µl (50% sugar)
Energetic reward per trip	270 J
Flight metabolic rate	2.5 J/bee min
Trip duration	30 min
Cost per trip	75 J
Net gain per trip	195 J; 6.5 J/min
Trips per day	12
Reward per day	3240 J
Cost per day during flight	900 J
In-hive metabolic rate	0.16 J/bee min
Daily in-hive metabolism of forager	173 J/day
Metabolic cost per forager day	1073 J/day
Net gain rate per forager day	2167 J/day
Hive bees fed per forager	9.4
% of bees which forage	10
% of total colony energy spent foraging	30

Table 1
The economy of bee foraging energy gains vs. costs. Table modified after Harrison and Fewell (2002) by permission. By their calculations, in warm weather, the net energetic gain per forager per day is about 2167 Joules, which translates (by my calculations) to 1/50th of a teaspoon of stored honey per day, or a bit less than 4 lbs of honey for a colony with 10,000 foragers.

Harrison and Fewell's excellent model was a great starting point for me to try to gauge the effect of nosema infection upon colony weight gain. I know how my readers just love when I take the burden off their TV-addled brains and grind through the math for them, so I entered all of the data from the table above into my own spreadsheet. Luckily, my son volunteered to drive, so I was able to figure out most of the equations while we were hauling a load of hives down to almonds.

When I created a spreadsheet for a colony of 40,000 bees (about 23 frames of bees), assuming that a quarter of them were foragers (Winston 1987; a larger proportion than estimated by Harrison), the resulting daily weight gain or loss figures didn't necessarily match those that I typically observe in the field (about a pound a day weight loss when confined by rain, and about 5 lbs per day net gain during a decent honey flow). So I adjusted the assumptions using other researchers' measurements (Southwick 2001; Woods 2005) until the model better reflected field reality.

I got some interesting results. In warm weather, when there is only enough of a nectar flow such that the colony is just holding its own (neither gaining nor losing weight), one forager is essentially gathering enough nectar to feed itself, plus about three house bees, which kinda makes sense if a quarter of the

bees are foragers! (A larger proportion may shift to foraging during an intense flow (Oliver 2010)).

However, given the exact same colony, with the same nectar income, ***but on a cool day***, the colony will lose over a pound of weight a day, due mainly to the increased metabolic cost of foraging at lower air temperature.

Pay attention: This is likely a significant point to keep in mind, as nosema infection appears to mainly be a problem in cool weather. The energy economy of a bee colony is much more tenuous when bees must forage in cold air.

OK, now let's go back to warm weather, again with enough of a light nectar flow that the colony is just able to hold its weight. Then add a nosema infection to the equation, such that half the field force is infected; and guesstimate that the cost of infection results in a 50% increase to the metabolic demand of the infected foragers (Mayack 2009, Martín-Hernández 2011). Without changing anything about the foraging trips or bloom, and without any bee mortality, the cost of the infection would result in about a half pound weight loss for the colony a day!

The infection above would be completely invisible to the beekeeper—the bee and brood population would be exactly the same, the number of foragers and the nectar income would be exactly the same, but the added metabolic cost of the nosema infection to only half the foragers (1/8th of the colony population) would cause that colony to lose significant weight rather than holding its own.

It gets even worse in cool weather. Everything else remaining the same except for the greater heat loss from the foragers to the cool air (I'm ignoring any additional heat loss by the cluster), the colony would now lose over a pound a day—more than it would if the foragers were simply kept in by poor weather! The model suggests that the impact of nosema infection upon energy dynamics will be most substantial during cool weather or in times of nectar dearth when bees are engaged in fruitless foraging (like sitting in the orchards just prior to almond bloom).

Keep in mind that in recent years, surveyed U.S. beekeepers most often ranked colony starvation as the major cause of winter losses (vanEngelsdorp 2012). I'm thinking, if nosema infection results in less honey being stored over the season, and less efficient metabolism of that honey in cool weather, then perhaps nosema could be an indirect factor in these starvation losses.

You may be wondering what the model predicts for the impact of nosema infection during the main honey flow. Things change quite a bit when colonies are large, the weather is warm, the days are long, and foraging trips are richly rewarded. In a strong nectar flow in warm weather, the model predicts that a 50% infection rate of the foragers would not suppress honey production to any great degree.

But that's only half the story—because by that time, nosema may have already done its damage during the colony buildup period prior to the main flow.

Nosema and Protein Metabolism

So let's look at the main limiting factor for colony buildup. Colony buildup, given enough available honey, is limited by the protein income from pollen, and then the ability of young bees to efficiently convert that pollen into jelly.

It may be that the main problem with nosema infection is its impact on the protein dynamics of the hive. Not only do the foragers have a more difficult time energetically in foraging for pollen, and a reduced flight range, but the colony may "starve" for protein despite its being brought in, if infected nurse bees can't efficiently convert it to jelly. There is a fairly rapid turnover of protein within bee body tissues (Crailsheim 1986), so any hampering of protein processing could really throw a stick into the gears of the hive economy.

Nosema infection of the gut cells has an insidious effect. Not only does it reduce the ability of the gut to digest pollen and then absorb its nutrients, but it diverts protein that would normally go to jelly production into the replacement of damaged gut cells (Fig. 4). As a result, the hypopharyngeal glands tend to "dry up" in infected bees, and they can no longer feed the queen nor the brood.

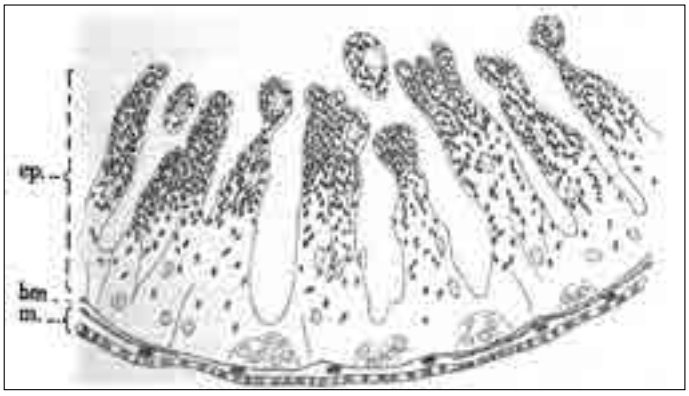

Figure 4
Cross section of the midgut wall of a bee infected by nosema. The parasite infects the epithelial cells (ep) which form the intestinal villi (the finger-shaped projections through which nutrients are absorbed). The epithelial cells naturally break off from the tips of the villi and are replenished by fresh cells regenerated at the basal membrane (bm), which *N. ceranae* may also infect. Infected mature epithelial cells fill with nosema spores (dark ovals), which are released when those cells are shed into the gut lumen. There is a greater overturn of the epithelial layer in infected bees, as the bee tries to generate cells faster than nosema can infect them. This increased replacement rate requires the diversion of protein that would normally go into other tissues or jelly production. Drawing by G.F. White (1919) Nosema-Disease. USDA Bulletin No. 780.

So let's look at the protein cost of nosema to colony buildup. In Figure 2, those pre-varroa colonies built up damn quick! They multiplied their populations fivefold in two brood cycles! That works out to a daily intrinsic rate of increase (r) of 1.04 (1.04% compounded daily for 42 days equals 5x increase).

So let's factor in the potential drain to colony protein dynamics due to nosema. Unfortunately, I'm going to have to guesstimate here, since I haven't found any studies in which the jelly production suppression due to nosema infection was clearly quantified. So I'm going to assume for modeling purposes that any badly-infected bee removes one "bee share" of contribution toward brood production.

So, let's say that a quarter of the bees in the hive were infected; which would then depress the intrinsic rate of increase by a quarter, from 4% to 3% (r of 1.04 to 1.03). At that rate, a 2-lb package, instead of growing into a 24-frame honey-producing monster by the end of 10 weeks, would cover only 17 frames—you'd only get 2/3rds of normal colony growth! And that's not even taking into effect the increased nosema-induced mortality of the package bees prior to the first brood emerging.

And yet again, the colony would appear to be perfectly healthy, with no brood mortality nor dead bees evident--it would just seem a bit lethargic in buildup. This is why nosema is called the "invisible disease." And about half of all U.S. colonies now test positive for *Nosema ceranae* to some degree! It sure makes me wonder if we haven't been paying enough attention to this new parasite.

Fundamental concept: honey bee colonies are by necessity voracious consumers of high-protein, high-energy food. Anything that affects the digestion and utilization of that food will negatively affect colony buildup and survival. Nosema siphons off a share of that protein and energy.

Practical application:

Porrini (2011) and other researchers have found that infected bees can live nearly as long as uninfected workers provided that they receive plenty of protein. But at the

same time, nosema spore counts get higher in protein-fed bees. I'd personally worry more about protein deficiency than spore counts! Making sure that your bees get plenty of nutritious pollen or supplement can greatly help to mitigate the deleterious effects of nosema infection.

Nosema and Colony Population Dynamics
You may have noticed that in this article I'm ignoring any increased worker mortality due to nosema. As I explained before, it is not in the interest of the parasite to bring about the death of its host. Rather, the effect of nosema is to turn a colony from a honey-producing factory into a spore-producing factory.

Should there be good weather and plenty of pollen and nectar, and if the colony has a vigorous queen, it can typically purge itself of all but a residual level of nosema infection. However, that colony may not be the sort of robust, productive colony that we are accustomed to. Not only is the colony handicapped by energy and protein competition with the parasite, but infected young bees tend to shift to foraging behavior earlier in life. Since the clock for bee "aging" doesn't start to tick until a bee begins foraging, such a shift to earlier foraging means that the colony population buildup rate (the slope in the earlier graphs) would be further suppressed due to decreased worker mean lifespan. Again, this would not be due to direct bee mortality due to infection, but from reduced overall lifespan as a result of premature foraging.

"Fragile" Bees
And how about those "fragile" bees that we keep hearing about, that no longer recover from pesticides or viral infections the way that they used to? Could nosema be involved? I've seen the spore count reports from a number of commercial operations. In light of what I'm learning about the effects of nosema upon colony buildup, it may not be surprising that their colonies don't rebound as well as they used to! It may simply no longer be possible to run bees to back to back in pesticide-laden pollination contracts without helping the bees in some way to get ahead of nosema.

Bottom line: These insidious effects of *Nosema ceranae* may well be related to why today's successful commercial beekeeper is forced to requeen two or three times annually, to feed more syrup, and to feed much more supplemental protein. Let me state emphatically that I'm not sure about this, but the pieces sure seem to fit together!

We still have much to learn about the effects of *Nosema ceranae* infection upon colony energy, protein, and immune dynamics. I commend U.S. researchers Chris Mayack, Dhruba Naug, Ann Gibbs, Michael Goblirsch, Zachary Huang, Marla Spivak, and Frank Eischen for their work on this avenue of research (my apologies to those I've left out). I especially wish to thank Mariano Higes' team for putting together an overall picture of the possible impacts of infection, well-reviewed by Raquel Martín-Hernández (2011).

Perspective
I apologize to my readers that this article is lacking in direct practical applications, other than that I suggest that perhaps we should start paying a bit more attention to *Nosema ceranae*. I realize that the tone of this article may lead some to freak out about this parasite, but I wish to emphatically state that that is not what I had in mind!

Lest I overplay the consequences of the presence of *N. ceranae*, remember that I've successfully run my California operation for many years without using any medications against nosema, so I'm certainly not recommending that you blindly start dumping medications into your hives. This winter is the first time that I've used any treatments—and I only treated colonies that clearly had problems.

Not all scientific studies have found benefit to treatment. Traver (2011) reports that in Virginia "we observed very little impact of *Nosema* infections on either colony growth or productivity, suggesting that even though we found higher levels of infection, treatment is not necessary."

I've personally watched colonies with mean forager spore counts in the 5M range build up explosively and put on good honey crops, provided that forage conditions were good. But keep in mind that when I measured those counts, I wasn't yet determining nosema prevalence (the proportion of foragers infected), so I really don't know just how badly those colonies were actually infected.

I know of large commercial operators whose colonies had sky-high spore counts in spring, yet went on to be extremely productive without treatment.

On the other hand, in the majority my strongest colonies this December, zero out of 10 sampled bees were infected by nosema, and in no case were more than 1 out of 10 infected. But nosema prevalence was typically higher in my weakest colonies.

Somehow my strongest colonies appear to be holding their own against nosema just fine without treatment. I plan to test again at the end of almond pollination to see how they are faring at that time, as last year spore counts were quite high in the bee net samples from my returning truckloads.

Please be clear that I don't want to sound alarmist about *N. ceranae*, yet I feel a responsibility to my readers to keep them abreast with recent research. In this article I've been thinking aloud, and have yet to reach firm conclusions. However, the evidence continues to mount that *N. ceranae* may be more of a problem than it originally appeared. I will go into more detail in subsequent articles.

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

BEEKEEPING TRIP TO RUSSIA, APMONDIA & THE UKRAINE

By Bruce White OAM

Quadrant Australia organized a pre and a post tour to Russia, Apimondia and the Ukraine attended by beekeepers from America, Queensland, New South Wales, Victoria and Tasmania.

Russia
After 20 hours flying time for the Australians the pre tour started in St Petersburg. We visited the Hermitage Museum, the winter residence of the Russian Tsars - the largest museum in the world with a rich collection of ancient and medieval items and fabulous treasures. The museum houses, a collection of 3 million items in 400 rooms covering five buildings.

The following day we had a tour of Peter and Paul's Fortress, built in the beginning of the eighteenth century by Emperor Peter the Great. A place with wonderful parks, 176 fountains, statues of ancient gods, heroes and paintings also the magnificent St Isaacs Cathedral with 400 kg of gold on the roof.

Next day an excursion around Pushkino and that afternoon we travelled first class on a German built Sapsan high speed train that can achieve speeds of 250 km per hour for a four hour trip through rural countryside to Moscow. Here we spent another day touring the panoramic city of Moscow, visiting Red Square, St Basils Cathedral built in the 16th century, the White House of Russia.

We visited a wonderful honey shop that sold a collection of apiary products and had a huge tasting bar for different floral types of honey. The shop also supplied beekeeping equipment, extracting equipment, wood ware and a large display of pest and disease vet treatments. The packaging of the apiary products was of a very high standard, propolis, royal jelly, pollen, cut comb sections and even full frames of honey packed in a cardboard box. That evening the group went to the State Kremlin Palace for the Ballet "Esmeralda"

The next day we visited the Kremlin grounds, Cathedrals, the Armory and the treasury of the Tsars clothes, jewellery and horse drawn carriages At night we visited the Moscow State Circus with a spectacular performance of Tigers both yellow and white, horses and acrobats doing breathtaking high wire acts.

The following day we travelled on an expressway 130 km from Moscow to the Smolensk region through the town of Kaluga that was established in 1525 along a pot-hole country road to visit an apiary in a village where the owner, his wife and daughter showed us around their Carpathian Apiary.

It was great to see the countryside of this part of Russia. We also visited a large commercial queen rearing apiary that had been owned by the town mayor. The current owner was preparing the colonies for winter sugar feeding with pillows under the lids. The hives were then to be moved in to a warm room at -0 degrees centigrade for wintering, one hive was a copy of the Town Hall.

Kaluga is one of the country towns where European car assembly plants are being developed by VW and Volvo. We also passed a resort that was having trouble attracting guests on the seaside - the result of the global financial crisis.

I visited Russia 23 years ago and at that time it was difficult to get fuel for vehicles, food and supplies of goods in shops were very poor - today that's all changed. On that visit I went to the Russian Federation and brought back Caucasian stock with Norm Rice, the late Keith McIlvride and Ian Coffey on an exchange of knowledge between the Australian Government and the Russian Federation.

Beekeeping in Russia can be traced to the 10th century, wild honey production beekeepers robbing wild colonies, the second stage beekeepers placing hives in hollow logs then in 1814 the first framed hives were used in Russia. The first successful introduction of bees into Australia occurred 8 years after that in 1822.

Most bees in Russia are of the dark races Caucasian, Carpathian and Carniolan races. The following day we travelled 250 km to Domodevo airport in Moscow for our flight to the Ukraine.

On arrival in the Ukraine we settled into a hotel in Kiev. Kiev was discovered by 3 brothers the oldest being Kiev and the town was named after him. We did a city tour that was a great experience and gave us some land marks as we were without our guide for the time Apimondia was being held. The hotel was located on a hill with great views of the city from our rooms.

Apimondia was a taxi ride away or a train trip of about 20 minutes, on the deepest subway in the world, trains arrived about every 2 minutes from 6 am to 12 pm. From one station it takes 10 minutes to reach the platform on an escalator, 120 metres underground.

Apimondia
Apimondia was held in the city of Kiev and attended by 8,300 beekeepers, equipment suppliers, honey packers and scientist from through out the world. Twenty two Australian beekeepers went to Apimondia.

The Congress organisers must have miss calculated the attendance and had insufficient booths to handle those who had pre-registered as the first day there was a 7 hour wait to get to the desk in very cold conditions and the next day a 4 hour wait with them running out of bags and coloured ink for photo identification!

ApiExpo
Had a wide range of extracting equipment, hive material, machines for detecting residues in honey, making wax comb foundation and honey packers. Two hundred booths were a feature of ApiExpo covering 10,000 square metres.

World Beekeeping Awards
One of the best organised sections of Apimondia - Judged by 25 international judges
I was lucky enough to be invited as one of the three judges who judged the Commercial Honey Class with Virginia Webb USA and Peter Badan Slovakia, there were no Australian entries out of the 112 exhibits from 25 countries (a five hour job).

Other classes
Individual Honey Class - 116 entries from 25 countries
Australia had only one entry in the World Beekeeping Awards that of Victorian beekeeper Dr Nikolai Faizoulline of Hampton Hives who won a gold medal for his granulated honey. Well done Nikolai, he was also on the Quadrant tour, and very helpful as he spoke Russian.

Other classes included Mead, Display, Beeswax, Photography, Multimedia, Printed Material, ApiExpo stands, Innovation and Collections.

Posters
567 posters were displayed on various topics.
Discussion at round tables, centred on Beekeeping Science in the Ukraine, Organic and Natural Beekeeping, Conservation of Endangered Diversity of Bee Populations, GMO and Impact on the Beekeeping Sector, Bees and Pesticides, Honey Adulteration. The Moderator was Maureen Maxwell, New Zealand President of the Regional Commission "Oceania".

There were 4 Australians involved with papers at Apimondia:
- Bruce White "What makes quality honey"
- Naral Cokcetin "Prebiotics Properties of Australian Honey" co-authored with Patricia Conway and Shona Blair University of NSW - funded by RIRDC.
- "Juvenile Hormone Acid Methyl transference in the Honey Bee, Apis mellifera "Wenfrny Li, Song Kun Su from the Australian National University Canberra Shaoun Zhongad Zachary Huang

- Kangaroo Island " Propolis Types and Their Distribution" co- authored by Dr Colin and Dr Rujee Duke, University of Sydney

The Scientific program theme was Beyond the Hive, Beekeeping and Global Challenges
A total of over 400 abstracts were submitted for the Scientific program covering Apitherapy, Bee Biology, Beekeeping Economy, Bee Health, Pollination and Bee Flora, Beekeeping for Rural Development, Beekeeping Technology and Quality.

The Congress venue was excellent with good lecture rooms and translations.

The congress identified five world problems:
1. The abnormal colony mortality rates in intensive agriculture areas where pesticides pests and diseases affect colonies immune systems.
2. A troubling increase in industrial adulteration of honey, royal jelly and even pollen.
3. Stricter and stricter regulations relating to residues of alkaloids and transgenic pollens making trade more difficult.
4. Production cost increases undermining investment.
5. In many countries there is a shortage of young beekeepers which presents a risk for the whole future of beekeeping

Many countries have local problems that beekeeping associations must address with the strong support of all beekeepers.

Social Program
This featured the Ukrainian night with cuisine from Ukraine chefs with traditional melodies and songs from the band "Budmo" also the opening and closing ceremonies, with many private social functions.

General Assembly
I was asked by AHBIC to be the Australian representative. The assembly meetings lasted for 7 hours, with only one Australian representative present. Maureen Maxwell is the Apimondia Oceania Commission President from New Zealand and an excellent communicator who has made many visits to Australia.

The next Apimondia will be held at Daejeon Korea from 15-20 September 2015. Only 7 hours flying time from Australia .to Seoul it is 50 minutes by KTX train or 2 hours by bus. The 2017 Apimondia will be held in Istanbul in Turkey from 29 September to 4 October. It is a great pity it is such a bad time of the year for Australian Commercial beekeepers to attend being such a wonderful social and educational event.

Ukraine
The Ukraine claims to be the European honey land. A thousand years ago honey and wax was produced and exported to countries of the medieval world, honey drinks were of great popularity in those times with thousands of brewing recipes. The Ukraine has 30% of the world's black soil ideal for nectar and pollen production.

In January 1814 Ukraine beekeeper Petro Prokopovych constructed the world's first frame hive. In comparison years ago honey and wax was produced and exported to countries of the medieval world, honey drinks were of great popularity in those times with thousands of brewing recipes.

In January 1814 Ukraine beekeeper Petro Prokopovych constructed the worlds first frame hive. In comparison Lorenzo Langstroth patented his moveable hive only in 1852.

Ukraine has over 400,000 hobbyists and professional beekeepers with 3-5 million colonies and an annual honey production of 70,000 ton being the fifth largest producer of honey in the world. We were told of 100 kgs per hive honey production from migratory beekeepers.

Honey comes from Buckwheat, Linden, Clover, Meadow, Sunflower, and Coriander and is the World's largest producer of Acacia honey, Honey Dew and other floral types.

They have a large queen breeding section with 16 Queen Breeders for the Carpathian bees, one for Polissia and 20 for the Ukraine steppe bees. Queen bees are mainly exported to Poland, Russia, Kazakhstan, Germany and the Netherlands.

At the 40th Apimondia in Melbourne the Ukraine displayed the world's biggest decorative beeswax candle, two metres high weighing 100kgs, with the President of the 43rd Apimondia, Tetyana Vasylkivska being the Honey Queen of the Melbourne Apimondia.

Ukraine beekeepers treat colonies as factories producing as many products from those colonies as possible - Honey, Beeswax, Royal Jelly, Cut Comb, Section Honey, Pollen, Propolis, Bee Venom, Package Bees, Queens and hiring colonies for Pollination. The Drug Technology Department of the National Pharmaceutical University in Kharkiv has created more than 50 Api medicines, some of which are still in different stages of introduction.

On the trip we visited many churches mosques and they were all burning pure beeswax.

A representative of Crimea Bee Complex met the group over lunch to discuss honey packing, they export honey to Russia who now import up to 80% of the agricultural products they require.

The next day two apiaries were visited, one a large queen rearing apiary where we opened a nuc to inspect the queen at -3 degrees C, frost still on the hills in the background, 80% of sales are to Poland. I was impressed with the number of bees flying at such low temperatures ideal for early Almond pollination.

Between Simferopol and Sudak we visited a most interesting apiary complex way out in the countryside with a large outside apiary, as well as individual rooms with about twenty hives. We were invited to sit in a room on the hives lids to feel the energies of the bees that are very discreet and diverse assemble the energy as a procedure for improved health,. At the same complex a new residential house has just been built three stories high with an enclosed verandah on all levels to hold 350 hives to be used for human health benefits.

We visited a fortress in Sudak first built by the Byzantines in the 6th and 7th century and updated by the Genoese in the 14th and 15th century.

We visited the Ukraine resort of Yalta staying for 2 nights by the Black Sea. We visited Livadia Palace the summer retreat of the last Russian Emperor Nicholas II and went to the room where Roosevelt, Churchill and Stalin defined the fate of post war Europe at the end of the World War 11. We had a meal at a restaurant overlooking the famous Swallow Nest a Castle perched on a cliffs edge.

We also visited Sevastopol and had an absorbing tour of the Crimean War sights where Florence Nightingale nursed, including the Panorama museum, the Valley of Death, infamous for the Charge of the Light Brigade in 1854.

A boat trip around Balaclava Bay and out to sea, a Military Port that was reputedly banned from maps, with a Russian secret submarine base under the hill side. The base held up to 47 Nuclear submarines that entered the base from the Black Sea leaving by the Bay, when all the subs were in the Bay it was said that you could walk from one side of the Bay to the other over the subs. The underground base housed 14 subs depending on their length. We all went underground into a maze of tunnels and canals - what an experience. It also houses a Military Museum called Heroic Sevastopol.

Sevastopol was founded in 1783 as the base of the Black Sea Fleet of the Russian Empire.

We visited a large government winery and the Khans Palace Museum. The entire ensemble comprising several palace buildings, the harem, the Falcons tower and the Great Khans Mosque Bijuk Khan Djami built in 1740.

In the Crimea we stopped at four migratory apiaries on the road side and spoke with the beekeepers - a real bonus not on the programme All the colonies were on trucks or trailers a typical apiary of 100 hives. All the beekeepers were set up to sell comb honey and pollen to passing motorists. Honey was sold in un-labeled jars with a choice of different floral types of Linden, Acacia and Coriander for about $10 per kg. The beekeepers

were not working hives with Apiaries close to the road A feature of the countryside in both Russia and the Ukraine is no fences. It was interesting to see a lot of the worker bees had some yellow Italian colour in the commercial apiaries.

Russia and the Ukraine are catering for tourists and we found it a very safe place. By going on a beekeepers tour we got to see cities and rural areas, had a fantastic guide in Russia and the Ukraine Miss Anna Bondarchuk with local Russian guides Maria Alexeeva and Tatiana Kalmikowa and in the Ukraine Natalia Katyushina. Also the wonderful staff of Quadrant Australia Colin Beckett, Jeanette Lapham and Kerry Moss.

The very clear message from our trip was, beekeepers should use colonies of bees to produce many different products when conditions suit, more Australian beekeepers are now producing package bees, comb honey and doing pollination, more than they did 20 years ago.

Australian Beekeepers visiting a Ukraine Apiary

Dr Nikolai Faizoulline being congratulated for winning a gold medal in the granulated honey class at Apimondia in Kiev

Bruce White with two World Beekeeping Awards Stewards

SYDNEY ROYAL NATIONAL HONEY SHOW

Entries now open for the 2014

Calling all honey producers and enthusiasts. Entries are now open for the Sydney Royal National Honey Show, which will return to the Sydney Royal Easter Show in 2014. The competition has expanded and now more classes will have the opportunity to win Champion, and for the first time ever, Supreme Champion and Best Exhibit in Show Awards.

The Sydney Royal National Honey Show, run by the Royal Agricultural Society of NSW (RAS), provides Gold, Silver and Bronze medal winners in Commercial Classes with medal artwork for promotional use on their labels.

The 2013 competition was an overwhelming success for Exhibitors, with nineteen prestigious Sydney Royal medals being awarded in the Commercial Classes.

The Non-Commercial Classes also delivered excellent results with RAS Award of Excellence Medallions awarded to Norman Webb and John Godwin for their Champion Liquid or Natural Granulation Honey, and for their Champion Small Producers Honey Exhibit.

The 2014 competition will see the 'best of the best' fight it out again for these prestigious awards. Students now have two classes in the schools section and are strongly encouraged to enter. Additionally, there are also four new candle classes for all participants.

The popular Honeyland stand will once again be returning to the Show, giving showgoers an opportunity to taste some of the different varieties of honey. Live demonstrations of working hives at the Bee-Zeebo will also return, with daily demonstrations taking place across the 14 days of the Show.

The 2014 Sydney Royal Easter Show will take place on 10- 23 April at Sydney Showground. Judging for the Sydney Royal National Honey Show will take place pre-Show on Tuesday 7 and Wednesday 8 April, with results available on Thursday 10 April on the Sydney Royal website: www.sydneyroyal.com.au/honey.

To enter the 2014 Sydney Royal National Honey Show, or for Schedule information, visit www.sydneyroyal.com.au/honey.

Offline entries will close on Wednesday 29 January and online entries on Wednesday 5 February.

Please contact Elaine Rogers on 02 9704 1449 or email erogers@rasnsw.com.au for further information.

AUSTRALIAN HONEY BEE INDUSTRY COUNCIL

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Excerpts from AHBIC News - November 2013

HONEY LEVY REFORM AND INCREASE

The Industry Working Group (IWG) of Craig Klingner, Ian Zadow and Sam Malfroy have been working on the proposal for reform of the levy process and the increase in levy to fund a Code of Practice that will be part of the Biosecurity Strategy for the beekeeping industry.

The final touches are being made to an explanatory document which will be widely circulated within the industry. All beekeeping journals and beekeeping newsletters will have the opportunity to publish what is proposed. All beekeepers are urged to read these documents carefully and consider how they will help your industry in the long term.

The Code of Practice is currently being developed and will be available in the New Year for consideration. This comes out of the successful AFB workshop in Canberra earlier in the year.

All levy payers will have the opportunity to vote on these proposals at the round of conferences in the middle of next year. So there are plenty of opportunities to read, to consider and discuss the proposals before the vote is taken.

There has been a tremendous amount of work put into this process by the IWG but their job is not finished. What is proposed gives the industry what is seen as a final opportunity to be able to address the AFB issue in a way that will help beekeepers. So you are urged to give these proposals your careful consideration.

LATEST QUEEN BEE IMPORT INFORMATION

I reported in the last newsletter about the recent importation of queen bees through the quarantine station and how varroa was found in some escorts.

The queens, which did not have varroa on them, were put with the Australian escorts in cages as per the protocol. Examination of the Australian escorts after the allotted time showed no varroa. This was to be expected as this was the case back in 2001. The importation is now proceeding along the protocol lines.

I will again emphasis that this way of importing has shown that it will protect our industry from any possible importation of varroa mites. The finding of mites shows that our Departmental Entomologists have the expertise to find any mites that may come with the shipment. If the shipments were to be destroyed when varroa are found, it would most likely lead to any potential importers having second thoughts and looking at the illegal route.

This would be disastrous for our industry as it can be seen how easily varroa could come in with an illegal shipment. By not having the quarantine station route, the varroa would be immediately introduced into hives in Australia.

QUEEN BEE LEVY

AHBIC has circulated a letter to all the queen bee levy payers to ask them to support a proposal to set the queen bee levy at zero. In 2012-13, according to figures supplied to AHBIC by the Department of Agriculture, the queen bee levy collected $6,183.98 and the collection costs were $10,445. This meant that over $4,000 was taken out of the money available for research projects that the Honey Advisory Committee of RIRDC runs.

AHBIC could see no way that, in the immediate future, the situation would be reversed where the revenue raise from the levy would be greater than the collection. This has been brought about by the Government moving to full cost recovery for all levies collected. The question has been asked could someone else collect this levy? The answer is no. All statutory levies have to be collected by the Levies Collection Unit of the Department of Agriculture.

The rationale for setting the levy at zero is that at some time in the future, if it was deemed profitable to re-instate a levy, it could be done. To do this, the 12 levy principles would need to be adhered to and all persons who would be paying the levy would need to be consulted. By setting it at zero, there are no collection costs.

QUEEN BEES THROUGH THE POST

For some unknown reason in recent times, Express Post delivery by Australia Post of queen bees in a lot of instances seems to be later than the guaranteed delivery times. Not sure why this is the case.

The queen bee breeders have been on to Australia Post with complaints about the late deliveries. On behalf of AHBIC, I have also been in consultation with Australia Post. As postage is the major way the beekeepers get their queen bees, it is important that in our dealings with Australia Post we do not antagonise them to a point where they no longer accept queen bees whilst at the same time pointing out how crucial it is to get these deliveries on time.

AHBIC AGM

The AHBIC Annual General Meeting will be held on 9 July, 2014 at the Mantra Tullamarine Hotel, Cnr Melrose Drive & Trade Park Drive, Tullamarine VIC 3043. The phone number is (03) 9093 6500. For accommodation, this year the room rate is cheapest when you book early. When booking say it is for the beekeeping conference. You need to book your own accommodation.

The Victorian Apiarists Association is holding their conference on Monday 7 and Tuesday 8 July with a welcome evening on Sunday 6 July. I would encourage all AHBIC delegates to attend the VAA conference. Registration details for VAA and AHBIC will come out in coming months.

2014 CONFERENCE DATES

New South Wales	8-9 May	Narribri
Tasmania	30-31 May	Launceston
Queensland	12-13 June	Toowoomba
Western Australia	6 June	Perth
South Australia	19-20 June	TBA
Victoria	7-8 July	Melbourne
Honey Packers	TBA	
Crop Pollination Assoc	TBA	
Queen Bee Breeders	TBA	
FCAAA	9 July	Melbourne
AHBIC	9 July	Melbourne

SEASON GREETINGS

With the festive season almost upon us, I would take the opportunity on behalf of the AHBIC Executive to wish you and your families the best. May it be a happy time for you all and hopefully your bees will bring you presents.

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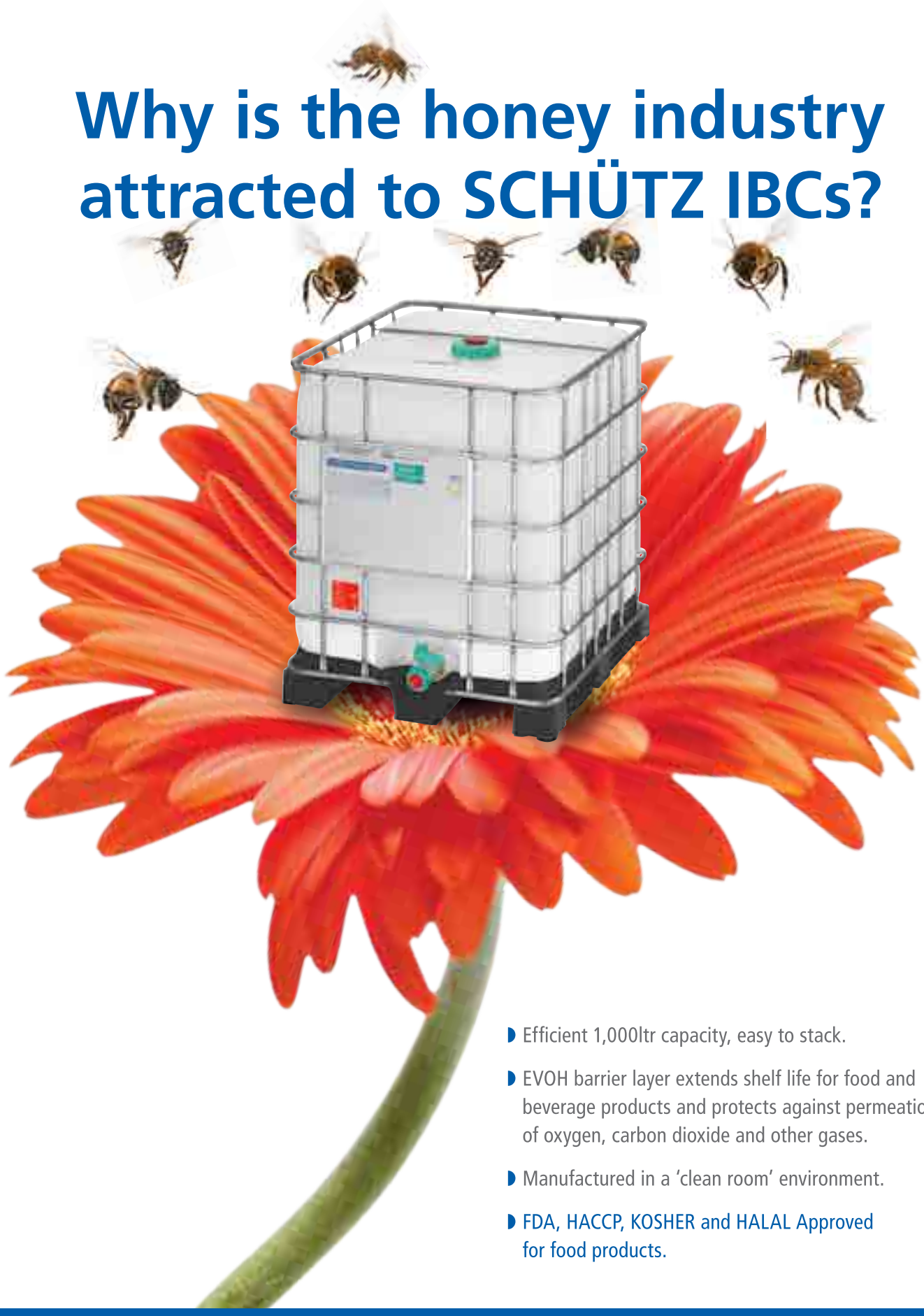

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