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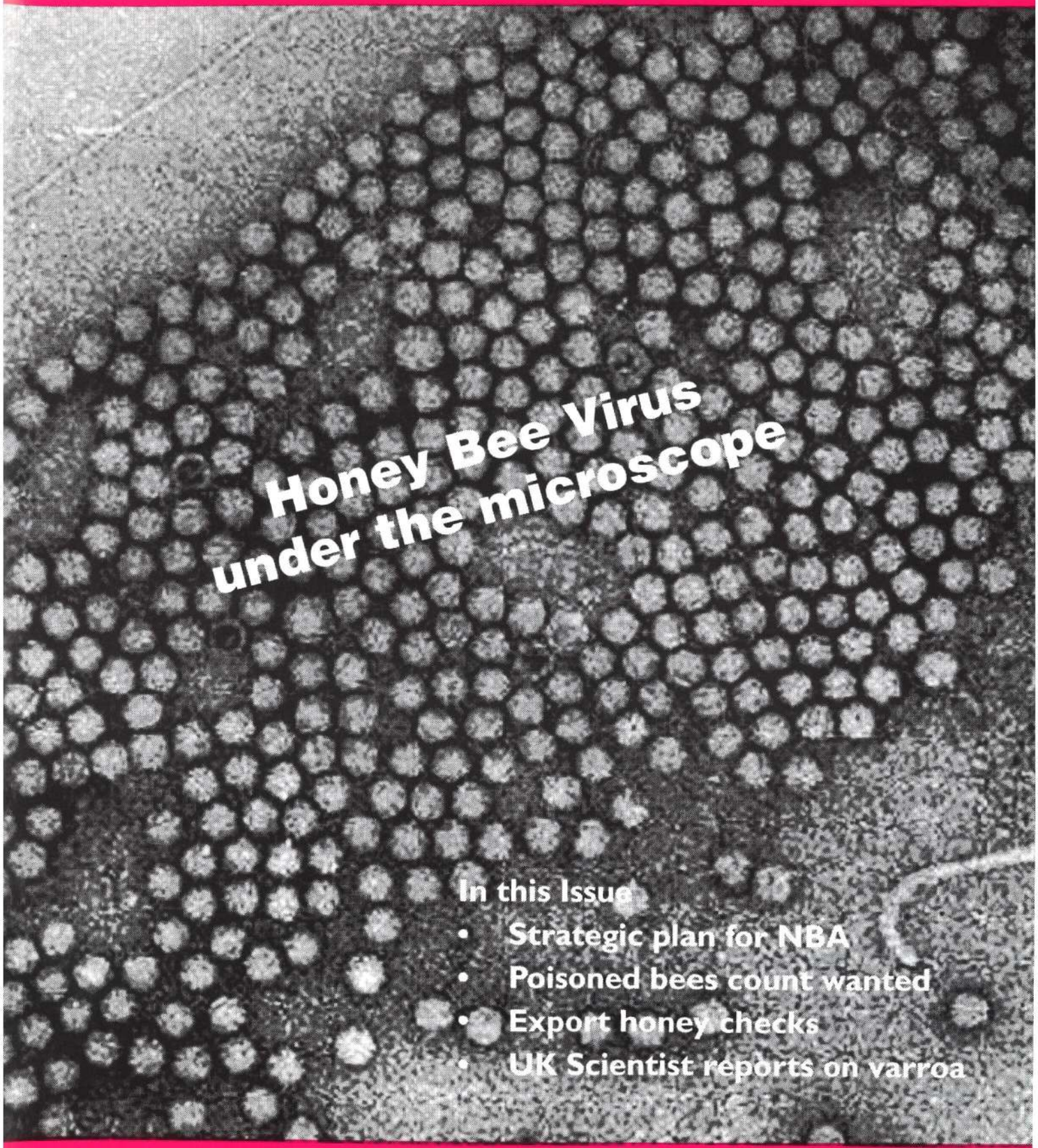

Honey Bee Virus under the microscope

In this Issue

- Strategic plan for NBA
- Poisoned bees count wanted
- Export honey checks
- UK Scientist reports on varroa

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Executive keeps latest NBA Strategic Plan flexible

To all NBA members

Greetings,

The following notes are intended as an introduction to the National Beekeepers Association "Strategic Plan" for 2001-2004, as prepared by the executive at its meeting on September 27.

The plan sets out a series of guidelines for the executive and identifies the goals to be achieved during the current year. It also re-affirms the "Mission Statement" and the objectives by which the executive sets priorities.

The plan identifies issues referred to it by the association membership in conference remits, it ensures the regulatory calendar is maintained and it establishes the parameters against which executive decisions are made, thereby ensuring a consistent approach is applied to each issue from year to year.

Of equal importance is the plan's use as a vehicle for the executive to audit its performance, meeting by meeting; and similarly by which the executive and its committees might be measured by the association's levy-paying members.

As with any plan of this nature, it will probably not meet the aspirations and needs of every member of the beekeeping community. In an organisation as diverse as the NBA, it would be impossible to meet every contingency and satisfy, equally, the expectations of each and every beekeeper.

I acknowledge the executive has taken into account the issues raised at the annual conference in Queenstown. These will be accorded a priority consistent with the status of the conference. The plan demonstrates this in the remit allocations as listed in the attached schedule.

In addition, and to ensure the plan endeavours to reflect the needs of the whole beekeeping community, to the extent this is possible, the review and update process was carried out this year by an association grouping which included the full executive and the chairpersons of each "standing committee".

This action was taken as an acknowledgement by the executive, of the need to spread its intelligence gathering processes as widely as possible, but not to the point of being impracticable. This to ensure that the plan is at least representative and meets the "Mission Statement".

Copies of the plan, currently being printed, will be lodged with each NBA branch, the library and will be posted, in full, on the NBA Webster (at 20 pages per copy, it was thought to be economically-impracticable to post a copy to each NBA member).

Please note that this plan is not "set in concrete". In acknowledgement of the dynamic nature of the industry, the market place, disease management and the beekeeping community in general, it maintains a degree of flexibility, ensuring the executive and its committees can respond to emergencies, change regulatory demands and the like without compromising the overall direction and objectives spelt out in the plan.

In the same way, this 2001-2004 plan will, in accordance with executive policy, be reviewed and updated annually to ensure it is current, objective, flexible enough to respond to change and reflects the needs of the NBA, year by year.

Below are extracts from the 2001-2004 plan, spelling out the Mission Statement and Goals the plan encompasses. The full text will be available as mentioned.

The executive welcomes beekeeper comments on this strategy and asks they be conveyed via the executive secretary, Tim Leslie.

I look forward to your responses in due course.

- Don Bell
NBA President

STRATEGIC PLAN REVIEW COMMITTEE

Murray Bush	PMS Operations Committee
Tony Taiaroa	Marketing Committee
Frank Lindsay	PMS Review Committee Compliance Committee
Richard Hatfield	Governance Committee
Peter Berry	Exotic Disease Committee

The Goals of the NBA for the next three years are:

1. Financial – Meets all financial responsibilities by generating income from compulsory levies and commercial operations greater than expenses.
2. Financial – To ensure the NBA has reserves amounting to one-third of turnover by the end of 2003.
3. Managerial stability – To develop a structure upholding the NBA vision and achieving goals through innovation, communication and the elimination of discrimination and conflict.
4. Management – To have an effective structure servicing the whole beekeeping community's needs and ensuring all obligations are met.
5. Governance – To identify and develop a governance regime enhancing the long-term effectiveness and responsive to the environment the NBA exists in.
6. Statutory – To ensure that the NBA can effectively meet all its statutory obligations.
7. Support – Support members as they respond to challenges (imposed/brought about/introduced) by disease, environmental, economic, legislative and social events.
8. Representation – of the whole beekeeping community on legislative and disease matters to government (local and national).
9. Representation – To assist beekeepers' contact with allied industry liaison.
10. Promotion – To promote the NBA and beekeeping through research, development and marketing to the benefit of the membership.
11. Communication – Open forum. To provide opportunity common to the whole beekeeping community for the promotion of social relationships and informed debate.
12. Exotic incursions – Industry with Government input implements appropriate risk management programmes to protect the interests of the whole beekeeping community in regard to threats from exotic incursions.
13. Pests and diseases - Develop long-term options and associated funding for the varroa and American foulbrood management.
14. Export issues – Develop and implement strategies for the improvement of access and increase the differentials of New Zealand honey to export markets.
15. Physical environment – Develop and implement a strategy to enhance and highlight the NBA's role as advocate for the whole beekeeping community in issues regarding the physical environment.
16. Legislative/Regulatory environment - Develop and implement a strategy reinforcing the NBA's role as the industry advocate in all legislative matters affecting the whole beekeeping community.

NBA Vision Statement:

"To be a financially and managerially stable organisation that supports, represents and promotes the interests of the whole beekeeping community to their greater benefit whilst fulfilling all statutory and managerial obligations."

Executive member Portfolios for the next 12 months are:

	Portfolio	Executive member	Description
1	AFB PMS	Don Bell	Management of and future direction of the AFB PMS.
2	Communications	Fiona O'Brien	All aspects of communications, both internal and external, including the magazine, web site and other means.
3	Compliance	Don Bell	Compliance of beekeepers and the NBA to legislative requirements. Simplification of processes, education and enforcement.
4	Environment	Jane Lorimer	Environmental management, GE/GM, OSH, Bee product safety and other beekeeper-impacting legislation.
5	Exotics	Gerard Martin	Exotic pest management, border control, risk management and government liaison.
6	Export/Import	Philip Cropp	Exportation of bee products, legislative requirements, improving exporting potential.
7	Finance	Gerard Martin	Financial management of the NBA.
8	Governance	Executive / Richard Hatfield	Structure and form of the NBA and its organisational units, roles and responsibilities.
9	Marketing	Philip Cropp	Marketing all bee products. Research and development of products saleable by beekeepers.
10	Support	Lin McKenzie	Development and management of support programmes for beekeepers.
11	Varroa	Jane Lorimer	Management of the NBA response to varroa.

Science teacher takes up Apicultural advisory role

Beehives positioned on an active military base and close to old chemical dumpsites were Byron Taylor's introduction to the apiary industry.

The recently-appointed AgriQuality New Zealand apicultural advisory officer was in the United States at the time, working on a bio-monitoring project. He had gone over there with his wife, Michelle (now working as a research assistant with Dr Mark Goodwin at the Ruakura Research Centre) and she was completing her Masters thesis in the US.

"[In the US project] I learnt a great deal about bees, beekeeping, sampling hives, and also how to manage hives containing populations of varroa mites. We managed approximately 110 hives, some of which were electronically monitored."

The work interested Byron and when the couple returned to New Zealand, he set up some hives of his own as a hobby. He intends continuing with these in his new position.

Originally from Hawke's Bay, Byron studied for his BSc at Massey University in Palmerston North, before completing a Diploma in Teaching. He taught maths and science at Dannevirke High School then, after his time in the US, worked for two years at Te Kauwhata College.

"I started with AgriQuality in mid-September and was initially delivering seminars to beekeepers in the upper North Island. Because of this, I have already met a lot of beekeepers . . . And look forward to meeting more . . . from a wider area of the country in the near future."

- **Byron Taylor can be contacted at the Ruakura Research Centre, East St, Hamilton; Ph (07) 838-5845, Cell: 021 918 400 E-mail: taylorby@agriquality.co..nz**

MAF UPDATE

Paul Bolger

Control of Varroa book

The handbook, *Control of Varroa: A Guide for New Zealand Beekeepers,* was mailed to all registered beekeepers in September. When sending nearly 5000 items, there are invariably a few which fail to reach their destination. If you did not receive a copy of the book, or know of any beekeeper who did not receive a copy, please contact AgriQuality NZ on (0800) 424-490. It will update your details on the Apiary Register and send you a replacement copy.

The Ministry of Agriculture and Forestry has received positive feedback on the book, with a bee scientist from the United States, Dr Shimanuki, describing it as "outstanding" after he thumbed through it. "I especially liked the organisation of the material. The information is easy to find and written clearly and with great detail . . . It is certainly the best publication on the control of varroa that I have ever seen . . ."

Living with Varroa workshops

This workshop programme started in the upper North Island in September. So far eight workshops for commercial beekeepers and six for hobby beekeepers have been held in different location around the upper North Island. The workshop programme has been put on hold for the summer, and will resume in autumn when beekeepers have more time available. Workshops will be carried out in the lower North Island and South Island next autumn/winter. A further round of workshops will be held before the conclusion of the programme to pick up beekeepers who missed out the first time.

Trial workshops (one commercial, one hobbyist) for the South Island are being held in Christchurch on November 26. This will give Mark Goodwin and AgriQuality the opportunity to finalise the material for the workshops next autumn. Beekeepers in Christchurch have already been notified of these workshops, which are timed to coincide with the Canterbury Branch field days.

Further research funding

In November 2000, the Government allocated $500,000 of funding for varroa research. Over the past two months, members of the Varroa Research Advisory Group (VRAG) have prepared an application for more funds.

Representing MAF, the National Beekeepers Association and the Foundation for Research, Science and Technology, VRAG members first decided on priority areas for research. A request for proposals was then widely distributed to Crown Research Institutes, universities and other possible research providers. Interested institutions then submitted research proposals, which VRAG assessed.

Using the successful proposals, VRAG designed an application for funds from the Budget New Initiatives process, a contestable pool of funding available to government departments working in the Biosecurity area.

Although MAF is giving its full support to this application, there is no assurance the full amount requested, or indeed any funding will be received. This is because of the competitive nature of the bidding process, and the general constraints on government funding. In the longer term, funding for varroa research will have to be obtained through the established funding mechanisms such as FoRST. The NBA may need to look at developing links with other sectors affected by varroa, and making joint approaches to funding organisations.

Movement Control Changes pending

Movement control conditions in the upper North Island are being fine-tuned for the coming season. As the NBA is still assessing the proposed changes, detailed conditions are not given here. However, as previously announced, the Movement Control line will remain in place for the coming season. A boundary area extending 10km north of the line will remain, although the "bubble" in the boundary area may be modified or removed. It is likely MAF will supply Bayvarol to beekeepers who move hives from the north into the boundary area.

A significant change MAF wants to put in place is a southern boundary area. It will extend for 10km immediately south of the line, at points where varroa has been found close to or south of the Movement Control Line. Moving hives and other risk goods southwards out of this zone would require a permit. The objective of this measure is to stop varroa being rapidly spread around the lower North Island from any hives that become infested immediately south of the line. Up until now, there has been no restriction on hives moving within the southern North Island.

Registration of organic acids

Work on the registration of formic acid, oxalic acid and thymol is continuing. Rather than register these products under the ACVM Act, MAF Biosecurity is now trying to have them exempted from the need for registration. A key element in granting an exemption is the development of a Code of Practice (CoP) governing the use of these compounds. A CoP has been drafted for the two acids, and MAF Biosecurity and the ACVM Group are finalising details.

To report cases of suspected varroa mite in the South Island, call MAF's Exotic Disease and Pest Emergency Hotline:

0800 809 966

Letter to the Editor

Oh dear, varroa

I went to a varroa treatment meeting recently and found a lot of enthusiasm for "organics." Apparently chemicals are baddies and organics are goodies. The first organic poison I could think of was cyanide which was used to kill wasps and beekeepers in the not too distant past. In the good old days they used to extract cyanide from peaches, hence if you were "impeached" you had to drink cyanide.

When I went home after the first day, I took out my organic chemistry book and had an interesting evening finding out how to manufacture oxalic and formic acid so that we can make it at home if there is a sudden commercial price rise. You can start making formic acid with carbon monoxide and çaustic soda under pressure at 220degC, which may be a bit difficult at home.

I found out later that all the poisons recommended for varroa are organic so that may bring comfort to our more religious members. I later had two ideas of my own. The first, if you can find the resonant frequency of varroa, it should be possible to shake them off the bees on to a sticky sheet below.

I used an audio oscillator and a pair of headphones to shake my varroa which were on a white plastic rectangle under a microscope. I took the oscillator from 20 Hz to 20 kHz. My own hearing faded out at about 8 kHz (decrepit!) and I do not know how good the phones are. Nothing happened to the varroa. Was there no sound emitted at their resonant frequency? Were they stuck on the plastic rectangle by a hefty static charge?

The second idea was to use carbon dioxide (also organic) to dislodge the varroa. My fire extinguisher was the wrong sort so I tried my gas bottle using LPG, whatever that is. A brief puff from this killed all the bees in the glass jar so I tipped them out on to a tray where, to my surprise, they slowly recovered.

No sign of any dead varroa. LPG is organic.

- George Nichols, Waiotemarama, Hokianga

Analyasis method set up to check against adulterated export honey

Over the past few years, North America has experienced occasional problems with the adulteration of honey, mainly by additions of other, cheaper sugar to increase bulk and lower production costs. The main addition was usually high fructose corn syrup, which had a similar chemical composition to that of honey.

By Graeme Lyon

As a consequence of this type of adulteration, a method for its detection was developed using isotope ratio mass spectroscopy (IRMS). This was later refined to be more sensitive (White, 1992) and is now specified as an Official Test (AOAC, 2000).

In New Zealand, corn syrup is unlikely to be used as an adulterant, but the possibility of cane sugar additions cannot be excluded. This test is an indicator of additions of either cane sugar or corn syrup and is now a standard for most imported honey to Canada and to the EU.

It has been recently reported that some shipments of honey or batches of honey being prepared for export to Canada from New Zealand have failed this test. The sensitivity of the test is defined by reference to a large number of honey analyses (White, 1992). Unfortunately, very few of these analyses were related to New Zealand honey species, including a favoured export honey: manuka.

The Institute of Geological & Nuclear Sciences has now set up the analysis method to the international criteria at the Rafter Stable Isotope Laboratory in Lower Hutt. The method involves extracting the protein from the honey. The protein and the untreated honey are then both analysed by IRMS on the same mass spectrometer (Photo), and the value for the carbon stable isotope ratio of the protein is then compared with that of the honey.

As both honey and protein should come from the same plants, their values should be similar, within a small range of biological variation. A difference (honey - protein) exceeding one unit on the scale used is assumed to be due to more than 7% of added sugar.

Failure of this test may preclude export of the product to those countries requiring it. While the cause of why certain types of New Zealand honey are prone to failing this test is not resolved, the overseas-derived test does not seem to allow exclusions based on honey types as it is an internationally-agreed (primarily perhaps United States) standard.

- The Rafter Stable Isotope Laboratory is a division of the institute, carrying out isotope ratio measurement of hydrogen, carbon, nitrogen, oxygen and sulphur in a wide range of materials. Many of the applications are for scientific research in geology, energy, environment, hydrology and biological studies. The main clients are from New Zealand or overseas companies and universities. For further information, contact us at the Institute of Geological & Nuclear Sciences, P.O Box 31312, Lower Hutt, phone 04 570 4637, fax 04 570 4657 or email: IsotopeLab@gns.cri.nz, www.gns.cri.nz.

AOAC. (2000) 44.4.18A AOAC official method 998.12 C-4 plant sugars in honey. Internal standard stable carbon isotope ratio method, AOAC Official Methods of Analysis pp. 29-32.

White J. W. (1992) Internal standard stable carbon isotope ratio method for determination of C-4 plant sugars in honey collaborative study, and evaluation of improved protein preparation procedure. *Journal of Association of Official Analytical Chemists International* **75**(3), 543-548.

Varroa update for November

Dr R.M. Goodwin, HortResearch, Ruakura, presents the first of a series of updates on varroa. They will include seasonal issues with varroa control, as well as what is happening in the Government varroa control programme.

Varroa Education Programme

By now all registered beekeepers should have received the *Varroa Control Manual* and many beekeepers in the varroa-infected areas will have attended a varroa control workshop.. These form the basis of the government funded varroa education programme. The remaining workshops will occur over the next year. A phone number has also been set up to call with varroa questions you want answered: (0508 001-122).

A video summarising the more important points of the workshops and manual is also being produced.

Registration of organic control products

The Ministry of Agriculture and Forestry is considering the registration of oxalic acid, formic acid and Thymol for mite control. The good news is that the approval will likely come through for oxalic acid and formic acid very shortly. However, this may not be in time for them to be used this spring. The approval will include a recommended code of practice for how the compounds should be used. The code of practice will basically outline the methods covered in the varroa manual.

Unfortunately, it appears that the approval for the use of thymol may take longer as there may be the need to collect some residue data.

Determining mite numbers in a hive from a sample of bees

The workshops have already come up with a number of suggestions for further information beekeepers would find useful. One of these concerned ways of determining the number of mites in a colony.

The varroa manual (pg 90) provides a formula for calculating the number of mites in a hive based on the number of mites found on a sample of bees.

These methods only provide information about the number of mites on adult bees. When a hive is in full brood production, it is estimated only about 15% of mites are on adult bees. Thus, the number of mites on adult bees in the sample has to be multiplied by a correction factor of six to estimate the likely total number of mites in the hive. At other times during the production season when brood is present, use a correction factor of three. When no brood is present, no correction factor is needed.

When using an adult bee-sampling technique that doesn't involve a miticide and samples only a portion of the bees (i.e., ether roll, sugar shake, soapy water wash), a rule of thumb would be to divide the number of bees in the hive (15,000 in a full Langstroth super) by an estimate of the number of bees in the sample.

This will give a figure that can be multiplied by both the number of mites in the sample and a "mites-in-brood" multiplier to determine the likely number of mites in the hive.

$$\frac{\text{estimated bees in hive}}{\text{mites in hive bees in sample}} \times \text{mites in sample} \times \text{brood multiplier}$$

Some beekeepers have suggested a table would be more useful than carrying around a calculator. Two tables are necessary, to estimate the number of varroa in a hive from counting the number of mites on a sample of 300 bees.

a) When the hive is in full production:

Full depth boxes of bees

Mites in sample	0.5	1	1.5	2	2.5	3
1	150	300	450	600	750	900
2	300	600	900	1200	1500	1800
3	450	900	1350	1800	2250	2700
4	600	1200	1800	2400	3000	3600
5	750	1500	2250	3000	3750	4500
10	1500	3000	4500	6000	7500	9000
15	2250	4500	6750	9000	11250	13500
20	3000	6000	9000	12000	15000	18000
25	3750	7500	11250	15000	18750	22500
30	4500	9000	13500	18000	22500	27000
35	5250	10500	15750	21000	26250	31500
40	6000	12000	18000	24000	30000	36000

b) At all other times when brood is present in hives.

Full depth boxes of bees

Mites in sample	0.5	1	1.5	2	2.5	3
1	75	150	225	300	375	450
2	150	300	450	600	750	900
3	225	450	675	900	1125	1350
4	300	600	900	1200	1500	1800
5	375	750	1125	1500	1875	2250
10	750	1500	2250	3000	3750	4500
15	1125	2250	3375	4500	5625	6750
20	1500	3000	4500	6000	7500	9000
25	1875	3750	5625	7500	9375	11250
30	2250	4500	6750	9000	11250	13500
35	2625	5250	7875	10500	13125	15750
40	3000	6000	9000	12000	15000	18000

Resistance

We are hearing rather disturbing reports of the consequence of varroa developing resistance to varroa control products overseas and some large colony losses occurring as a result. We definitely do not want that to happen here, so it is disturbing to hear of beekeepers in New Zealand already misusing varroa control products.

I have heard rumours of beekeepers using unregistered, copper-based products, plant extracts, formic acid, and Mavrick (a horticultural spray) and several other compounds. There have been reports of beekeepers allegedly leaving Apistan strips in all winter and of one beekeeper who was going to re-use strips already used for eight weeks - all this at a time when beekeepers that have hives with varroa have been provided with free Apistan.

It is part of our culture to experiment and invent things, and something that New Zealanders excel at. In this case, however, experimenting can lead to disaster. Not just for the beekeeper selecting resistant mites, but for the rest of us who will inherit the problem.

Only use products registered for varroa control in New Zealand and follow the label instructions exactly. If you want to experiment with alternative chemical control methods, ring MAF and apply for a permit. It will ensure the trials are done without risk.

Varroa control for November

Most beekeepers with varroa will have already treated their hives with Apistan or Bayvarol. If you do have varroa and have not treated yet, a treatment needs to be applied before the honey flow, which is already occurring in many areas. Failing that, the hives will need to be sampled next month to check that varroa numbers are not getting too high.

Leaving moderate infestations untreated in the spring can result is hives collapsing before the honey boxes can be removed in the autumn.

Studies put new perspectives on varroa

By Brenda Ball

Over recent decades, the honeybee parasitic mite, *Varroa destructor,* has become a pest of global importance in colonies of the European honeybee, *Apis mellifera.*

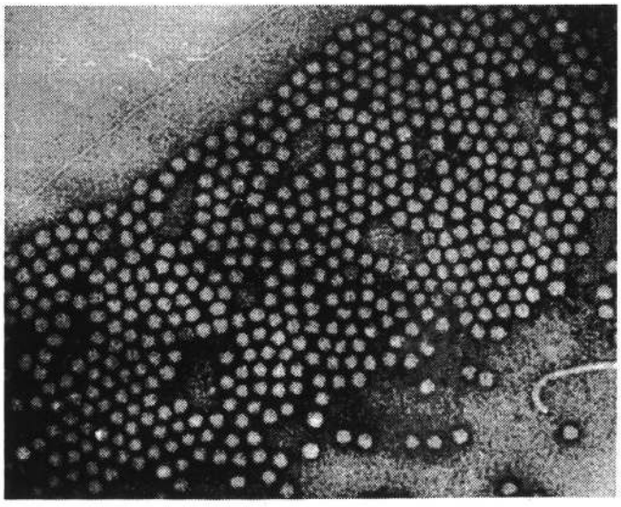
Like Britain in 1992, New Zealand has recently learned that island status and stringent import controls offer only temporary protection from the mite. Experience from other countries also suggests the mite is not readily detected until it is fairly well established, by which time the movement of infested colonies to other areas may have already occurred. Under these circumstances eradication is not a viable option and resources are best directed towards informing and assisting the industry in appropriate action.

It is inevitable that some colony losses due to mite infestation will occur during the time that beekeepers learn to recognise and manage this pest. However, recent advances in our understanding of the nature of the damage caused by the mite should help to direct research effort and provide the essential information for the development of appropriate and effective control strategies for the future.

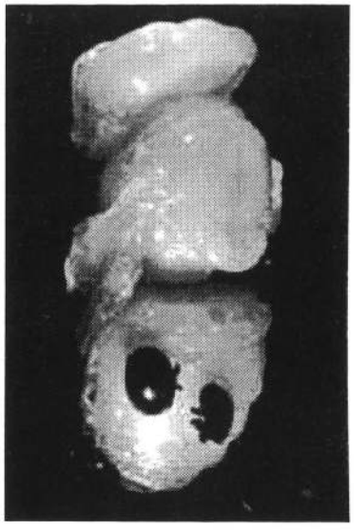
For a number of years, my research has focused on the causes of mortality in infested colonies and the association of *V. destructor* with certain honeybee virus infections. I was fortunate to have had some experience of working with the mite on the European mainland before it was detected in Britain and I was already aware that significant changes in honeybee virus prevalence occurred in severely infested colonies. It was not until some years later, however, that I was able to undertake more detailed studies in Britain and to follow the sequence of events as the mite first entered and then became established in an area.

Perhaps the most significant finding and the one many people still find difficult to accept, is that the mortality of colonies is related to the presence of certain mite-vectored viruses. In the absence of virus, colonies can survive and thrive with populations in excess of 10,000 mites.

Initial colonisation by the mite is associated with viruses infecting both brood and adult bees by injection into the haemolymph and are rapidly fatal. In particular, two viruses, acute paralysis virus (APV) and slow paralysis virus (SPV), previously known only as cryptic sub-lethal infections in apparently healthy bees, can become established in colonies with large mite populations. In the laboratory it is possible to



Electron micrograph of particles of acute paralysis virus. These are the same size and shape as most of the viruses of honeybees.



Adult female Varroa destructor is clearly visible against the white body of a honeybee pupa.

induce APV to multiply in apparently-infected bees by injecting foreign protein. It may be that the mite introduces such bioactive compounds into the haemolymph of bees when it feeds.

Once these viruses are actively multiplying, the mite can transmit them between adult bees or to honeybee pupae. Transmission to the brood is particularly important because the mite and all of its offspring spend a number of days confined and feeding on an infected host. This increases the number of potential virus vectors and increases the likelihood of an infective dose of virus being transmitted to a new host.

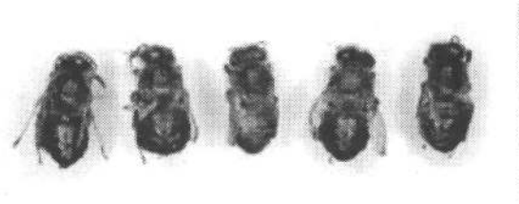
Over time, these quick-acting viruses decline because either infected individuals are removed from the population at a faster rate than transmission by the mite takes place and the colony recovers, or the bee population is so depleted that the colony dies. Viruses that are not rapidly fatal eventually predominate in infested colonies because infected adult bees form a persistent reservoir of virus for mites to acquire and transmit.

In Britain, deformed wing virus (DWV) has now become the most prevalent infection. Pupae infected with DWV by the feeding activities of mites continue to develop, but may emerge with malformed wings. This symptom has been observed in infested colonies all over the world and attributed to direct feeding damage by the mite. However, the analysis of samples of such bees from many countries has invariably detected DWV. For these reasons DWV has been the focus of our recent studies and current recommendations on the timing of acaricide treatment take into account the epidemiology of this infection.

Interrupting the cycle of virus transmission at the time of year when it has the maximum efficacy helps to minimise both the chemical input into colonies and the damaging effects of the mite.

The detection of the mite in New Zealand provided me with the possibility of extending these investigations and of using previous experience to identify the key factors in this complex relationship in a different country. With support from Paul Bolger of the Ministry of Agriculture and Forestry in Wellington, I was fortunate to be awarded a fellowship from the C. Alma Baker Trust, enabling me to travel to New Zealand earlier this year. I was eager to learn something about commercial beekeeping operations in New Zealand, to establish and develop contacts with researchers and policy makers involved with bees and to pass on information on the British experience of *V. destructor*.

The fellowship visit was based in Auckland, where work with HortResearch colleagues at the Mount Albert Research



Only a small proportion of newly emerged bees infected with deformed wing virus will show these symptoms, but all will contain large amounts of virus.

Centre verified the specificity and sensitivity of a number of different honeybee virus antisera. The use of these for the analysis of dead adult bees and brood from mite-infested colonies will provide fundamental information on the incidence and prevalence of several of the viruses and will facilitate the recognition of others. New Zealand is one of the few countries in the world to have this diagnostic capability and planned collaborative studies with IACR-Rothamsted will extend this further.

Recent results of our research on *V. destructor* and virus diseases of bees were presented at meetings of the Bay of Plenty and Auckland branches of the National Beekeepers Association. I was impressed with the number of beekeepers attending these events and with their eagerness to both acquire and question new information. Many aspects of this host-parasite-pathogen interaction will be common to different countries but it will be important to determine which factors will have the greatest impact on colony survival under the conditions of climate and colony management in New Zealand.

Research offers sound strategies for the future, but the more immediate needs of the beekeeping sector have been met through the management programme for *V. destructor* developed by MAF in consultation with the National Beekeepers Association. Continued co-operation between scientists, beekeepers and policy makers will help to provide practical solutions to this pest problem and safeguard the vital role that honey bees play in the agro-ecosystems of New Zealand.

- **Brenda V Ball is a senior research scientist in the Plant and Invertebrate Ecology Division, IACR-Rothamsted, Harpenden, Herts. UK.**

Royal Commission on Genetic Modification – Summary of key Government decisions

Jane Lorimer

"We neither won, nor last the battle," writes Jane Lorimer, environment portfolio holder for the National Beekeepers Association executive. She was part of a group involved in making a submission on behalf of the beekeeping industry to the Royal Commission on Genetic Modification.

The key will be if the Government does act on the recommendation made by the Royal Commission: "That the Ministry of Agriculture and Forestry develop a strategy to allow continued production of genetic modification-free honey and other bee products, and to avoid cross pollination by bees between genetically modified and modification-free crops, taking into account both geographical factors (in terms of crop separation strategies) and differences in crop flowering times."

In the contained research summary section, however, we are concerned over the first bullet point where they are talking of removal of heritable material – i.e seeds. The NBA environment committee will be writing to the Minister of Science Research and Technology, Pete Hodgson, and suggesting this should in fact be the removal of flowers, so GM pollen cannot be dispersed.

It will also be pointed out the containment of material must permit no visitation by bees, native bees, moths or other pollinating fauna. Also, it must be ensured that no wind-borne pollen be allowed to escape outside the containment area.

Overview of Government Response (October 30, 2001)

The major theme of the Royal Commission's report is "preserving opportunities". The commission thought it unwise for New Zealand to turn its back on the potential advantages offered by genetic modification, but recommended New Zealand proceed carefully and implement genetic modification cautiously, minimising and managing risks.

The Government supports the overall strategy of preserving opportunities suggested by the Royal Commission, which gave a balanced and thorough consideration to the issues. The Government is primarily concerned about the health and safety of all New Zealanders and their environment, and wants to take a precautionary approach when proceeding with genetic modification.

However, it has come to some different conclusions as to how the overall strategy of preserving opportunities should best be implemented. The differences are in two main areas:

- the extent to which commercial release should be possible in the immediate future.
- the conditions under which research should be able to proceed.

A commercial release constraint

The Government believes there is a need to constrain the release of genetically modified organisms (with limited exceptions) for a period while work, analysis and research identified as necessary by the Royal Commission is underway.

There will be a legislated, two-year constraint period during which time no applications can be lodged with the Environmental Risk Management Authority (ERMA) for release of GMOs except those providing direct benefits to human health, animal health, or in accordance with the existing emergency provisions of the Hazardous Substances and New Organisms (HSNO) Act.

Any exemption will also require that:

- Applicants provide additional information demonstrating that organism cannot persist viably in the physical environment beyond the target organism.

- ERMA take accounts of relative efficacy, safety and ecological effects.

The constraint period is to allow time to:

- Establish or continue research programmes addressing areas of socio-economic, ethical, environmental and agricultural research identified by the Royal Commission as needing additional work;
- put in place amendments to the HSNO Act
- Establish a Bioethics Council;
- complete generic work on the economic impacts of any GM crop release on the strategy of "preserving opportunities";
- Undertake appropriate work on other issues identified by the commission

Contained research

The Government supports the commission's conclusion that the regulatory framework governing research involving genetic modification is sound. It considers the case-by-case approach taken by ERMA under the HSNO Act (which includes scope for public input), supported by the range of containment provisions, provides a strict and rigorous regime.

At present, ERMA has some discretion to determine all the conditions to be applied to approved research. The Government intends to clarify its expectation that all research must meet strict safety standards. The HSNO Act will be amended to require specific mandatory conditions to be applied to any research approval to ensure appropriate environmental and health safeguards are imposed.

This will include explicit conditions on contained field tests of genetically modified plants and animals to ensure that:

- once a plant reaches the stage where it is capable of releasing heritable material (e.g., seed), any reproductive structure above the ground must be securely contained or immediately removed and destroyed.
- any plant heritable material beneath the ground (e.g., potato) must be either destroyed once the test is complete or retained in conditions of high security. All material associated with the trial must be removed from the site by destruction or otherwise.
- any animals involved in field tests, including their offspring, must be held in secure containment and clearly identified in case the animal escapes.
- appropriate inspection and monitoring conditions will be compulsory.

Other key recommendations of the Royal Commission

Toi te Taiao: The Bioethics Council will be established to advise, provide guidelines and promote dialogue on the cultural, ethical and spiritual issues associated with biotechnology.

Biotechnology Strategy: A strategy to ensure New Zealand keeps abreast of developments in biotechnology will be developed, with a mechanism to ensure ongoing balance between benefits and risks.

Liability: The liability system for GM related issues will be further investigated during the constraint period. The minister responsible for the Law Commission has been invited to consider this for inclusion in the Law Commission's work programme. This will ensure any potential problems with the existing liability system are identified and addressed pro-actively.

Parliamentary Commissioner for Biotechnology. The role does not meet the criteria set down for the establishment of a Parliamentary Commissioner and has not been agreed to by the Government. The tasks envisaged for the commissioner will be considered in the development of the biotechnology strategy.

Further work/research: Officials are to explore co-existence and conditional release frameworks as far as is practicable in the absence of releases and undertake economic analysis on the risks and opportunities that may arise from GM and non-GM technologies by the end of February 2003.

Migratory beekeepers help African hive beetle spread itself around the United States

When the small hive beetle was discovered in Florida in May, 1998, it was thought to be a major threat to American beekeeping. Since then, the insect has found its way to 17 states and into the hives of thousands of beekeepers. How did the small hive beetle spread so widely and so quickly? Carl J. Wenning reports in the *American Bee Journal*.

Beekeepers across the United States watched with some concern as the small hive beetle made its way across the country. Originating in sub-Saharan Africa and possibly transported to the United States aboard a ship in 1996, the beetle was first reported in Florida in 1998.

By December 1999, the pest had found its way to 13 states and by the end of last year, been located in two more. By September this year, it had also been identified in Delaware and Illinois, moving across the country with hives transported by migratory beekeepers, the distribution of package bees and possibly fruits, vegetables and plant matter that might serve as alternative hosts for adult beetles (Delaplane, 1998).

Small hive beetle adults can survive up to five days or more without food and water (Pettis and Shimanuki, 2001), allowing for still other means of distribution. Because the beetle can over winter across most, if not all of the continental United States, it is believed the pest will eventually become established across much of the nation.

Within weeks of its discovery in Florida, horror stories abounded and nothing would supposedly halt the foreign invader. Since then, the rhetoric has moderated and dire claims of another major threat against American beekeeper have disappeared.

The small hive beetle (*Aethina tumida* Murry) was first identified and given its Latin name in 1876. In 1940, A.E. Lundie, a research apiculturist working for the Department of Agriculture and Forestry in what is now the Republic of South Africa, described the insect and its lifestyle in detail (Taber, 1999). According to Lundie, the colour of adults varies from brown to black. Adult beetles darken in colour as they age. One-third the length of a worker bee, adults are typically oval-shaped and two-thirds as wide as they are long.

The beetle larval resemble the larvae of the greater wax moth but have comparatively larger heads, a number of spiny protuberances along the length of the body and six fully-developed legs near the head. Fully-mature larvae are about 15mm long and just a couple of millimetres in diameter. Adults can live for six months or more, although four months is more typical.

Females lay eggs in irregular masses throughout the hive, taking advantage of small cracks and crevices on empty comb cells. In one to six days, white larvae emerge from the eggs and begin hive destruction.

Larvae feed on pollen and honey, killing brood and damaging combs as they go. This destructive larval stage lasts from 10 to 16 days. Newly-emerged adults seek mates and hives to infest. Female adults reach sexual maturity and can be laying eggs within a week of their emergence from the soil. Maturity from egg to adult ranges from 38 to 81 days, depending upon environmental factors such as temperature and ground moister. Up to five generations can be produced in a single year if conditions are right.

The beetle is considered a minor pest of African honeybees in its native lands. It has become a significant problem with European honeybees, whose hive-cleaning customs cannot protect a colony from the invading beetles.

Adult beetles' presence in a strong colony of bees makes little impact but the destructive larval stage can cause considerable damage in a very short time. They burrow through comb, eating honey and pollen, killing brood and defecating as they go. This causes the honey to become discoloured and start fermenting. It develops an odour similar to decaying oranges. Damage to the comb and cappings, along with fermentation, causes a frothy honey to run out of combs and, sometimes, out of the hive. Larvae leave a trail of foul-smelling slime, sometimes making bees abandon their hive.

Early detection is vital and American beekeepers are being urged to pay close attention to the bottom board where the beetle may be found. They will run from the light, hide in corners, cracks and crevices when a hive is opened. Bu they may be found on the bottom board, among the detritus often found there. If beetles are detected, larvae could be working comb in the brood chamber. It also tunnels through the comb beneath cell caps, creating telltale, greasy, blackish red cappings.

Preventing significant infestations is the first defence: Maintaining strong colonies, keeping hive equipment in good order and locating apiaries on dense, clay-based soils. Severe infestations have been limited to coastal areas with light sandy soils, used by the mature larvae to pupae in.

Soil treatments and hive treatments are the second line of defence.

Experience suggests the southern hive beetle is not the threat first feared after its 1998 discovery in Florida. As beekeeper Laurence Cutts put it: "It looked like the end of the world for beekeeping. However, we now know that the bulk of the problem was with varroa mites that were resistant to Apistan. Once the mites were under control, 95% of the beetle problem disappeared. With the tools at and the knowledge we have gained, the other 5% can be dealt with.

'Just as there was life after varroa mites, there is life after the [beetle]."

References: K.S. Delaplane, The Small Hive Beetle *(Aethina tuminda)* in the Southeast, *American Bee Journal,* 1998; J.S. Pettis and H. Shimanuki: Observations of the Small Hive Beetle, *Aethina tumida* Murray, in the United States (*American Bee Journal*) 2000; S. Taber, The Small Hive Beetle as described by A. B. Lundie in 1940, *American Bee Journal,* 1999.

Submissions invited on honey importation proposal from WA

The Ministry of Agriculture and Forestry is seeking submissions from interested persons on the proposed importation of honey from Western Australia.

The Australians have supplied about 200 pages of information to support their request for access to New Zealand for honey from that state.

Please note that this consultation deals solely with risks to New Zealand's biosecurity. This means that any submissions should be made on the technical points of concern to you. MAF's assessment of the submissions will be confined to technical points only, and cannot take non-technical issues into account.

Copies of the information package, including the Western Australian State Government (WASG) proposal, have been distributed to the National Beekeepers Association of New Zealand; all of its branches; and the NBA import-export committee. The package can also be viewed from the MAF website at www.maf.govt.nz/biosecurity/consultation.htm

Submissions must be received by January 11, 2002. Please address them to: Jessie Chan, MAF, PO Box 2526,Wellington; Phone: (04) 498-9897, Fax: 04-474-4227, e-mail: chanj@maf.govt.nz

- Dr Jim Edwards Special Adviser Biosecurity Authority Ministry of Agriculture and Forestry

MAF invites varroa compensation claims

The Ministry of Agriculture and Forestry (MAF) is calling for claims for compensation under section 162A of the Biosecurity Act 1993 for losses incurred during the period May 1- October 31, 2001.

MAF asks that claims relating to this period be lodged **by November 30, 2001**.

Claims for earlier losses should already have been lodged with MAF.

The compensation claim form and claim guidelines are available from the MAF website (www.maf.govt..nz/varroa) and from the varroa compensation co-ordinator, MAF Biosecurity Authority, PO Box 2526, Wellington.

MAF has written to previous claimants and intending-claimants, reminding them about the new claim period and where to obtain forms and guidelines.

Waikato researchers call for honey samples

The Honey Research Unit at the University of Waikato will be surveying New Zealand honey types to find those with the highest antioxidant and anti-inflammatory activities, in response to an anticipated, growing market demand for honeys suitable for therapeutic applications.

The unit would appreciate receiving 100g samples of the new season's honeys, especially the different floral types normally harvested in commercial quantities. At least 10 samples of each floral variety will be needed before one type can be concluded as better than another. Beekeepers harvesting a floral type from more than one apiary site, then, are requested to send samples from each site.

It is realised there is no guarantee that any honey is purely from one floral source, but the usefulness of the findings from this study will depend on how reliably the floral sources of the samples sent in are identified. Please only send samples you can be certain are predominantly from the nominated floral source.

People collecting samples are requested to protect them from light and heat, which may damage the honey's antioxidant and anti-inflammatory activities.

- Peter Molan

Call for tighter controls on toxic substances

By Jane Lorimer

NBA environment committee portfolio

Lobbying for a symbol to be placed on all agriculture and horticultural chemicals toxic to bees and pursuing a bee warning on all surfactants (wetting agents) were two remits from the Canterbury branch received at the Gisborne conference by the National Beekeepers Association environment committee.

The decision was made last year to not progress this issue until it came under the jurisdiction of the Environmental Risk Management Agency (ERMA). Previously, the Pesticides Board had dealt with this type of issue.

Some initial approaches were made to ERMA over the issue but, unless a public-good angle can be found, it looks like it will be a long, slow process. We will follow it up.

I have also been in contact with Ellen Blake from the Ministry for the Environment over a committee set up to look at agrichemical Trespass – the occurrence of chemicals affecting non-target species.

She wanted to know how often sprays being used affected our bees, and if the NBA kept a record of such occurrences

If you have evidence of any poisoning of bees, please contact Ellen or myself. The report from the committee on Agrichemical Trespass is due in by February 2002.

The following text is edited correspondence from Ellen Blake, explaining some of the issues and problems raised.

Ellen Blake: [From] Mark Goodwin's work . . . it looks like there is a clear case [surfactants] have an effect on bees. It seems . . . that what you are wanting is for the controls of these products to be tightened so that bee losses are minimised.

Under the Hazardous Substances and New Organisms Act (HSNO), it is possible for the ERMA to improve controls on these substances when they are transferred to the new HSNO regime. This transfer process is going to take up to five years. All substances will be formally transferred by the process of order-in-council' (s141 of the HSNO Act) giving affected people an opportunity to put in submissions on the transfer.

Write to the ERMA and let them know you are interested in these substances and would like to be notified when they come up for transfer.. You could also send it a copy of Mark Goodwin's paper.

Other options under the HSNO Act are to seek a reassessment of the substance, or the transitional controls amended. Better ways to address this issue in the short term may be approaching manufacturers of the surfactants or publishing information in industry newsletters such as the Fruitgrowers Federation.

To put the transfer job of the ERMA in context, at the time the Hazardous substance part of the HSNO Act came into force, there were about 210,000 existing substances all needing to be transferred.. Many lacked basic data on their effects or hazardousness.

So, the more information gathered, for instance on the effects of surfactants on bees, the better. More information on the transfer process is available at www.ermanz.govt.nz

The agrichemical Trespass ministerial advisory committee is interested in the effects of off-target agrichemicals on bees. The beekeepers association might not keep records of bee kill incidents or how many of these might relate to agrichemical trespass, but this information is essential before the committee can make any substantive recommendations.

• Ellen Blake, Agrichemical Trespass Ministerial Advisory secretary, committee HSNO Group, phone (04) 917-7425, fax (04) 917-7528.

Busy season for bees - and their keepers

By Frank Lindsay

The weather and other activities have restricted me getting around my hives recently. I wasn't really worried, as the hives came through September and by mid-October still had a good super and plenty of honey stores. But after three weeks of wind and rain (the drought has really broken around Wellington), some hives used it all and were on the verge of starvation. They were full of bees, but didn't have a skeric of pollens and only the nectar the bees had brought in the day before.

Yet hives in other apiaries near bush vegetation were full of nectar and pollen and being crowded out. Three or four hives in each apiary had or were just starting queen cell production.

There are exceptions in each apiary; two hives in my near-starving apiary still had stores and fresh honey. How come these bees found nectar and pollen yet the others did not?

The answer is: "know your own area". Microclimates and different influences stimulate the bees. Take notes on when and what is flowering and the conditions within the hive. After a few years, you can then judge when to do things.

Some areas swarm when the cabbage tree (*Cordyline australis)* flowers - but preparations will have started a month or more earlier. Look out for the trigger. First the queen searches out drone comb and produces drones – at least half a frame if she can (an indication that the hive is healthy and well provisioned with pollen and nectar). And then there is a massive brood build which will emerge within the same week.

With experience, you will notice this happening. Mark the hives and keep an eye on them. Order queens and split them. If, however, you requeen every year, the amount of pheromones the queen produces will prevent this.

So what's the answer to this dearth of nectar and pollen that often happens around November? Two things: If you like the site and it produces well, store frames of nectar and pollen. Pop these into the hives midway through October or early November so the bees have emergency rations. Alternatively, purchase a pollen supplement and feed sugar syrup. Another option is to move the hives to a better location.

I only do a certain amount of hive work each day. If it's windy, I go for a walk and check out the surrounding areas. I'm always looking for a better apiary site - one with shelter, sun and easy vehicle access. Even moving a hive 100m can make a huge difference in its production. If you can't shift it and it's in a windy spot, consider building shelter.

It's a balance to keep hives well fed and growing but not swarming.

Those in the city experience different problems. There is a continuous nectar and pollen source and hives build quickly. Equally, they are just as likely to honey themselves down. Where else can you bring a four-frame nuc through the winter on just two frames of honey?

Swarming, however, is a problem and must be prevented if you want to keep hives in the city. The general public tends

to panic when a swarm moves through an area, councils don't want the problem and their solution is to get rid of the bees.

I have just visited a site after a complainant said bees were continually invading his flats. A flat-roofed dwelling in need of repair, it had a history of hives in the roof (I have killed as many as five feral hives in one house).

These places are a magnet to bees and will always be a source of problem unless the roof cavity is cleaned out and sealed. I'm not sure whether the owner will take notice of my advice, as this would cost him money. It's so much easier to have the bees removed and the perceived problem taken away..

If you have hives in the city, plant or build a screen around them so the bees fly high over your head. The hives are best kept unseen, too, with people generally less knowledgeable or tolerant of nature in their back yards these days.

Now that is off my chest let's go back to beekeeping. It's an exciting time. Hives are building and we are expecting a crop in a month or two. Most of the bush is in full swing.

. I could start naming everything but in a short week, everything seems to be flowering including Kamahi *(Weinmannia racemosa),* and rewarewa (*Knightia excelsa*) looks ready for a heavy display this year.

For those in the north, monitoring the varroa drop from your hives during the spring build-up has become just another job. The idea is to keep the mite population below the trigger point where they do economic damage. We do not have population dynamics yet, however we can use overseas literature as a guide.

In the United Kingdom, control was recommended when the mite population reached 5000. In recent years this figure has been dropped to 2500 as more is known about the damage the mites do and virus transmission. We also know the mite population doubles per month and New Zealand is still in the acute stage, meaning hives are being invaded from collapsing hives and that natural mite drop represents 100-plus mites in the hive.

If the natural drop per day is getting close or over 10 at this time of the year, consider treating your hives between honey flows, otherwise the mite population will reach the trigger point by February. You may be able to do a short treatment for four to six days before the next flow starts. Auckland beekeeper Paul Brown's observations show most of the mites are killed in the first four days.

If you have honey super on your hives and the mite fall indicates immediate treatment (30 per day), lift off the honey supers, put in the strips, add an empty super to give space, put a bee escape board on top and the honey supers above this. The bees will go down into the hives and you shouldn't have any contamination. After the treatment period, remove the strips, super and escape board and put the hive back together.

Supering

Comb honey production requires the hive remaining cramped so the bees are forced to use the sections or rounds. With normal honey production, hives should be supered well ahead of time so the bees continue storing nectar while there is still free comb space. This stimulates them to gather nectar.

However, there are different methods. Beekeepers can put the supers on top and let the bees move up as required. Some bees just don't move up into supers on their own and will "super down"; putting the honey around the brood nest. Encourage them up into the next super by raising two, partly-filled honey frames up into the centre of the next super..

Another method is to "under super". That is, the next super goes on immediately under the existing honey super, a method giving the bees immediate room above the brood chamber. That helps reduce swarming and stimulates the bees into nectar gathering. The main disadvantage is it requires additional lifting.

If you are putting on new foundation (at least three frames in each brood super should be replaced each year), inter-space this with drawn frames and put these into the second brood chamber (second to outside frame on each side) or in the super immediately above the brood chambers. Put an additional two foundation frames in each super after that if your want, inter-spaced towards the centre.

For the new beekeeper with only foundation frames, you have two options: You can bring up two outside honey frames from the brood chamber into the centre of the honey super. Move the remaining frames out one and drop a foundation frame in the space created. Each week thereafter, work these frames to the outside as the foundation frames on either side are drawn out.

Alternatively, "Demaree" the hive. This is done at the beginning of the main honey flow and requires the beekeeper to find the queen and put her and two frames of young larvae into the middle of a new super.

Take two frames of pollen and honey and place these on the outside edges of the new super and fill the remaining space with foundation frames. Place a queen excluder on top of the (new) super and then the old brood chamber, closing the brood frames into the middle. Fill in the remaining space with foundation frames, close and leave for five days.

Open the hives again and check the brood frames in the second super for queen cells and remove these. Generally, these will have been produced on frames of eggs or young larvae. Add another honey super and close down. You have to provide an upper entrance to allow drones to escape, otherwise they will clog the queen excluder. You can do this by cutting a notch in the upper rim of the queen excluder or just set the top super slightly off centre in one corner. The idea of the system is to create a brood break. The bees have to draw out the foundation before the queen has anywhere to lay and in the meantime all of the brood emerging in the supers above the queen excluder become field bees.

The disadvantage is having to find the queen and the additional work. But it can result in substantially more honey from an otherwise average size hive. This system works well when there is a short, sharp honey flow.

Once the main honey flow has started, the hives generally forget about swarming and settle down to honey production. However, if they become crowded and there is a persistent honey flow, they could still swarm.

Things to do this month: Check feed, check pollen, check a few frames for American foulbrood when you open the hive, super hives, cull out old frames, swarm control, raise queen cells, programme requeening of hives with mated queens, fit foundation into new frames.

References: *Control of Varroa - a guide to NZ Beekeepers, Co-ordination in Europe of research on integrated control of varroa mites in honeybee colonies* (November 1999).

German-designed evaporator tool aids formic acid attack on varroa mite

Beekeepers wanting to keep their honey truly organic are still waiting for natural products like oxalic, lactic and formic acids to be approved as varroa controls in New Zealand. According to Ruakura Research Centre scientist Dr Mark Goodwin (see report page 9), formic acid may soon receive the official tick.

Its use in a gel form was approved in the United States in 1997 and in Europe various plastic devices have been developed to allow a controlled, slow-release of the acid. Once formic acid has been licensed for use, a version of the latter tool will be available in New Zealand from Auckland's Gulf Pacific Industries.

The Nassenheider Formic Acid Evaporator was designed by German hobbyist beekeeper, Bruno Becker. He lives in Stahnsdor now but Nassenheide, north of Berlin, was his hometown for 40 years, inspiring the name of his varroa mite tool. In an e-mail report to the *New Zealand Beekeeper,* Mr Becker said beekeepers in Germany learned formic acid could be used to kill varroa mites in the early 1980s.

At first it was soaked into a variety of absorbent pads and inserted below or above the hive combs.

"Sometimes it worked reasonably, but more often it didn't work because of diverse environmental influences," Mr Becker wrote. Cold temperatures slowed the acid's evaporation and fewer mites were killed. Conversely, when it was too warm the newly-hatched brood and house bees were killed.

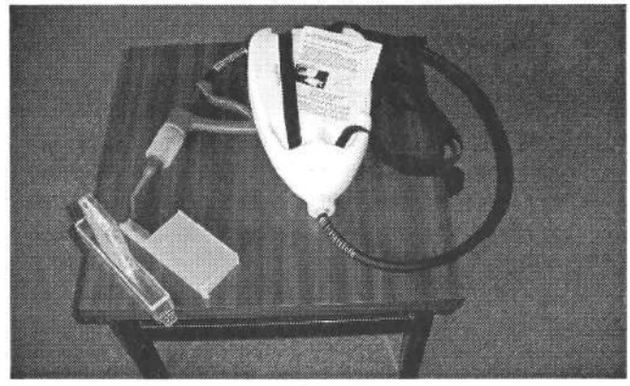
"And if the formic acid vapour increased too fast at the beginning of the treatment, the bees became angry and killed the queen."

Unhappy with the absorbent-pad method, some beekeepers started to trial new applications.. Mr Becker, a retired master craftsman, built and tested several prototypes himself before getting good results from the one he eventually patented as the Nassenheider Formic Acid Evaporator. Since 1995, 160,000 have been sold, including to beekeepers in countries like Switzerland, Finland, Sweden, the United Kingdom, Italy and Canada.

Unlike the absorbent pads, the evaporator allows exact dosages of formic acid to be released at a slow, consistent level over several days.

To maintain a constant temperature, however, the evaporator had to be placed near the brood combs and commercial beekeepers with many hives to treat, complained the process was a clumsy, time-consuming one. So Mr Becker went back to the design board and after several months trying wicks of different shapes and materials, came up with a horizontal evaporator.

Acid vapour is released from the wick's surface, which, because of the material it is made from, expands in the cold and shrinks as temperatures rise. That keeps the quantities of evaporating formic acid at a constant level, whether the evaporator has been placed in an empty super or in a frame below the last comb. Installation time is reduced and the process is most effective during autumn.



The Nassenheider Formic Acid Evaporator, designed by hobbyist beekeeper Bruno Becker.

Autumn is also a less labour-intensive time for beekeepers. Bees are flying less so the danger of re-infection is reduced and with no susceptible house bees around, the acid dosage levels are not so critical.

Mr Becker's Nassenheider evaporator was tested for several years by Freie University of Berlin neurobiologist Dr Eva Rademacher. She reported an 89% varroa eradication rate when used over 10 to 14 days in summer, and a 96% rate over the same number of days in autumn. No queens were lost in either season. Following the publication of her findings, the Nassenheider evaporator was licensed in July last year by the Germany Ministry of Health.

- Angela Crompton

"Formic acid will burn skin and eyes, is fatal if swallowed and fumes of the chemical can ignite," warns the Ministry of Agriculture and Forestry's recently-published *Control of Varroa, A Guide for New Zealand Beekeepers.* Beekeepers handling formic acid must wear acid-proof gloves and eye protection.

Although noting it is used in a number of other countries, the guide warns that formic acid residues can be found in honey and beeswax - "although trace amounts of the compound also appear naturally in honey".

Because application of the compound reduces the survival of adult drones, formic acid should not be applied to colonies being used for drone rearing (queen mating) purposes.

Researchers are unsure how the compound actually kills mites but it has been found to be 70-80% effective. That is not as effective as synethetic chemicals like fluvalinate, however varroa has not yet shown resistance to formic acid.

"Beekeeping practice overseas suggests that for effective control of varroa at levels below an economic threshold, the product should be used in conjunction with other synethetic or organic chemicals or with biotechnical methods such as drone trapping," the guide says.

From the colonies

Hawkes Bay

Murphy has been at it again. Went out to check some hives and discovered that he had taken my sack of pine needles out of the vehicle. After looking around, found some old hay to stuff the smoker and it worked a treat.

People using mesh floors have found that the bees have difficulty cleaning out the winter's collection of dead bees. Either the beekeeper has to pull the hive apart to tip out the corpses, or modify the design so that the mesh floor can be slipped out for cleaning.

It is of concern to note that the New South Wales National Parks and Wildlife Service are considering a poisoning programme to target feral bees, as they are not native to national parks and state forests. It is hoped that there will be such an outburst of opposition that this will not even be considered.

Over in Western Australia, Farmers Federation beekeepers are supporting Beeguard, a state department initiative providing national quarantine, state quarantine, farm-level Biosecurity, surveillance, eradication and containment, control and management and research and development.

While in Brisbane recently, I was asked to meet with some of the Department of Primary Industries apicultural staff. They were anxious to learn as much as possible of our experiences in dealing with varroa, as they realise that is inevitable they will get the mites. It was interesting to learn that they move their hives inland to catch the winter-flowering gums.

So far this season, our inland hives have been slow to build up and feeding has been needed to get them ready for the pip and stone fruit pollination. With earlier varieties of kiwifruit, there has been little respite from the night shifting of hives. Most sprayers have been getting the message that if you poison hives this year, you won't get them next year. Orchardists have been active in promoting sensible spraying, being anxious to avoid adverse publicity.

- Ron Morison
Taradale

Canterbury Branch

Field Day, 10am, November 25, at Symes Apiaries, Flynns Rd, Staveley, Ashburton. Guest speakers include Dr Mark Goodwin (feral eradication) and John Hickford (GE and GMO).

$5 a head, $10 a car.

Restrictions on movement of queen bees

Transport of queen bees is one of the major ways varroa has spread around the world. For this reason, the same movement controls applying to beehives also apply to queens. Queens are a particularly-high risk, because they can be transported more easily than beehives

New Zealand has been divided into three movement control zones:

- Upper North Island (Infected Zone) - queens can be sent within this zone, but cannot be sent from this zone to any other part of New Zealand.
- Lower North Island (Buffer Zone) – queens can be sent within this zone and to the upper North Island, but not to the South Island.
- South Island, Stewart Island and Chatham Islands (Disease Free Zone) – queens can be sent within this zone, and to any other part of New Zealand.

Before queens are sent, the producer needs to know which zone he or she is in, and establish which zone the recipient is in. These zones remain unchanged from last season, as very limited spread has occurred into the Buffer Zone. If you are uncertain which zone you, or one of your customers is in, please call the movement control officer (0800) 424-490.

Movement controls are enforced under the Biosecurity Act 1993, which contains significant penalties where a serious breach can be proven. To slow the spread of varroa, the whole beekeeping industry depends on queen producers taking care when shipping queens.

IMPORTANT NOTICE

Dear Customers

Please note the following items in your diary. We would like the following events to have minimal impact on our valued customers.

1. **MOVING PREMISES:** MONDAY 26th November - FRIDAY 30th NOVEMBER
   During this week we will be moving premises. We expect it will take most of the week to have office, computer, warehouse and despatch systems up and running efficiently again. Therefore, we cannot guarantee prompt attention to any orders received or customer visits during that week. May we respectfully ask that orders be placed or goods collected the week prior (the more we sell, the less we have to move!).

2. **WARREN LEAVING:** FRIDAY 30th NOVEMBER
   After five years with us, it is with regret that we advise Warren Hantz has purchased his own business, outside of the bee industry, and leaves us on Friday 30th November. Warren has been an asset to our company, and we thank him for his efforts and wish him well for the future.

3. **NEW ADRESS:** FROM MONDAY 3rd DECEMBER we will be located at:

   9B SHEFFIELD CRESCENT

   (just around the other side of the Crescent from where we are now)

4. **CHRISTMAS HOLIDAYS:** **CLOSE 5.00pm Friday 14th December**
   OPEN 8.30am Monday 14th January

   We are again closing a week earlier this year due to Stuart's family holiday commitments and also due to a lack of staff members. We would also like to take this opportunity to thank all our clients for their support this year and wish you all a very Merry Christmas and Prosperous New Year.

Again we ask that you please make a note of these dates, as we want to ensure these events inconvenience you as little as possible.

Thanks in advance, Stuart Ecroyd

BRANCH CONTACTS AND MEETINGS

NZ QUEEN PRODUCERS ASSN
Call: Mary-Anne (06) 855-8038

AUCKLAND BRANCH
24 Andromeda Crescent, East Tamaki
President: Brian Alexander
Phone/Fax: (09) 420-5028
Secretary
Chas Reade
Mobile: 025 772-502
Fax: (09) 634-4376

AUCKLAND BEEKEEPERS CLUB INC.
PO Box 214, Waimauku, Auckland
President: Ian Anderson
Phone: (09) 480-8327
Email: ianderson@clear.net.nz

NORTH CANTERBURY BEEKEEPING CLUB
Meets the second Monday of April, June, August and October.
Contact: Mrs Hobson
Phone: (03) 312-7587

SOUTH CANTERBURY BRANCH
Peter Lyttle
Phone: (03) 693-9189

CANTERBURY BRANCH
Meets the last Tuesday of every month.
February to October.
Field Day November.
Contact: Trevor Corbett
Phone: (03) 314-6836

CHRISTCHURCH HOBBYIST CLUB
Meets on the first Saturday each month, August to May, except in January for which it is the second Saturday.
The site is at 681 Cashmere Road, Commencing at 1.30pm.
Contact: Fiona Bellet "Oakwood"
Bradley Road, RD 5
Christchurch. Phone: (03) 347 9919

DUNEDIN BEEKEEPERS CLUB
Meets on the first Saturday in the month September - April, (except January) at 1.30pm. The venue is at our club hive in Roslyn, Dunedin.
Enquiries welcome to club secretary, Dorothy, Phone (03) 488-4390

FRANKLIN BEEKEEPERS CLUB
Meets second Sunday of each month at 10.00am for cuppa and discussion and at 10.30am open hives.
Secretary - Liz Brook
187E Clarks Beach Road,
R.D. 4, Pukekohe
Phone: (09) 232 1111
Mobile: 025 720 761
Fax: (09) 232 1112 Email: liz@pageset.co.nz

HAWKE'S BAY BRANCH
Meets on the second Thursday of the month at 7.30pm,
Arataki Cottage , Havelock North.
Phone: Ron (06) 844-9493

MARLBOROUGH BRANCH
contact Will: (03) 570-5633

MANAWATU BEEKEEPERS CLUB
Meets every 4th Thursday in the month at Newbury Hall, SH 3, Palmerston North.
Contact: Joan Leckie, Makahika Rd,
RD 1 Levin
Phone: (06) 368-1277

NELSON BRANCH
Phone: Michael (03) 528-6010
NELSON BEEKEEPERS CLUB
Contact: Kevin
Phone: (03) 545-0122

OTAGO BRANCH
Phone: Mike (03) 448-7811

POVERTY BAY BRANCH
Contact: Barry (06) 867-4591

WANGANUI BEEKEEPERS CLUB
Meets on the second Wednesday of the month.
Contact Secretary: Neil Farrer
Phone: (06) 343-6248

NORTH OTAGO BRANCH
Bryan O'Neil
Phone: (03) 431-1831

SOUTHERN NORTH ISLAND BRANCH
Contact: Frank
Phone: (04) 478-3367

SOUTHLAND BRANCH
Contact: Don Stedman
Ph/Fax: (03) 246-9777

TARANAKI AMATEUR BEEKEEPING CLUB
George Jonson
195 Carrington Street
New Plymouth
Email: honeyhouse@clear.net.nz
Phone: (06) 753-3320

WAIKATO BRANCH
Contact Tony: (07) 856-9625
Jan Klausen: (07) 386-0111
Next meeting will be in 2001
(date yet to be confirmed).

WAIRARAPA HOBBYIST BEEKEEPERS CLUB
Meet 3rd Sunday each month (except January) at Kites Woolstore, Norfolk Road, Masterton at 1.30pm.
Convenor: Arnold Esler.
Phone: (06) 379-8648

WELLINGTON BEEKEEPERS ASSOCIATION
Meets every second Monday of the month (except January) in Johnsonville. All welcome.
Contact: John Burnet,
21 Kiwi Cres, Tawa,
Wellington 6006. Phone: (04) 232-7863
Email: johnburnet@xtra.co.nz