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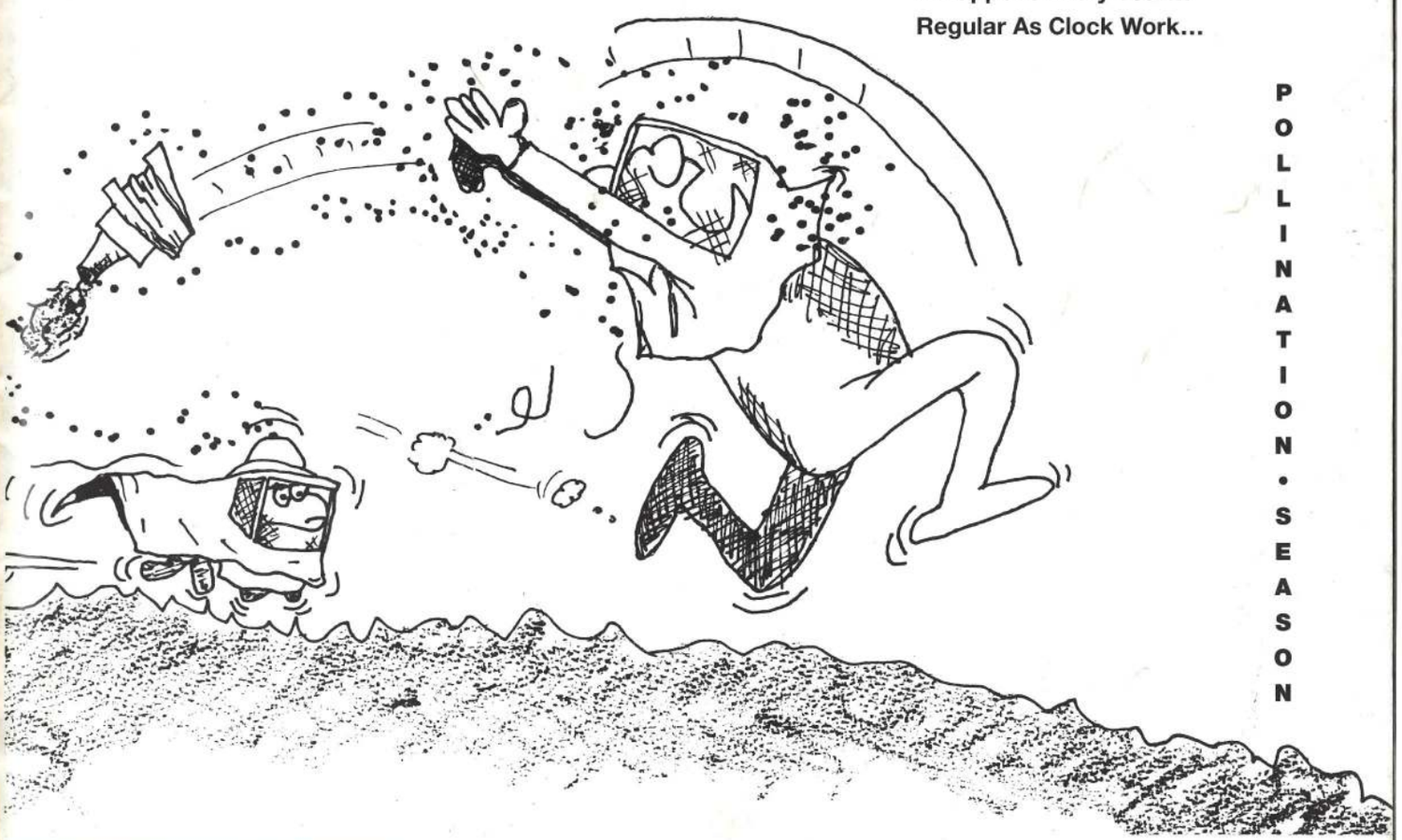

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President's Notes

by Richard Hatfield

Firstly, thank you to all the members that have congratulated me on my appointment as NBA President. This year will be an important year for the NBA and beekeepers largely determining the future direction of beekeeping in New Zealand.

Introduction

Much of the conference and AGM was consumed with the important issues related to Varroa. There were many good presentations on the subject from different aspects. There is much to learn over the coming years as varroa spreads throughout the country and it will mean changes in beekeeping practice and the structure of the industry.

Strategic planning

The national executive is in the process of forming a strategic plan for the next three years. This plan will cover all areas affecting beekeeping in New Zealand. Each executive member is responsible for a specific area and will be formulating strategies for these areas. Areas include compliance, collection, varroa, AFB PMS, governance to name but a few.

The strategic planning technique is combined "bottom up, top down" that is we look deeply into the organisation to see what is happening and look at the overall organisational goals (why it exists!).

The strategic planning process:

1. Identify issues and assign them to participants in the strategic planing programme.
2. Review remits and other directions given by the membership assigning them to participants.
3. Undertake an environmental analysis to determine the other factors not included in one and two.
4. Workshop the NBA vision statement and supporting goals.
5. Continue with the workshop through to developing strategies. Incorporate environmental analysis.
6. Look at the organisational factors such as structure and governance to determine the most appropriate method of operation
7. Determine resourcing requirements including finance
8. Draw together terms of reference and action points to give the implementation plan for the strategic plan.
9. Repeat steps six to nine until a workable plan is achieved.

The outputs from strategic planning are:

- Vision statement that looks into the future stating where the NBA needs to be.
- Goals for each of the three years.
- Strategies for implementation
- Organisational structure and governance. There may be recommendations to the membership to make changes to the constitution.
- Terms of reference with action plans.
- Resource requirements including finance.
- Policy statements and standing order requirements.

Immediate issues for strategic planning

This is a list of issues with allocations for strategic planning. This is not a comprehensive list but a start in the right direction.

- **AFB PMS - Terry Gavin** - to look at committee structures, terms of reference, direction and recommend appointments. This includes a review of the PMS contracts.
- **Magazine - Lin McKenzie** - to look at cost effective solutions, publications committee and terms of reference.
- **Marketing - Jane Lorimer and Phillip Cropp** - to look at the objectives of marketing, broaden them to all bee products, method of delivery of marketing services and committee structure/terms of reference.
- **PMS Compliance** - Jane Lorimer and Phillip Cropp - to look at education, enforcement and ease of compliance. It is likely that there will be a committee formed with a terms of reference.
- **Exotics and Biosecurity incursions** - Terry Gavin - Committee terms of reference, committee requirements and interfaces with MAF (BS).
- **Exporting including certification (EU)** - Phillip Cropp - Committee formation and terms of reference to address important issues in exportation of bee products.
- **Levy Collection** - Richard Hatfield - work with MAF (BS) and Federated Farmers lawyers to sort out a process for levy collection on defaulting beekeepers.
- **Finance** - Jane Lorimer - committee and terms of reference. Also includes delegations.
- **Varroa programme development** - Lin McKenzie and Don Bell - to develop a recommendation and terms of reference to interface with MAF and other stakeholders for the development of the Varroa control programme.
- **Library** - Lin McKenzie - terms of reference, structure and policy.
- **Payment for beekeepers assisting programme** - Richard Hatfield - negotiate with MAF.

Each executive member will recommend committee members for the whole executive to consider.

Remit allocations

The executive intends to incorporate the intent of all of the remits into the strategic plan. Each executive member has been allocated remits. (Order is as discussed at AGM and the summary is only an indication).

1. Improving location recording of apiaries - P Cropp
2. Compliance and unregistered sites - P Cropp/R Hatfield
3. Registration and compliance - P Cropp/R Hatfield
4. No PMS for varroa - defeated
5. Levy fee basis - P Cropp
6. Apiary register use - Defeated
7. Warnings on chemicals - D Bell
8. Exotic Surveillance - T Gavin
9. Freedom of bees around ports - T Gavin
10. Genetic engineered crops - Consideration at workshop
11. Varroa government assistance packages - L McKenzie/D Bell
12. Affiliation with Federated Farmers - Consideration at workshop
13. Legislative changes for compliance - Consideration at workshop

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Cover photo: Courtesy of Dick Schoneveld, Opotiki

14. Apicultural services - L McKenzie/D Bell
15. Levy payments - P Cropp
16. Varroa plan - L McKenzie/D Bell
17. Movement control - J Lorimer/T Gavin
18. Financial commitment from government - L McKenzie/D Bell
19. EU Testing programmes - P Cropp
20. Hosting conference - Consideration at workshop
21. NBA structure and expenditure - Consideration at workshop

Current actions underway

1. 10-week plan for Varroa - Graham Cammell (apologies if incorrectly spelt) has been appointed by the executive to represent the NBA for the 10-week varroa programme. He will be also discussing and facilitating North Island branch discussions to obtain a practical level of movement control. Jane Lorimer and Terry Gavin have been assigned to assist Graham with any issues out of these discussions.
2. Executive information - All executive meeting material (minutes and supporting papers) that is not of a commercially sensitive nature or its distribution would not breach fairness or privacy will be made available to members electronically. We are exploring ways that would be most effective. If finances permit, then summaries will also be made available through *The New Zealand BeeKeeper* as well.
3. Information Requests - All information requests to the secretary that cannot be simply and easily fulfilled are likely to be charged for under the same principle as Government Departments. A full policy will be developed for this area over the coming months. We want to ensure that the secretary is focused on delivery of services to the NBA. The next few months will be difficult so I request that you limit your requests to what is essential. We are considering using the branch mechanism as a way of dealing with information requests - more later.
4. Compliance and levy payments - The current financial situation is unworkable. A major contribution is the 70% compliance level for registering apiaries and the late or total refusal to pay levies due to NBA. I am working with Federated Farmers legal and MAF (BS) to develop processes to educate and enforce compliance requirements and to collect outstanding levies. I can assure the complying and paid up members that the full force of the legislative frameworks will be used to reduce their burden in supporting non-complying and defaulting beekeepers. Be aware noncompliance may impact the ability to receive compensation under future management plans.

Letters to the Editor

Dear Sir

Stuart Tweeddale invited comments to his letter re marketing in the last *'BeeKeeper'*.

I do not have a reply with another point of view, rather I support his view that all is not well with the marketing set up as at present.

We are continually told that the price beekeepers get for their honey is dependent on overseas honey markets - the figures often quoted:-

Production	8-9000 tons
Domestic Consumption	6000 tons
therefore disposable 'stockpile' is	2-3000 tons

It is argued that this 2-3000 tons sets the return to beekeepers. OK - we have to deduct from the stockpile, exports of comb, honeydew, manuka, bio-gro and packed lines of honey as these are generally premium products.

We then arrive at a figure for bulk (300kg drums) commodity honey (at world prices) - I ask the question - should this small amount of bulk honey affect the prices offered to beekeepers for the other 6000 tons of domestic consumption?- (especially since we do not import honey for domestic consumption).

The analysis of supermarket sales of honey in the same publication suggests to me that the price/kg of honey sold in the last few years has increased, however returns to producers have decreased.

I am lead to the view that the honey market in New Zealand is manipulated by some of the various factors:

- the 'talk' prices up/down is often based on irrelevant information
- fear of beekeepers not being able to sell crop (a secret society created?)
- the personal financial position of some beekeepers means that they have no option but to accept a low price for their honey which then 'sets' the price for other producers.
- some producers 'sell' and deliver their whole crop to a packer and accept 'time payment' in return for their product - this has the effect of allowing packers use for the producers 'bank' while cutting the price using the producers own product.

There are other factors for the 'low return' for beekeepers which up till now beekeepers have accepted as their lot - however with the arrival of varroa, beekeeping must change, there also needs to be a change in the marketing if we are to survive.

Roger Bray
Ashburton.

Dear Sir

Thank you Frank Lindsay for solving a little mystery.

Late last season I found an intriguing little clay construction on the hardboard inner cover of a hive and yes, several little green spiders now deceased.

I had never seen this before, so scraped it off, later putting the now somewhat crumbled clay etc in a glass jar with the intentions of taking it to our own 'Bug Man', Anthony Harris at the Otago Museum in Dunedin.

I have been let off the hook on this good intention, thank you again Frank and for your excellent articles.

Jason Mason

Dear Sir

Further to my article in the July issue of *The New Zealand BeeKeeper* on the potential of South African pseudoscorpions to control our varroa, I have to report that Agmardt has declined to fund my research. Further, The Foundation for Research, Science and Technology has told me that they do not have funds available at short notice for novel research.

I find it extraordinary, and very depressing, that two funding bodies which are supposed to support our primary industries are unable and/or unwilling to fund exploratory research that shows every possibility of possessing the potential to resolve this great crisis facing our agriculture.

The advent of varroa has shown just how dependent we all are for our prosperity upon one of the most basic building blocks of our agriculture - bees and pollination. Unfortunately the politicians and the bureaucrats controlling our funding bodies appear to be so caught up in their high tech 'foresight project', 'bright future', 'new economy', 'strategic investment' ideas that the basics have been lost sight of. Ignoring the basics will imperil us all. It is to be hoped that control strategies being developed by MAF will include the small amount of funding needed to pursue research into pseudoscorpions.

Yours sincerely
BJ Donovan

Crystals in Honey

Following the Crystallisation Process

Abstract: Extracted honey is supersaturated with regards to glucose. When it granulates, glucose precipitates as solid crystals.

A method to determine the amount of crystals formed during the granulation of honey has been developed. The sample of honey to be tested is centrifuged, and the separated liquid is analysed. The amount of crystals is calculated from the difference in concentration of a soluble component in the separated liquid and in the original honey.

From the values for both water and glucose it is confirmed that the crystals consist of glucose monohydrate. It has been established that creamed honey is formed at a content of glucose monohydrate crystals as low as seven percent.

This method makes it possible to follow the crystallisation process and the changes of granulated honey during ripening and storage at different temperatures.

Method: To determine the amount of crystals in honey simply by weighing the solid phase is not possible because the solution adheres to the crystal surfaces.

A more sophisticated method is needed. Any component whose concentration in the liquid phase changes with the crystallisation of glucose can be used as a base for the calculation of the amount of crystals. I have chosen water and glucose. The water content was obtained from measurements of the refractive index in an Abbe refractometer. The glucose content was measured in a Hemocue B-Glucose photometer (after enzymatic breakdown of glucose). By measuring two components in the same sample in this way, the composition of the crystals can be evaluated.

Sedimentation: At 20°C the density of glucose is 1.56g/cm^3, and of glucose nonohydrate 1.54g/cm^3, whereas the density of the mother liquid is about 1.40g/cm^3.

If honey is left to crystallise without being stirred the crystals formed settle and part of the mother liquor can be decanted and analyzed. If the crystals formed are very small, as in a good creamed honey, the separation is more difficult. However, it is possible to separate part of the liquid phase of creamed honey by centrifugation.

The first experiments with centrifuging honey were performed in a Spinco Ultracentrifuge Model L at 30,000 revolutions per minute. The experiments showed that the changes in the crystallisation were slow, and thermostating the centrifuge was not necessary. This made it possible to use an MSE Micro Centraur Centrifuge at 13,000 revolutions per minute giving the gravity acceleration of 120,000 m/s^2. Yet it was difficult to separate the liquid phase from hard types of honey which had been stored at temperatures below 15°C. As this is an area of particular interest, the centrifuge method was refined. The centrifuge tubes were fitted with filters of polysulphone. The liquid phase was then obtained as a bottom layer instead of as a top layer. In experiments where only glucose content was analysed, the centrifuging time could be reduced to below 15 minutes, which gave several advantages. Samples of honey stored at temperatures down to 0°C could now be investigated, even those with well-built crystalline networks.

Bertil and Elizabeth Enoksson live at Valla, Skepptuna, Sweden. He is a professor in the Department of Physical Chemistry, Uppsala University. Elizabeth Enoksson, his wife, was the photographer for this article.

In the beginning of the honey crystallisation, the amount of liquid separated is often very small, which may be due to stoppage of the pores of the filter with small crystals. During the centrifugation procedure, the amount of separated liquid increases but decreases as a dense network is being formed.

Calculation: Suppose that honey contains W_h% of water and G_m% of glucose. In the mother liquor, the water content measured was W_m% and the glucose content G_m%. If glucose crystallises as $C_6H_{12}O_6$, the amount of crystals from the water determinations is calculated as $\mathbf{[C_6H_{12}O_6]_w = 100\,[W_m - W_h]/W_m}$ and from the glucose measurements as $\mathbf{[C_6H_{12}O_6]_G = 100\,[G_h - G_m]/[100 - G_m]}$.

The corresponding values for crystals of glucose monohydrate, $C_6H_{12}O_6H_2O$ are calculated as $\mathbf{[C_6H_{12}O_6H_2O]_w = 100[W_m - W_h]/[W_m - 9.09]}$ and $\mathbf{[C_6H_{12}O_6H_2O]_G = 100\,[G_h - G_m]/9o.9 - G_m]}$.

If glucose crystallises without crystal water as $C_6H_{12}O_6$ then $\mathbf{[C_6H_{12}O_6] = C_6H_{12}O_6]_G}$.

If $\mathbf{[C_6H_{12}O_6H_2O]_w = [C_6H_{12}O_6H_2O]_G}$ glucose has crystallised with crystal water as glucose monohydrate.

Glucose crystals in honey: In developing the centrifuge method, glucose and water content were measured for various honeys in temperature field from 7°C to 25°C. The crystal amount was calculated both as glucose [$C_6H_{12}O_6$] and as glucose monohydrate [$C_6H_{12}O_6H_2O$]. In the following table, the samples of honey are identified by the content of water W_h and that of glucose G_h. The ratios of the amount of glucose crystals calculated from the glucose analyses to that from the water determinations $[C_6H_{12}O_6]_G/[C_6H_{12}O_6]_w$ were compiled in Table 1 as G_G/G_w and the corresponding values for glucose monohydrate $[C_6H_{12}O_6H_2O]_G/[C_6H_{12}O_6H_2O]_w$ as H_G/H_w.

Table 1. Glucose crystallisation in honey.

Sample of honey		Tests	G_G/G_w		H_G/H_w	
W_h	G_h	number	std dev		mean	std dev
14.7%	34.7%	7	2.036	0.27	1.003	0.12
15.9%	35.3%	12	1.788	0.10	0.996	0.05
15.7%	36.4%	7	1.884	0.10	1.028	0.05

As seen from Table 1, H_G and H_W are very nearly equal whereas G_G and G_W are markedly different from each other. This indicates that glucose in honey crystallises as glucose monohydrate [$C_6H_{12}O_6H_2O$]. This is also in agreement with the conclusion drawn from measurements of solutions of glucose,

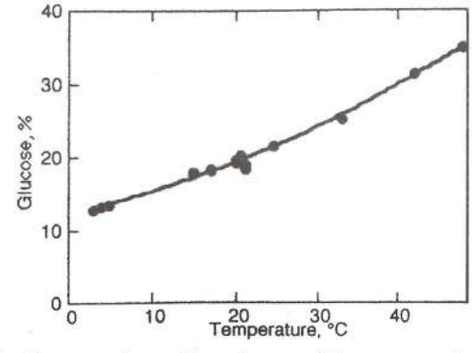

Fig 1. Glucose in mother liquor of honey containing 35% glucose and 16% water.

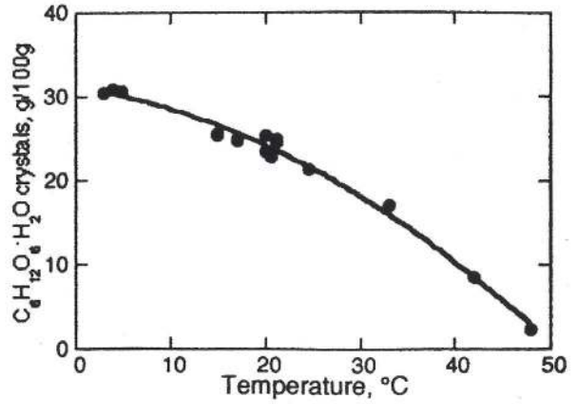

Fig 2. Glucose monohydrate crystals in honey containing 35% glucose and 16% water.

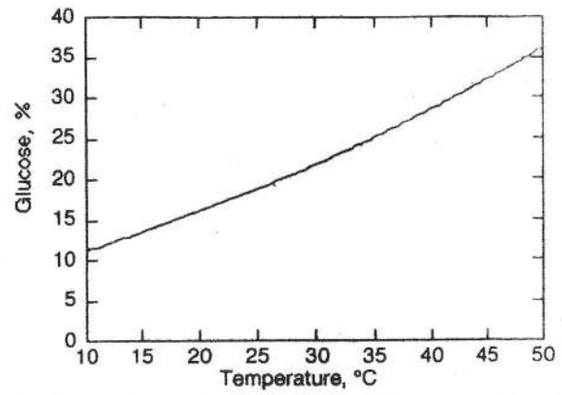

Fig 3. Glucose in mother liquor of a mixture containing 36% glucose, 47% fructose and 17% water.

fructose and water. As a comparison, a few experiments were made with suspensions of 35% water-free glucose in a solution of 73.8% fructose in water. The mixture thus consisted of 48% fructose, 17% water and 35% glucose. Fructose was completely dissolved, while glucose was partly in solution and partly as a sediment on the bottom of the vessel. The mixture was held at 24°C for two days with frequent stirring. After decantation, the liquid phase was analysed with respect to water and glucose. G_G/G_W as calculated as 1.06 and H_G/H_W as 0.66. This indicates that the crystals had not taken up water but consisted of glucose [$C_6H_{12}O_6$]. Glucose without crystal water does not function as a starter in honey processing. Glucose monohydrate [$C_6H_{12}O_6H_2O$], however, is effective. A suspension of water-free glucose in a fructose-water solution has no similarity to creamed honey in spite of its nearly equal composition. The crystals of anhydro-glucose have no ability to bind fructose solution in a crystal network. The hydrogen bonds so important to the structure and flow properties of honey cannot develop with anhydro-glucose [$C_6H_{12}O_6$]. A study of solutions of glucose and fructose in a greater temperature range should contribute to our knowledge of what makes honey so special. A honey with 37% glucose and 16% water was heated to free it from crystals. Then it was cooled and stored at 15°C for 50 hours. A sample was seeded with 0.8% granulated honey containing 38% glucose. After 75 hours at 15°C, a fairly stiff cream was formed. In the same way but with only 0.4%, granulated honey, the cream obtained was soft, containing only 7% solid glucose monohydrate.

Amount of crystals in honey: Figure 1 shows measurements of glucose in the liquid phase of a honey consisting of 35% glucose and 16% water. On the basis of this diagram, we can estimate the supersaturation at different temperatures and predict how much glucose monohydrate has crystallized at equilibrium.

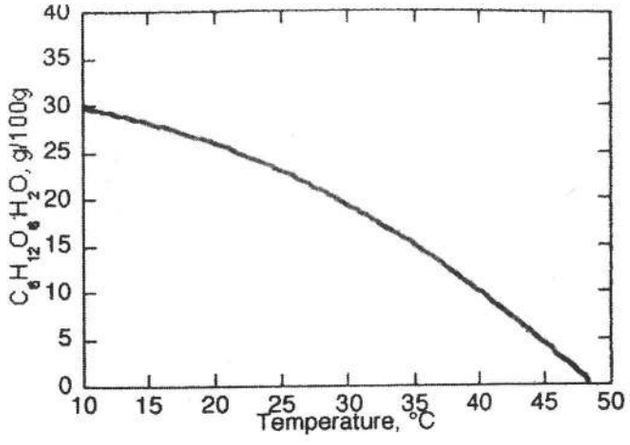

Fig 4. Glucose monohydrate crystals in a mixture containing 36% glucose, 74% fructose and 17% water

Figure 1 also shows good agreement even with honeys which deviate from the type which is the basis of the diagram. Thus, a forest honey with 30% glucose at 17°C. However, the amount of crystals was lower, 17% against 25% according to Figure 2. This is obvious as glucose starts to crystallize at a lower temperature because the glucose content is less and the water content higher in this sample.

On assessment of the crystallisation of honey the concentration of glucose in the liquid phase is particularly important. After the first crystals of glucose monohydrate have formed the crystallisation process is fairly equal for most honeys. This is also valid for pure solutions of glucose and fructose in water at various concentrations similar to those of natural honey as shown by the diagrams in Figure 3 and Figure 4. The values are calculated from solubility data of glucose in fructose solutions. In estimating the storage properties of honey the water content is significant. Figure five shows the increase of water content in the liquid phase owing to the crystallisation of glucose monohydrate.

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Bertil and Elizabeth Enoksson

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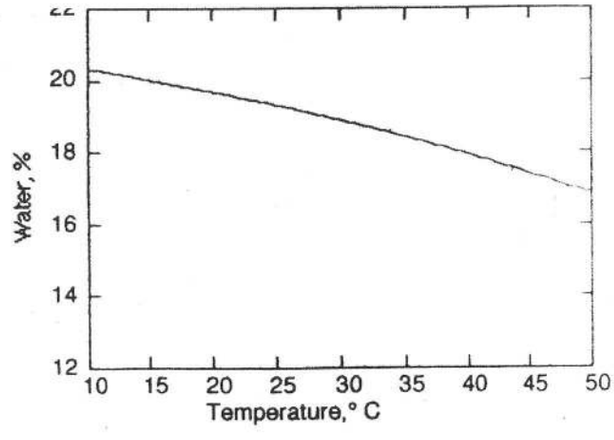
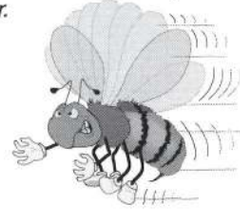


Fig 5. Water in mother liquor of a mixture containing 36% glucose, 47% fructose and 17% water.



Marketing

by Bill Floyd

This month's column is a (slightly adjusted to allow for lack of slides and visuals) reprint of the presentation I gave at Conference. Had some good feedback from delegates about it and the comment that the information should be reprinted for those who couldn't attend. So for your edification and (maybe) delight:

New Zealand honey in the year zero AV "after varroa"

What is the future?

All of the reasons why New Zealand honey has an exceptional future with consumers are still valid!

The flavours won't change, the functionalities won't change- it's still (incredibly) antibacterial and antiflammatory...it's still sports performance enhancing! It's all still there: and **the New Zealand Beekeeping practices do not have to affect the honey itself one drop!**

Other countries with varroa still produce certified organic honey!!!!

Every protein eaten in the world, every fruit and vegetable, and certainly every animal, has production issues or difficulties and uses various techniques and agents to produce a consumer product.

New Zealand might have varroa: but it has not got EFB, on the way to no AFB, no tracheal mites, no killer bees...the list goes on.

Remember: before we knew we had varroa, Canadian beekeepers were getting more for their honey on the international commodity market than New Zealand beekeepers (and they've got GE as well!).

The price beekeepers can get for their honey is based on a lot of factors, it should not include varroa: unless you're offered more because of a possible shortage of honey!

So what should happen to the NBA Marketing Plan now, after varroa. The answer is nothing...no change! Because 'Differentiation' and 'Decommoditisation' was always the key to premium price opportunities. It's what the plan was always about.

It's the longterm answer to any future honey importation threats, and it's the answer to any misguided negativeness within New Zealand about varroa and its effect on honey.

So has the NBA marketing plan been working?

In a freemarket the NBA can only help create demand and help differentiate and decommoditise New Zealand honeys. Those things make different prices available.

But only available, not as of right. The NBA cannot set or even guide prices: that's a matter of individual competition-based negotiations between parties.

But how much honey is eaten and at what price can be measured and the plan judged against those market indicators.

In last month's *BeeKeeper* we showed the price trends in New Zealand supermarkets: Honey sales up by volume and value and a continuing swing from purchasing commodity honey to specialised varietal honeys. Also from our research we know that five of the top six packers all improved their performance; and 90% of all packers improved performance.

We believe the differentiation strategies are working!

And what about exports: what will varroa mean?

Nothing! Because New Zealand had (has!) never fully exploited its clean green image before. It still won't be feeding antibiotics to bees, even after varroa.

The export opportunities haven't changed. In fact, through the NBA's marketing strategies and research the opportunities are getting better.

Remember: varroa is simply not an issue on the world market. Again, there may be reasons why prices are going up or down for your honey: varroa is not (should not be) one of them!

The international commodity price for honey by and large sets the price for New Zealand's domestic commodity honeys. By 'commodity' I mean those varieties or blends that have (as yet) no special promotional value. To improve their business New Zealand beekeepers must get New Zealand packers to export honeys that are not priced as commodities. And our research strategies are aimed to turn our commodity production into a collection of unique special honey types.

But we are also finding that the concepts and discoveries we've been working on may have an international impact on the world honey crop.

That may sound incredulous but the proof is in the results! Two years ago the NBA put a proposal to the USA's National Honey Board.

Here in New Zealand we were being stonewalled by research institutions who did not buy into our visions: so we took the visions offshore. The result: an international research strategy, with Dr Peter Molan's New Zealand Honey Research Unit focusing on antibacterial activity, and the USA Honey Board focusing on sports energy and osteoporosis.

The results now coming in are truly astonishing!

Honey is a sports performance enhancer: every athlete in the world can and should take pure, real honey! And pure and real honey may be part of the answer to that crippling disease, osteoporosis. And honey is without doubt an exceptional medical resource in treating major wounds and burns!

And we now find that honey may have a significant role in assisting the body's own natural immune system. Honey, an immune booster!

These four concepts will change the way the world sees and values (and pays for) honey! And an increased world demand changes the commodity price for honey and changes the pricing opportunities for all New Zealand honeys!

It was an ambitious vision we set two years ago: but with some cheek on our part, and a sense of vision by the USA's National Honey Board, and a lot of incredibly good, world class, ground breaking science by Dr Peter Molan: it is being achieved.

I have stressed the "pure and real honey" because one of the biggest problems the world's honey industry faces is competition with adulterated honey. And if someone is buying honey simply as a pleasant sweet food; a nice spread, they probably don't check its quality too carefully: "cheaper is fine as long as its nice" But if you are an All Black or Tall Black or Oar Black (Like that? You saw it first in the *BeeKeeper!*) and your body is tuned to perfection and performance measured in fractions of seconds, then if science has proven honey as having a special value, then no way do you want to be cheated by eating honey mixed with corn syrup: you will want and pay for the guaranteed real thing. And so will the champion athletes of every country!

And the whole world honey industry benefits. I especially like the relevance of honey to osteoporosis: that will affect demand throughout Asia and could dramatically affect the value of the world's honey stocks.

But the most exciting thing in all of this is that, for reasons still to be understood, New Zealand's polyfloral mish mash multiblend bottom of the price list honeys may be especially

powerful in all of these concepts! That euphemistic "Waikato clover" and its cousins throughout New Zealand, may be the next Cinderella, the new 'manuka'!

It's been estimated that around 2000 tonnes plus of our honeys are in this polyfloral bin. One of the criticisms of the Marketing Programme has been our focus on manuka, and especially 'active manuka'.

Our rationale has been to use the highflying 'manuka' to create the credibility for other concepts to be taken seriously: it has worked.

In June this year New Zealand honey and Peter Molan's work got very good publicity on the Holmes Show. The show highlighted how Australia's Capilano was buying New Zealand honey and mixing it with the New Zealand based science of Dr Molan, and selling it for $200 plus a kg!

That programme highlighted the anomalies in the New Zealand Ministry of Health's regulations. Confronting those regulations is now a priority of the Marketing Committee. It won't be easy: it will certainly be interesting.

The Honey Research Unit continues to be of exceptional value to the New Zealand beekeeper. (I gave Conference a brief outline on all current Research Unit projects: rather than repeating them this month a full Report will be published in the next *BeeKeeper*.)

But honey is a lot more than medicine: it's a pleasure too! And there are some amazing products being created by New Zealand companies using honey to create sophisticated and luxurious foods and toiletries.

Honey & Herbs continues to be an example of excellence in innovation and this year wins their second New Zealand Honey Innovation Gold Medal. The Honey & Herbs toiletry range, and their Bald Bee comestibles are world class: a glimpse of the future for hive products.

And a new company BeesOnLine is showing an exciting approach to using honey as a gourmet ingredient. BeesOnLine is a partnership between a beekeeper (Rikki) and a chef (Maureen): superb products that speak passionately about honey's potential as a superior gourmet food. BeesOnLine also won a New Zealand Honey Innovation Gold medal this year (www.beesonline.com).

Our very successful chefs honey training classes at Christchurch Polytechnic will now be repeated in another chef training school. Our intention is to have honey packers sponsor the classes so the cost to the NBA itself is minimal: and the packer gets the value of interfacing with the chefs.

Presentation ends

So that was the gist of my presentation. Conference itself was surprisingly well-mannered given the depth of feeling on the varroa issue. (I took no pleasure in emceeing the debearding of Peter Berry: honest!)

The most important statement (for me) was the one by the senior technical advisory from the company producing Apistan: " if the Apistan strips are used correctly there is no contamination in the honey, none at all!"

We're monitoring honey sales in supermarkets, if we see a downtrend in sales because of perceived negativity by consumers we'll address it: otherwise we'll just focus on the positive...and there sure is a lot of that!

Food trends create more opportunities for honey

The July Grocers Review magazine (an excellent publication) contains an update of it's annual "Trends...five years out". The article, written by Phillippa Ung of Colmar Brunton, market research specialists, looks at where we were five years ago and notes that we were a fat obsessed nation - low fat was a priority everything that could be LITE was; and we were also snacking more. It then goes on to some predictions.

The key trends are :

* Convenience at all facets and levels of the food industry
* Value
* Taste is mandatory for long term survival.

If you don't deliver your customers these three pre requisites you are not even in the starting box.

And the key predictions:

We are becoming flavour junkies. The flavour profile is getting spicier, and more intense with increased complexity. Have you read any restaurant menu lately the meat in marinaded in...cooked in...served on...some descriptions take some grappling with.

Consumers will demand a greater experience from their food . Not just the taste. The product form, texture, colour and packaging must all add to the experience (Polysensorial).

I have been saying for some time that some of our honey packaging needs an update. Take an objective look next time you are in the supermarket at the jam section. A lot of honey packaging needs some pzazz!

The article goes on to predict the development of regionalisation: this will carry through to creating opportunities for premium regional brands e.g Canterbury lamb.

And what trend could be better for regional beekeepers!

There will be a continuation of the trend to healthier alternatives. Consumers are starting to realise that they can not rely on the state for adequate health care and are increasingly interested in preventing diseases.

There is a growing awareness of diet caused disease. The incorporation of positive foods that enhance health or deliver therapeutic end results e.g anti oxidants.

Natural and Organic food will continue to grow. Meatless meals and vegetarianism are becoming mainstream.

The definition of what is a snack will continue to evolve. Snacks that are portable anytime food present an expanding opportunity. Many cars are now fitted with drink holders, and food holders will be next. Fast foods outlets will develop foods that consumers can eat easily while driving.

The demand for convenience will not go away .

When 'we' cook 70% of us spend less than 30 minutes on a meal. The microwave has been with us now for 15 years, in five years some homemakers will have grown up with no concept of food preparation without a microwave. Each generation is cutting down its involvement in cooking. Apartments are being built with a microwave, refrigerator and food assembly area.

Packaging is important. The key issues are resealable, easy to open (we have an aging population) and in smaller sizes for smaller households. We are experiencing the rise of solitary eating. The bulk bins in supermarkets are often not for people who buy in bulk. They are often used by people wanting a small quantity. The huge pantry for storage is going.

To summarise the article the key trends to watch for are:

High impact with taste and texture
Natural and Organic
Healthier Alternative
Snacking
Portability
Single Serve
Polysensorial

These are a perfect match for New Zealand honeys and the potential products that could be created with them!

The magazine also has an editorial that has some disturbing news! It says how supermarkets are increasingly only interested in the top brands and this will intensify. That fewer Independents in grocery retailing mean that the supermarkets can control the market. They can put emphasis on house brands, give you or another brand less or more space. If you are not a top brand and are still in supermarkets you need to think seriously about your own future.

The editor warns supermarkets about disadvantaging some manufacturers to the point where they look for and are successful in other ways: this ties in very much with the trend in the USA for many people to do significant shopping in huge farmers markets and niche upmarket stores.

The regular supermarket chains are offering the consumer less brand choice: and the consumer's demand for choice is creating these new opportunities. I believe the concept of permanent, all weather farmers markets (sophisticated 'flea markets I suppose is the New Zealand equivalent) will get increasingly popular: and a logical base for many smaller New Zealand packers.

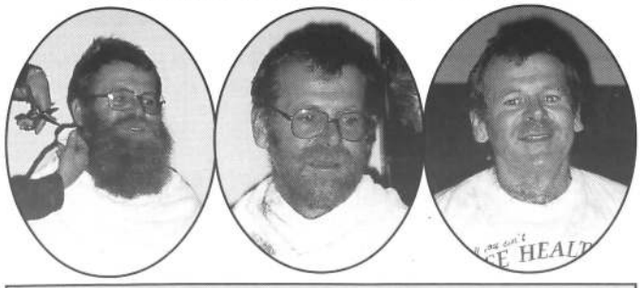
I see Kapiti Cheese's Fig and Honey Icecream won the Supreme Award in the Ice Cream Manufacturers Association Awards this year. I've put it on my grocery list for this week!

And my favourite honey this month?

An organic honey that has the most amazing and carefully thought through promotional information behind it: beautiful honey beautifully packaged, from the Wild Honey Company of Gisborne. Their Tawari has an incredible soft but velvety texture (superb creaming) that gives it the mouthfeel of the finest caramel. And the flavour is buttery caramel. With lovely nutty hints. Simply delicious to have a spoonful instead of a lolly. Its pure class! And as we know: so much better for you than any lolly! Got a number of honey samples from Conference: working my way through them: more reviews next month.

Three faces of Peter Berry

Beard shaved off for Charity raised $900



Going, going and the beard's gone

A Vanishing beard was responsible for the bulk of the $918 that National Beekeepers Association delegates raised for Gisborne Palliative Care last week.

The money was raised at the conference dinner on Wednesday night.

"It's traditional to have an auction there, with the proceeds going to a charity selected by the branch hosting the annual conference," said Poverty Bay branch president Peter Burt.

"Peter Berry of Hawke's Bay raised more than $700 auctioning off his beard in sections.

"Cellphone fines - $20 for those who had phones that rang during a conference session - raised $80, and the rest came from the auction of a honey-bear tie."

Pallivative Care education co-ordinator Marilyn Baty said the organisation was grateful to groups whose support enabled it to help others in their time of need.

Acknowledgement: The Herald.

Mystery Creek Fielddays

Pictured is the University of Waikato's stand at the national Fielddays at Mystery Creek. The University chose to feature the work of the Honey Research Unit for its display this year, and this attracted a large amount of interest from the public. (An outline of the University of Waikato's display can be viewed on the web at: http://sci.waikato.ac.nz/fieldays.shtml). Two thousand samples of active manuka honey were given out, labelled "This sample is rated UMF 12, like the manuka honey being used in hospitals around the world to treat infected wounds." Also, the public were able to sample the first production run of confectionery made from active honey for protection of dental health (manufactured by Bee & Herbal Ltd, Cambridge). The Honey Research Unit's web-site address (http://honey.bio.waikato.ac.nz/) was also given out for the public to obtain further information on honey. This website was upgraded in time for the Fielddays - it now contains more information on the use of honey as a wound dressing, and on what is special about active manuka honey.

Where are your apiary sites?

The Varroa invasion has made the registration of Apiary sites important, and the exact location of each site essential to enable them to be found by MAF officers and other Authorised persons. After buying the appropriate Topo Maps for my area I worked out co-ordinates for my sites and filled in my Annual Return.

Some time later I saw an advertisement in a farming publication for a Global Positioning System (GPS) hand-held receiver which I ordered and received.

The Instruction book gave some information about the GPS which is of interest and I quote from it here. "They system consists of a constellation of navigation satellites that orbit the earth. The time and position information transmitted by these satellites is used by a GPS receiver to compute a position fix."

GPS was developed by the United States Department of Defence (DOD) to supply consistent, reliable navigation information that is unaffected by rough terrain and bad weather. The satellites transmit two codes, one an encrypted code for military use only, and a civilian access, Standard Positioning Service (SPS) code which is the one used by all commercial and consumer GPS receivers.

The receiver I bought was a Magellan GPS 2000 which gave the longitude and latitude of my sites. I then plotted the sites on the maps and read off the map co-ordinates as per the MAF requirements. The Magellan instruction book said that the receiver could be set to give the co-ordinates of six different systems (UTM, OSGB, Irish Grid, Swiss Grid, Swedish Grid, Finnish Grid, and a User Grid). I thought I could set our Topo map grids into the User Grid but after a number of attempts to master the instructions I gave up. About 18 months later I was in the Map World shop in Christchurch and the helpful assistant showed me a Garmin brand receiver which he said was just new on the market with the New Zealand Topo map co-ordinates so I bought one and what an improvement on the one I had been using. Where the Magellan had to be put in a place with a good view of the sky (on a hive roof, or fence post or truck roof) and left for five minutes to lock on to the satellites, the Garmin sits on the dash board window ledge and takes 10 seconds to find the satellite signals and gives the co-ordinates in seven digits. The first two can be ignored as they are a map reference number, but the next five are the position on the map to two decimal places, so if I had read my map and estimated a position as 285/462, Garmin gave me 2228493 and 5546247. Thus, ignoring the first two digits of each co-ordinate, the accurate answer is 284.93/462.47. The receiver also gives the time, and speed of travel, 4kph if I am walking, but in the truck when the vehicle speedo showed 80kph, the GPS showed 79.4. It also shows compass bearings which is helpful in positioning hives if the direction the entrances face is important. Another feature is the odometer, which gives the distance between sites in a straight line. The receiver has a number of other functions but I have not given details as they are not relevant to how I have used it.

(Since writing the above article I was in Christchurch and went to Map World to buy a cigarette lighter adapter for my Garmin GPS receiver. While there I was shown the newest addition to their NZ Topomap material - a CD Rom of the complete Topomaps which can be displayed on a computer screen section by section and at a size to suit the area being looked at (or in my case to suit my eyesight). The instructions for the CD Rom say that it is suitable for computers using a Pentium 133 or better, and as my computer is a Pentium 100 I thought that it would not be suitable, but they gave me one of the South Island to try out. I have tried it and it does everything on my machine that it did in the shop but it was a bit slower. I have also tried it on a 486 computer and it worked on this also at a slower speed. With both machines I printed the section of the map I was looking at on a colour printer and the result was excellent, especially as it printed at the enlarged size I had on the screen. This CD Rom was developed by Map World and at present is available only from them at Box 13833 Christchurch or freephone 0800 627-967.

Frank reflects...

by Frank Lindsay

The beekeeping year starts again. Within the hive, the queen has started laying using store pollen and honey reserves. On fine days bees are out scouting for early sources of nectar and pollen. Well that's how winter should be but here in Wellington, however, we have had another month of mostly fine, still, warm days. Bees are flying freely collecting early sources of nectar and pollen from tree lucerne, five finger, banksia, black wattle, (and its Australian cousin), gorse and many other garden ornamentals. In some city areas, plum trees have just started to set flowers.

The bees are going ahead in leaps and bounds and are perhaps a month ahead of normal. Strong hives have brood in four frames; drones brood is being produced which indicates nutrition levels are very good. The strongest have started producing a few queen cell buds along the bottom bars of the middle frames. If this carries on, we could be in for early swarming.

While all this has been going on, I have spent a month or so mourning Beekeeping "as we knew it". Just mucking about, doing small jobs, planning how our small outfit (400 hives) can survive with all the extra costs varroa will put on us, but nothing really productive.

With the Ministers announcement for Control, of the Mite (a decision at last), I have been back into beekeeping again, visiting apiaries (most farm tracks are very dry), doing a little maintenance. Clearing away growth, checking hives after a storm, (three went over in the 167k per hour winds the other day) and replacing the odd rotten pallet my hives stand on.

The amount of stores in each hive can be checked by hefting the back of hive, up off the pallet slightly. If I can't lift it off the pallet with one hand it has enough stores. Light hives are opened up and the actual amount of stores is checked. Judging on the queens laying pattern and brood area, it could be given up to four frames of honey to see them through to October. This method of testing the weight of stores is not totally reliable as hives headed by an old failing queen will have packed four to five frames of pollen in the brood nest and this weighs as much as honey. Any hives you are not sure of should be checked manually.

Feeding out honey can be way to spread AFB, so carefully check the brood before removing empty frames and know that the replacement stores have come from disease free hives. If you don't have the odd honey frame to use as feed, sugar feeding works equally as well but takes a little more out of the bees when they have to convert it. As an emergency feed for strong hives, place 2kg of raw sugar in the top feeder. Add the equivalent of a couple of tablespoons of water to it where the bees enter and put a little wet sugar down the entrance to encourage the bees up into the feeder. This amount lasts about three weeks and will tie the hive over until they can find outside sources. Note: this system will not work in colder areas, as the bees have to leave the cluster to feed. Generally it will work if bees appear at the feeder entrance when the hive roof is removed.

The other method is liquid sugar feeding. Commercial beekeepers purchase sugar in liquid form and then run around every three weeks topping up feeders in their hives. They sugar feed to stimulate brood rearing so they can get hives up to strength for pollination.

The hobbyist generally only feed hives in an emergency. Sugar feeding stimulates hive activity so those in the suburbs should only feed hives in the evening after field activity has ceased. As quick guide to mixing white sugar, (don't use brown, as it will ferment), fill a container 7/8 full with sugar and add hot water to the top. Stir to dissolve all the sugar and pour into an inside feeder or invert a sealed jar/tin with five or six tiny nail holes above the brood nest. When the jar is inverted a small amount of syrup will pour out over the brood nest alerting the bees to the feed. They will soon find it and take it down and pack it around the brood nest. (Add another empty super to protect the hive and feeding jar). Hives should be able to take down two to three litres in a night. Feed two or three times to build up reserves.

While going around my hives I have also been looking under the roofs and inner covers (I use split boards) to check for dampness. Wellington is a particularly damp climate and most hives seem to have moisture in the top of the hives. Place a small twig or a matchstick on each corner of the top super to create a better airflow through the hive. Check again in three weeks and the whole hive should be dry. Too much top ventilation will cause the bees to consume stores to keep warm, so don't over do it.

Varroa Mites.

Now that we have to live with this mite, we will have to adapt our beekeeping methods to suit. Bees can live with a certain number of mites in the hive without it affecting them or honey production. Its only when mite levels reach a critical point that the bees loose colony cohesion and the hive's defenses break down. Our aim is to prevent this from happening.

Hobbyists have a distinct advantage over commercial beekeepers in that they can check their hives more often and therefore can adapt to biological controls.

What can we do immediately to improve your chances of surviving the initial invasion of the mites?

- Remove all frames with a mixture of drone and worker brood in them from the brood nest and replace with drawn 100% worker comb. If this is not available, plan to put new foundation just above the brood nest during the flow to get them drawn out and swap these into the brood nest as soon as possible.
- Put one frame of mostly drone brood into the brood nest (second frame in). Bees have to produce drones and mites prefer to reproduce in drone brood. This drone frame can

then be monitored every month or so by removing 100 drone pupa at the pink eye stage with a capping scraper for mites.

- Once mites are established in your hives, you can opt to remove a proportion of drone brood or the whole frame, freeze it for 48 hours, remove the pupa and return it to the hive. Quite a lot of work but this can reduce the mite population by 20-30% (V. L Salchenko 1965-1972).

Danish beekeepers divide their drone frame into three sections and cut out one section each week to reduce mite numbers. Another alternative is to remove this frame every three weeks (21 days) so that the frame is removed before the drones emerge with mites on the 24th day.

Monitoring of hives.

We now have to get into a routine of monitoring hives. MAF through AgriQuality will be doing surveillance in high-risk areas, but I believe all beekeepers should be now thinking about monitoring their hives even if the mites are not known to be in the district. We all know that a bee can travel hundreds of kilometres on a windscreen and fly off when the vehicle stops. It was pointed out at last month's conference that these bees could find and enter a nearby hive after such a journey. Therefore beekeepers that have hives along the main arterial routes should consider monitoring a few hives in each apiary from now on. There are many ways of doing this, all are time consuming but vital if you want to stay in beekeeping.

There is a chemical method. Two Apistan strips are placed in the brood nest for a period of 72 hours and a sticky-board is inserted on the bottom board to collect any mites that fall.

Another method is to monitor the natural mite fall from the bees by placing a mesh screen above a sticky board for a few days and looking for or counting mite drop. There is a number of monitoring screen designs. A simple screen using 3mm wire mesh with a 5mm rim above a home made sticky board can easily fit into the standard bottom board. Use white cardboard or the plastic corrugated board real estate signs are made from and covered with a smear of 50/50 petroleum jelly and cooking oil to trap the mites.

Another alternative is to build a more substantial screen with 25mm sides that incorporates the bee entrance above the screen which is left on the hives permanently. The high sides of the screen prevent mites crawling back up and on to bees again, which can further reduce mite levels 15% once established.

The best hives to monitor are those on the ends of rows that naturally attract drifting bees but once mites are established in your area, approximately 20% of hives in each apiary should be monitored.

Another method is to put 400 bees (off the brood frames) in a jar with a tablespoon of icing sugar and shake for five minutes. Pour the icing sugar through a screen on to a white surface and return the bees to the hive. Any varroa mites will be seen easily in the sugar once it has been spread out.

These notes are designed as a general guide only. Our AgriQuality Advisory Officers will be able to assist you further and hopefully will soon put together a package to teach all beekeepers about mites.

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During the winter most of our maintenance is done. Replacement frames, supers, lids and bases etc are assembled. Some beekeepers in their travels are offered trees, have them milled and the timber dried during the summer ready for making into beehive equipment in the winter.

It doesn't really matter whether its soft or hardwood but most like to get as many years out of equipment as possible. If you are making gear from scratch there are a few simple rules to follow. Many beekeepers have injured hands through carelessness.

Here are a few rules that should be followed:

All tools are to be sharp. You should not have to "push" wood through a saw.

Always wear protective gear, boots, ear muffs, eye protection etc, use push sticks and gigs.

Don't work when you are tired. Not more than eight hours on a saw bench, and have breaks often - with food, to keep your blood sugars up. It's generally the end of the day when concentration wanes that you tend to leave your thumb in the way of the blade. Saws are unforgiving.

If you are making your own supers its important to look at the end grain before cutting any timber. Flat timber milled from small diameter trees tends to bow away from the centre core, that is, the "C" shape of the rings in pine tend to straighten out. Select your timber carefully and scribe an "O" in pencil on the outside surface.

Smaller beekeepers don't usually have all the woodworking gear and tend to purchase their replacements. However, attention still has to be paid to the end grain pattern when putting them together. Usually the manufacturer will have sorted this out and stack sides in pairs ready for assembling. There nothing worse that coming across a super that has bowed outwards, which prevent the roof fitting snugly.

A lot of beekeepers prefer to purchase knot free timber but I feel it makes very little difference and one is as durable as the other but cost a little less.

Beekeeping gear is expensive and we all want to get the best out of our equipment. There are still supers around today that were in use forty years ago because they were made from heart timber, 35 years plus standing trees and had the end grain primed with red lead paint.

Unfortunately these trees and red-lead primer are no longer available (and not permitted) today so we have to make do with pine that is milled at 20-25 years old which does not have the same durability unless we protect it.

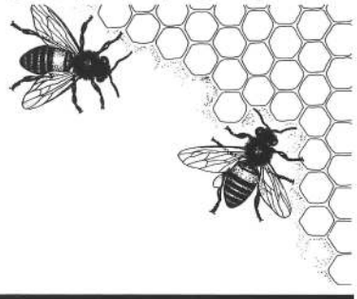
Commercial Beekeepers paraffin dip their woodware and immediately paint with a water-based paint while still hot. As the wood cools, the paint and paraffin are drawn into the wood to provide a protective seal.

Hobby beekeepers do not have access to this equipment but there are a lot of fungicide preparations on the market. Water-based products are available but I'm not sure how long these last. I suspect they will last well if the supers are re-coated every five years and the painted outside surface is kept in good condition.

A number of beekeepers still use metalex, (copper natherlate) and mix this five to one in mineral turpentine or light diesel oil. I prefer turps as it's quicker drying. Before assembling the supers, dip them for eight or more hours, if you want, so that the preservative penetrates the wood. Then drain and place in plastic bags for another week. This stops the turps evaporating and allows the metalex to penetrate further into the timber.

Remove from the plastic and stack fillets between them so they do not warp. Allow drying for another six weeks in an airy situation before assembling. We'll cover this next month.

Things to do this month: Prepare new seasons work, check the queen rearing and feeding equipment, spray the grass and check hives for starvation.



Record keeping

Time once again for those New Year resolutions - perhaps a bit late by the time you read this. However, here is a suggestion: I will keep proper hive records in 2000. Record keeping is a chore, so why bother? How does it benefit the hobbyist beekeeper (most of us) with half a dozen hives?

Colonies of bees are dynamic entities. They change from day-to-day, week-to-week. Success as a beekeeper is critically dependent on these changes, on the ability to read them and to influence them. Each inspection gives a snapshot of a colony, how it is at this instant.

Only from a regular series of inspections can a picture of the colony's development be built up. Today's snapshot has to be compared with last week's, and with the week's before that.

How many beekeepers, even those with just four or five hives, have such good memories that they can recall the details of them all from last week? How many frames of brood were there, did they have enough room, did any frames need changing, what was the temper like, what was the weather like?

Particular aspects of one or two may be remembered, if there were any note-worthy features, good or bad, but most beekeepers would probably have to admit to only a hazy recollection. In the late spring and early summer so many things can be happening - swarm control, queen rearing, uniting colonies etc - that relying on memory can be very insecure.

How can records help?

Good records can help with almost every aspect of colony management. The following are a few examples, in no particular order.

(a) Records of the quantity of brood (which clearly shows the brood nest developments through the year) and of its appearance, can reveal a lot about the quality of the queen, and also about disease in the colony.

(b) Records give a good picture of the development of swarming preparations, and are of great help in keeping track of the timings involved in swarm control.

(c) They give detailed reminders of previous manipulations.

(d) They reveal the efficacy of disease treatments, for example by noting the mite fall before, during, and after a varroa treatment.

(e) They can give an accurate assessment of the temper of a colony. Temper varies enormously with the weather conditions. By having a record of both temper and prevailing weather through the season a balanced view can be obtained of colony temperament.

(f) They give invaluable help with any manipulation requiring accurate timing - swarm control, chemical treatments, queen rearing and so on.

(g) Over a number of years they can reveal patterns of honey and pollen flows; no more being caught out by a honey flow and no available supers.

(h) They are vital in assessing queens in queen rearing programmes.

(i) They serve as reminders of things to be done at the next inspection - more supers, changing frames, feeding etc.

(j) Referring back to previous years can give a reminder of mistakes made which need to be avoided!

What to record

Some obvious items that need recording are listed below:

- Adult Bee Population: Assess how many brood frames are well covered with bees. This is useful in spring and early summer as an indication of colony build up.
- Temper: A simple three-point scale - good, average, bad - is probably adequate and is easy. Some beekeepers advocate a five-point scale but the distinction between gently and very gently, or between bad and vicious is somewhat fine. Other behaviour such as running on the comb or following after inspections should be noted.
- The Brood: The quantity of brood (number of frames) and its appearance should be noted. If working alone it can be helpful to mark the first and last frames containing brood with drawing pins. It is all too easy to forget that the brood started on the third frame in (Oh dear! Did that include the frame taken out to make space?) if something exciting like marking the queen happens during the inspection. Any abnormality of the brood appearance - pepperpotting, deformed or discoloured larvae - is possibly serious and should be noted and investigated.
- The adult bee population, how many frames are well-covered with bees?
- Any swarming preparations by the colony. Any action taken or to be taken.
- The state of the honey and pollen stores: does the colony need feeding?
- The number of frames added or changed.
- The number of supers added or removed.
- The quantity of syrup fed.
- The weather at the time of inspection.
- The queen's provenance. Is she marked or clipped?
- The total honey crop.
- Notes about anything to be done at the next inspection, so that equipment can be prepared.

How to record

What is not required is a diary or journal, in which the day-to-day doings in the apiary are discussed, with colony details embedded in considerable verbiage. These can be fun to keep and to look back at a few years later, and can be a source for beekeeping anecdotes. But it is quite impossible to obtain a picture of the colony development by picking out relevant entries from here and there.

Each colony should have its own record card (or the equivalent in a computer file). There should be a column for each parameter of importance, into which suitable shorthand entries can be made. The results of each inspection are entered on a separate line against the date. Then a glance down a column, for example for brood quantity, will show the brood nest has developed through the season.

These colony records are not taken to the apiary. Instead a single apiary card, which has similar columns, is used during inspections. On this card there is a line for each colony. The record information is transferred to the full colony cards later. A typical apiary card is shown opposite.

To keep records efficiently requires discipline and practice. It is much easier if it is possible for two beekeepers to work together. One manipulates the hive and makes comments, the other records on the card. Try it - you will surely find it useful.

Duncan Weaver

Nosema

Silent killer? Stress disease? No problem? Probably all of the above, sometimes.

Nosema disease - scientific name *Nosema apis* Zander, an adult bee disease, is often mentioned as a potential cause when bee colonies do not perform up to expectation. This is especially true in northern states, wet climates and in the spring. At other times it is referred to as a stress disease, but I'm not sure what bees consider stressful. In beekeeper discussions, nosema is often said, and sometimes presumed to be linked with dysentery. It would be more accurate to say that nosema may be correlated with dysentery. While there are no specific clinical symptoms of nosema, that doesn't mean that it doesn't or can't cause an economic and real impact to colonies of bees and to the queens, in them.

This article is intended to discuss the practical side of dealing with nosema and will make some specific recommendations in the interest of successful bee management. For the technical side of the disease I refer you to *Honey Bee Pests Predators & Diseases,* Third Edition by Morse and Flottum. Chapter 4, page 59-73. *The Hive and the Honey Bee*, 1992 Edition. Page 1097-1104. *Honey Bee Diseases & Pests*. Second Edition. Canadian Association of Professional Apiculturists.

Nosema is a protozoan or single-cell animal, and a parasite that infects the ventriculus and midgut of the honey-bee, where most of the food digestion and absorption occur. In a honey-bee, the mouth parts are connected to the esophagus which connects with the crop (honey sac), the ventriculus, the midgut, the hindgut and the rectum. The spores of the parasite pass from the ventriculus to the midgut and finally are passed out in fecal matter. This may occur in the hive during prolonged winters and cold, wet spring weather when the bees can't take cleansing flights. Worker bees become infected during hive-cleaning activities.

Infected worker bees have a shortened life span, reducing nectar gathering; hence nosema is said to reduce honey production. The disease is reported to affect the development of glands that produce brood food and to cause negative physiological effects in adult bees. When a queen becomes infected, her egg-laying capacity is reduced as her ovary degenerates and she may be superceded or replaced by the bees.

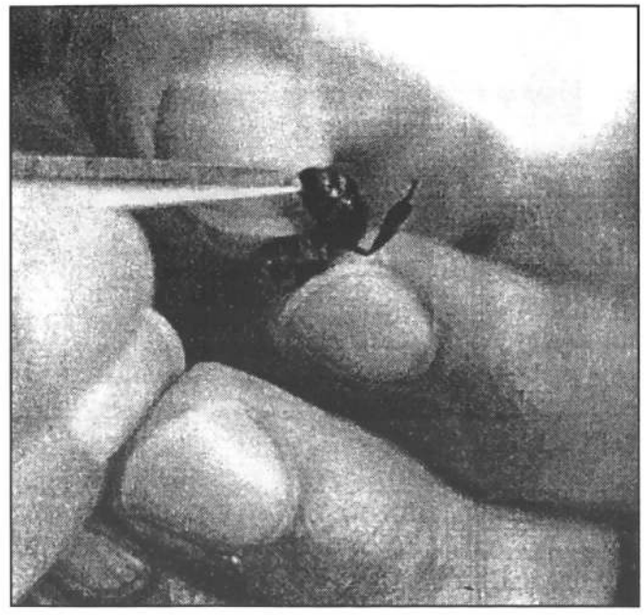
In my early years of beekeeping, I heard stories about all the damage nosema could do to bee colonies. During the observation of thousands of bee hives as a county inspector in western Washington, I often wondered how I would recognise nosema in colonies or hives. If it causes such damage to bees, surely we should be able to recognise it in our colonies and hives.

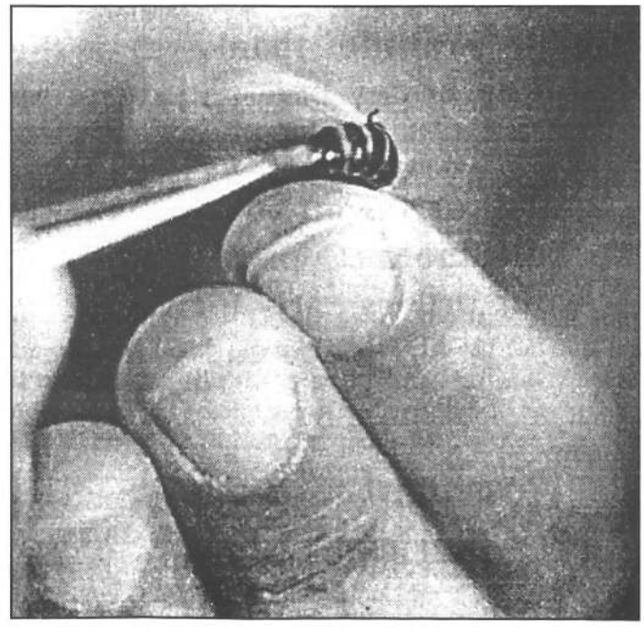
So how do we know our bees have nosema? The literature describes a field test in which the beekeeper removes the midgut from the bee and examines it to see if it is its normal tan colour, and if the constrictions (wrinkles, rings) around it can be easily seen. If it is white and bloated and the constrictions are not obvious, the presence of nosema is indicated.

Another method is to dissect the midgut from a number of bees, macerate them in water, filter out the residue, and count the disease spores using a hemocytometer and a microscope.

We have dissected thousands of bees for nosema in our state laboratory. When we put midguts into a petri dish, we observe the differences between the colour and distension or swelling of the midguts. We have seen only one or two midguts that were so swollen that we couldn't see the rings, or that were whitish in colour. The rest have been light tan to light brown in colour. When we were running 250 or more samples of bees for honey-bee tracheal mites (HBTM) in the lab in June 1985, we checked all samples for nosema. The samples contained between 4,000 spores (the lowest detectable number) and 150,000 spores per bee, though one sample had 3,500,000 spores per bee. None of the midguts were whitish in colour. The high nosema sample came from four hives on Vashon Island in Puget Sound in western Washington. They were managed in an excellent manner, were five deep supers high, and full of bees. They each produced a 125-pound crop that year. Was I surprised after all the stories I'd heard about the impact of nosema!

Only three of the samples from commercial colonies in dry eastern Washington showed nosema. When I visited the locations from which they came. I found:





Field Test: *Capture a worker near the entrance, you want an older bee. First, remove the head, then grasp the sting segment with a fine forceps and, holding the bee over a white piece of paper, pull straight out...*

- one apiary sitting below the surround grade level in a gravel pit. All brood nest combs I examined contained hundreds of chalkbrood mummies.
- another was placed up against a southerly exposed granite rock bluff, subjected to high temperatures day and night, and
- the third was in the bottom of a long, narrow canyon which had a stream flowing through it and a high concentration of brush and trees.

I suggested to the beekeeper that he move the apiary out of the gravel pit. He did so, and the bees removed the chalkbrood in two days! The observed conditions of the colonies - vitality, temperament and brood survival improved rapidly. From the human perspective, one could say that the bees had been under stress. When the stress was removed, disease symptoms were apparently reduced. (I wish I had taken another bee sample and checked again for nosema to see if its level had been reduced as well.) Perhaps this is why feral colonies usually select hive sites well above the ground.

Several times I sampled hives in the early spring that showed symptoms of dysentery, and tested the bees for nosema. On only one occasion did I find nosema, and then only 6,000 spores per bee.

In my experience, nosema appears to have the most negative impact of queens and package bees following shipment, and on the vitality of colonies in the spring if one or more other maladies are affecting them. Nosema was highest in those colonies that appear slow to build up in the spring, though HBTM cause the same symptoms nowadays. But it is also true that reduced brood survivability, poor nutrition and unattractive queens may all occur at the same time in the hive in the spring, resulting in a slow building colony. So we now have to measure several things before we can determine the cause(s) of our observation of a colony that builds up slowly. See how complicated the evaluation of colony health can become?

For years I have fed queens and their attendants in shipping cages a solution of Fumidil-B and water for two days prior to introducing them to colonies or splits. When I moved to eastern Washington, I heard commercial beekeepers talking about losing up to 50 percent of the queens they were introducing! I suggested my feeding remedy to a beekeeper who had introduced 400 queens to splits and overwintered colonies and lost close to 50 percent. He tried the Fumidil-B/water solution on his next batch of 300 queens. His introduction success went to 95 percent!

One year I introduced Fumidil-B-fed queens to top nucs in setting up my two queen colonies. I wondered why the top nucs didn't build up as fast as I was used to seeing. I did a brood survivability test and found that only 35 to 50 percent of the eggs reached the black-eye stage in 14 days. I regret now that I didn't also test for nosema. I just gorged the bees four times with Fumidil-B syrup. Three weeks later (one brood cycle), I rechecked the brood survivability and found it to be 85 to 95 percent. Even with the 35-50 percent survival, I did not see any spotty brood pattern, only excellent combs of brood.

Dr Shimanuki said years ago that he tested queen attendant source colonies for nosema and found it to be below detectable levels. He put some queens and attendants into queen cages and shipped them to Europe. Upon arrival two days later, the attendants were removed from the cages and tested for nosema. High levels were found. That is the source of the idea that shipping stresses queens and bees, resulting in higher levels of nosema, and perhaps other organisms.

Dr Marla Spivak told the ABF queen symposium attendees in January 1998 that nosema control is critically important in queen mating nuclei. She indicated that less stress on the queen's allows for faster sperm migration into the queen's spermatheca. (Taken from ABF news release, May 8, 1998.)

Many other citations of the impact of nosema on bees can be found in the literature.

Recommendations:

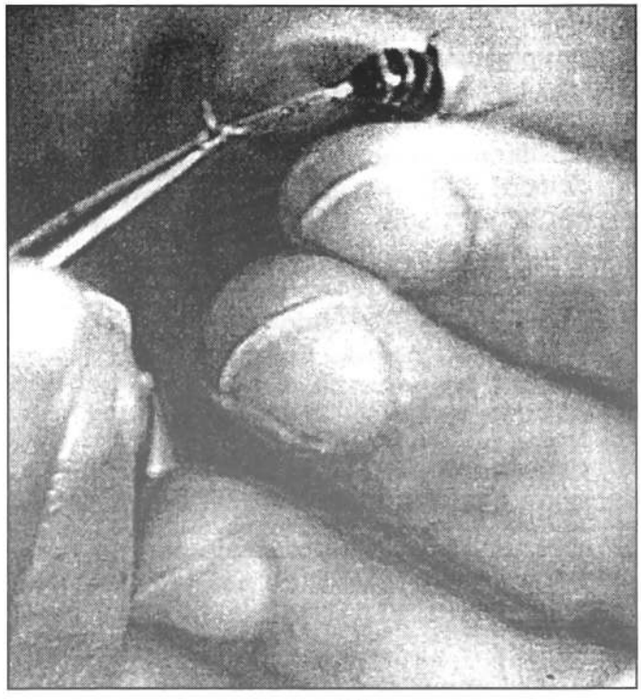
1. Have your bee colonies tested for nosema early every Spring (late February or early March) for several years to determine the disease levels you can expect in your area.
2. If you buy a hundred or more queens at time, have the attendant bees checked for nosema upon arrival.
3. Feed queens a solution of Fumidil-B and water for two days before you introduce them to colonies. Mix the solution at the same rate as the syrup (.5gm Fumidil-B to 5.26 gallons) but **don't add any sugar**. Crumple two squares of toilet tissue into a ball and dip it in the solution. Squeeze the ball so that the solution doesn't drip or run. Place a ball on the screen of each queen cage. Be sure to raise the candy end of the cage so that the solution won't soften the candy. Re-soak the toilet tissue ball three times a day. This provides the bees water and medication at the same time. Some beekeepers prefer to put drops of the solution on the screen of the cage. If you do this, you need to feed the bees five or six times per day. (Be careful not to get solution on the queen candy!)
4. If you receive your queen cages in a communal (battery) shipping carton with attendants surrounding the cages, feed the same solution, or you can add sugar to make syrup. Feeding can be done by inverting a honey squeeze bear containing the solution into a hole in the top of the shipping carton. Remove only a small part of the tip of the spout, or drill a 1/16 inch hole in the tip.
5. If you use full-size colonies as queen banks to hold queens after their arrival, feed a Fumidil-B/sugar/water solution to the colony prior to adding the queens. A quick and simple way is to pour the warm solution over the bees (called gorging) so as to get the bees wet so they will clean up each other and the hive. A lot of bees will ingest the solution. Repeat this three times over successive days. Also feed the queens as in number three above before you introduce them into the treated colony. Of course you can only use the gorging method on a warm afternoon (>60°F). Gorging gets more medication to more bees than does using a feeder. It is also important that queen banks are provided with several frames of emerging bees and large amounts of pollen or pollen supplement so that the nurse bees can properly feed *the queens*.
6. If you make up five-frame queen banks to hold queens, or to transport them to your apiaries, feed the solution to the source colonies from which you take the bees you will put in the bank. Also feed the bank after you add the queen cages.
7. Treat your overwintered colonies by gorging them with Fumidil-B syrup three times, seven days apart. Dribble the syrup down between the frames in each brood box. Use only the amount of syrup needed to get the bees wet (three to four cups of 15 combs of bees). Don't waste the syrup by letting it run out of the hives; use less syrup.

It is important to remember that you can't determine the presence or level of nosema in your colonies by looking at the bees. You must sample for it and measure the level of infection. This is also true for mites, brood survivability and other aspects of colony health. The appearance of a colony may tell you something about its condition, but not about its actual state.

James Bach

Jim Bach is the state Apiarist for Washington, and an experienced beekeeper in both the commercial and hobby industry.

Acknowledgement: Bee Culture



...until removed. Lay on the paper. On the left is the honey stomach, centre the midgut, on the right the rectum and sting. Using a hand lens, examine the midgut. This test isn't definitive, but it is a start.

From the colonies

From the Franklin Beekeepers Club Newsletter

Hive masters report

I wish to report that the club hives were okay when inspected last on June 27, and will be checked again on club day on August 13. The requeening programme has had to be put back a month, due to the treating of the hives for varroa so we will be splitting up hives and demonstrating swarm control on October 8.

August/September in the hives.

Varroa. I have seen it without the use of Microscope or Apistan. Of my three sites, two near the Waikato River outlet when tested with Apistan were shown to be clear of the pest, but my Beattys Road was a shocker.

Of the three hives tested on the Club site, two had 14 mites killed by the Apistan and the other had eight. In my Beatty Road site done about the same time, one had 47, another 120 and finally the other was 2000 which was classed as a heavy infestation. John, the third member of the old trio doing the varroa inspecting, Des being the other, said it was so bad he believed I was propagating these beasties.

Being extremely busy in my present retirement status, and having visually inspected hundreds of hives for varroa, and anyway being unable to do anything in the hives except satisfy a curiosity, I delayed my normal winter close down routine until early July and the arrival of MAF permit just after Cabinet said no to eradications last chance of success.

The first mite I found really disgusted me as it was firmly attached to the bees pupil. Then I spotted one circling the top of an empty cell. Watching this tiny rusty red mite, drew my attention to seven or eight on the brood caps, moving quite quickly for one so small. Fascinated, I watched as travelling bees walked over them without avoidance, seemingly not seeing this deadly thing. But how do they attach themselves to the bee? Then the mite I was watching disappeared under the bee but did not reappear. It was not possible to see how it attached itself. Did it like a flee, jump? Or did it just grab a leg?

Let me help you to find them. Select a frame of brood with recently emerged brood. Hold it to the light and watch the capped surface, particularly around the top of the empty cells. If you can see the queens eggs you will have no trouble seeing the varroa as they travel across the capped broods.

A possibly easier way is to dig a cappings scratcher into the caps of older pupae so as to be able to prise out the whitish pupae, where if varroa is present their dark bodies show up very distinctly.

I feel sure our next visit to the club hives will find some. The Apistan we talk of, is a thick plastic strip treated with the miteacide, about 200mm long and 30 to 40mm wide and needs two for every 12 frames of bees, placed each side of five frames of brood. This will kill a lot of the roving varroa which then fall onto a sticky board placed on the floor. During the recent exercise to find the extent of the invasion, the Apistan strips were left in for only 24 hours. In future control they will be left in from six to eight weeks. In America where this treatment has been carried out for about 11 years, they are finding the varroa are becoming immune to the miteacide, a fact that beekeepers were fully aware of then asking for eradication.

How is varroa expected to affect you and your bees. From the English experience and that which is spoken of by those commercial beekeepers who have worked among varroa hives and spoken to overseas beekeepers, all feral and unattended hives as well as the bees of those who do not work their colonies (bluntly bad beekeepers) will soon, within two to four years, die out. Production and pollination will drop by at least 25% of those who survive. 25% of honey production will mean about 50% of the honey you take from the hive for yourself, as winter stores will still have to be left on the hive as in the past. As costs of Apistan are at present, you will expect to pay $14 per hive per year to retain that loss of 25%.

So there you have it. England is said to have lost 60% of their hives when varroa invaded them a few years ago. If you survive, you will be one of the good 40% but your workload will be far greater, and I would think that the commercial beekeeper who has his present 800 hives, will need to have about 1200 to get the same return. One can become impatient of statistics but I believe the above could become a fact for all beekeepers.

Manipulation of hives in the near future, is going to be complicated by the presence of varroa. No doubt there will be a lot of actions we will need to follow the lessen the damage

the mite is going to create in our hives and maybe the 90 or so pages of information I've received since that horrible day of April 11, should have been perused and written in here.

However, too often one is unable to verify the source of the info coming through, that it would be wrong for me to pass on.

It is however known that varroa prefer to lay in drone brood and he also, unlike the female bee, is welcome in any hive, and as such is more likely to transfer the mite. So let us tackle this matter. Let us constantly dig out all drone brood at the pupae stage. I will be carrying a cappings scratcher so as to dig out drone brood and put in a closeable container for burning later. All frames with drone comb will be moved into the honey box.

The older the queen the more she lays infertile eggs to produce drones, so I will be producing queens on a yearly basis to reduce drone production.

As yet untried are my thoughts on the use of a pollen trap mesh in the entrance, which will stop the entrance of drones. I think this could serve a two fold purpose in that in forcing her way through, the bee may scrape off some mites. Pollen on the outside and a 50mm drop on the inside to a greased container to receive varroa? Another thought process I'm going through, is to place a half super on top over a bee escape mat, so that the trapped drones will go up and if I install a portion of queen excluder in the mat, workers can return to the hive below, then starvation or insecticide will overcome the drones next visit. I would hope that the poor old drone will move up to find a way out for their love affairs.

Why have I gone overboard on this varroa business? We need to change our manipulations to compete with this disaster. The more we think along these lines the more likely we will find a means of living with and in competition with Varroa, as the Cabinet has forced us to do.

Most of us are in the 'main cluster zone' of infected hives and will have received information from Agriquality and will know the position of form filling and the part Agriqual will be playing in the subsidised treatment of varroa. If not, you can ring me on 238-7464 and I may be able to tell you if you are in or out of the infected area.

If the National Beekeepers can finalise an hourly rate, you will be approached by commercial beekeepers to install Apistan miteacide which will remain in the hive for six to eight weeks before they return to remove it and send back to Agriqual. These beekeepers are those who gave so much of their time to find the outer fringe of the varroa infestation and lost much income while doing so.

Jim

September meeting

Date: 10th October 2000

Time: 10am Cuppa, discuss problems, 10.30 Open hives.

Venue: John and Heather Cook, 285 Drury Hill Road, Drury. (09) 294-8744.

Directions: At the Drury Roundabout, take the Waihoehoe Road and where it intersects with Drury Hills Road, look for the Cook drive indicated by an empty hive on the road side. Over the cattle stop between two groups of letter boxes, up the drive till you see the Cook's name on the fence.

Programme: With three hives to requeen we should see and hear some interesting ways to requeen. Please watch out for the adjacent asparagus.

Effective Ergonomics

One definition of ergonomics is that it is a blinding flash of common sense.

Beekeeping, or at least honey gathering, has been around for a long time. During the last 200 years, technology changes have improved the workload of many aspects of honey production. Process changes have been made in uncapping, extracting, filtering, bottling and shipping. One area, though, that remains virtually unchanged is the handling of hives.

As people identified the commercial value of honey, they realised the need to produce as much of it as possible in a particular area. A skep is adequate for household quantities but not for mass production; hence, the development of the hives as we know them. Beekeepers of the 1800s designed stackable units that the bees could easily work, providing much larger storage capacity per unit area, and were manageable by the beekeepers. For the number of hives that the beekeeper managed, the new hive design was a great development. As time rolled on, the demand for honey increased and a commercial market came into being. Beekeepers who had three or four hives on their property started 'farming out' beekeeping services to other locations, increasing the number of hives from a few, to tens, and hundreds of hives. Technology changed with this mass production of honey. Different tools were developed for uncapping the comb. New centrifugal methods of extraction of honey from the comb quickened the process. Filtering and bottling procedures improved. Additional markets opened up for honey, beeswax and pollen. But the hive design did not change.

Very little has been published concerning the ergonomics of beekeeping. One definition of 'ergonomics' is that ergonomics is the study of fitting the workplace to the worker rather than the worker contorting himself to fit the work. Let's think about the hives, how they are constructed, and how they are handled.

Supers basically come in three sizes: shallow, medium and deep. These supers weigh 40, 60 and 80 pounds respectively when filled with honey. Typically, the only 'handle' is a 1/2" groove that is cut into opposite sides of these boxes. To move the super, it is grasped with the fingertips since the groove is the only grip point. This does not allow for a strong, comfortable grip. Because of the awkward hand positioning and weight, we tend to hurry the lift by lifting quickly (usually starting from an inappropriate position), twisting our body trunk rather than our feet to make the turn, rapidly walking across uneven ground to the point where we want to place the super, and then leaning forward off-balance to set it down on a trailer or the tailgate of a pickup truck. What could be done differently?

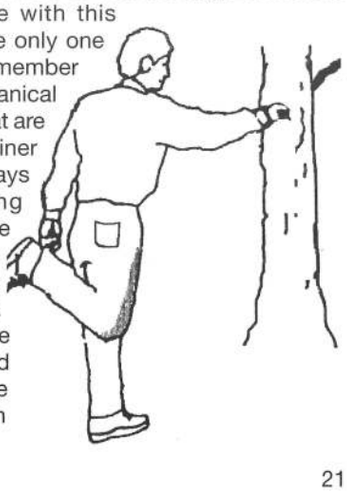
Another definition of ergonomics is that ergonomics is a blinding flash of common sense. The first obvious change could be to change the handhold of the super. Please note that the following should be performed on the supers before they are placed in the field in the spring. To modify your existing supers, simply, attach a 3/4" x 3/4" x 4" cleat directly above each of the grooves on the sides. This modification provides for a 1-1/4" grip for the hands, making the supers easier to handle when empty or full. A top bar from an old or damaged frame can be cut into 4" lengths and used for this purpose.

Second, think about where you are going to place your colonies. It may be easy to carry empty hive bodies and supers to the site, but what about when they are full of honey? Ideally, you should be able to drive close to the colonies and park your vehicle. It is realised, however, that the best placement for the landowner may not be the best placement for the bees or the beekeeper.

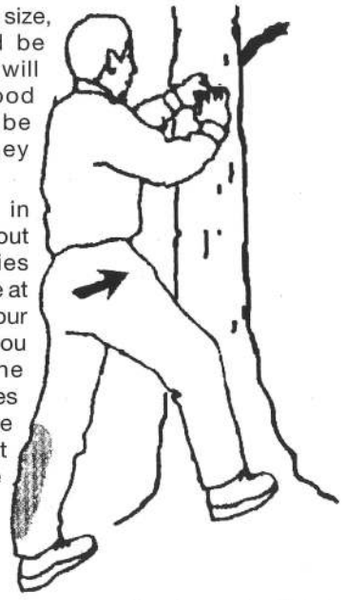
Now that you have thought through the process of colony placement, the next step is determining how you will get them there. An established colony can weigh well over 100 pounds depending on the time of year it is being moved. One hundred pounds is not easy to move when it is an awkwardly shaped container, or over rough terrain, or over long distances. Get Help! There is a device called a two-person hive-lifter that is available through a number of supply houses. These work. It divides the load in half. It also provides a comfortable handle and lifting technique. If you absolutely, positively need to move colony by yourself, use a hand truck or other modified cart. You may also consider separating the colony and moving it in sections. This may not be the best or fastest method, but dropping a colony of bees halfway through the move will make you angry, you may get hurt, and the bees will not be pleased either.

Third, is it easier to pick up something light or something heavy from ground level? Certainly, the lighter the weight, the easier it is to pick up. Think about that when placing the colonies in the field. They should be eight to 12" above the ground. Concrete building or chimney blocks are good for this purpose. An excellent hive stand for two colonies can be assembled using three concrete blocks and two 3" x 5" landscape timbers available at most building supply stores. The timbers are placed parallel on top of the blocks. The timbers are placed parallel on top of the blocks. The colonies are placed above and slightly to the inside of the two outer blocks. The space between the colonies becomes an area where supers can be placed while working the colonies. Nothing is ever lifted or placed at ground level.

Placement of supers is equally important. Shallow supers should be placed at the lower (below waist height) positions. As the hive is built up, place the medium or deep supers on top of the shallow so that handholds will be positioned between waist and chest height. (When the supers are full of honey, this position will allow for an easier starting position lift.) If you need to place additional supers, place shallow supers when at or above chest height. (We realise that the big, commercial operations may not agree with this setup as they generally use only one size super, but they must remember that they typically use mechanical means to move the hives that are usually on pallets. The sideliner or hobbyist will almost always do things by hand using manual labour). Here is one other thought on super size. Full-depth supers should be used only as hive bodies. When full of honey, they are just too heavy to be moved and carried safely. If one wanted to standardise an



operation and use only one size, then the medium should be chosen. Three mediums will make an adequate brood chamber and can be interchanged with honey supers if needed.



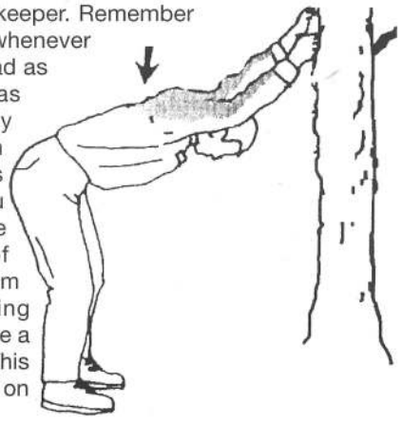
Now that the supers are in place in the field, think about how you work the colonies during the season. You arrive at the apiary and climb out of your vehicle. The first thing that you probably do is survey the situation, looking at the hives for bee activity and hive damage. You check (or at least should check) the ground access from and to the vehicle for obstacles such as rocks, branches or previously forgotten equipment. When satisfied, you start collecting tools. This is the first point where you need to change your routine. Stretch! You have been sitting in the vehicle for some time, and now you need to do some extremely physical activity. You need to warm up the muscles throughout your body before you make the first lift. Warming up can be accomplished through stretches. Follow the recommended sketches accompanying this article. (Shaded regions indicate the muscle areas to stretch.)

- Stretch to a point where you feel mild tension and relax as you hold the stretch for 10-20 seconds.
- Breath slowly and rhythmically as you stretch within your comfortable limits; never to the point of pain.
- To stretch correctly, the feeling of the stretch should slightly subside as you hold the stretch.

Now, start collecting your tools.

After you light up your smoker, the next thing you do is approach the hive and begin smoking the entrance. Use a nice, slow, squatting technique (rather than bending at the waist) to reach the low entrances. Squatting reduces the strain on the lower back. Now you are ready to start taking apart the colony. If you wish to examine the brood nest, this may mean removing three or four partially full supers. Where will you put them? If you use the two-hive stand described earlier, you can put the supers between the colonies. In lieu of this, spare hive bodies or similar devices will provide a platform on which to place the heavy supers. Every apiary should have one or two spare boxes kept there permanently. This is a good way to recycle old, unusable boxes. A used box on its side also provides a seat for the weary beekeeper.

Every beekeeper knows that jarring and jostling of supers makes for an upset colony. This can lead to a quite painful experience. Lifting and lowering heavy supers should be performed with slow, calculated moves for the benefit both the bees and the beekeeper. Remember to lift with your legs whenever possible. Keep the load as close to your body as possible. If you already have problems with your lower back, this is the point where you would benefit from the weight advantage of shallow or medium supers. Avoid twisting your upper torso. Make a turn with your feet. This also reduces the strain on your back. If making many lifts, TAKE A BREAK. We tend to develop a sloppy technique when we get tired.



A habit many beekeepers get into is to hold their smoker between their legs, just above the knees when moving supers off a colony. This prevents them from moving their feet when they turn, thus only twisting at the waist so they can set the super somewhere. Though it may seem efficient to work this way, the long term effects are almost always devastating. Do not hold your smoker there when lifting. Set it down, grab the already-loosened super and gently lift. Turn, using your feet and set it down, preferably on a box, hivestand or other device raised off the ground.

In late Summer and Fall, the above activity is repeated with the addition of moving the heavy, full supers to the transport vehicle and on to the honey house. Although probably too expensive for the hobby beekeepers, a flatbed truck is probably the best mode of transportation for supers. However, a flatbed utility trailer could also be purchased for a couple of hundred dollars and would be a worthwhile investment for a hobbyists. First, it is easier to place the supers on a flatbed rather than bending over the tailgate or sides of a truck, or, even worse, putting them in the trunk of a car. With a flatbed, the beekeeper can lower the load onto the bed by bending with the legs rather than with the back. Also avoid bending at the waist when lifting or lowering the supers. It is common knowledge in the industry that each pound of honey that goes to market is lifted by the beekeeper about 30 times. Therefore, be kind to your back. Don't overburden it. Let your legs do the work. After all the lifts are completed, stretch again to help the muscles to relax.

Now that the supers are on the vehicle bed and strapped down, you transport them to the honey house. You need to move the supers again, this time from the bed into the house. Use the same process as before. Survey the path you are going to take. While surveying, stretch. Remove any obstacles or at least note those that can not be removed (curbs, steps, etc). Have the weight of the super placed between waist and chest height. Use your legs for the lift. Turn with your feet. Do not twist your trunk. Again, if using different size supers, place the lighter, shallow ones close to the floor. As the stack gets higher, place a medium super between waist and chest height and finish off with the shallow ones. Strategically place your supers, frames, buckets, etc, to minimise lifting or additional moving of the supers during the extraction process.

It is realised that you may be constrained by the placement of the colonies in the field, the type of vehicle you use, and confines of the honey house. By thinking and planning each step ahead of time, you can avoid serious injury. Beekeeping requires certain activities to be performed at specific times. They cannot be done earlier or later. A serious injury may prevent you from performing the required duties. Besides the pain that may be experienced from the injury, your bees may suffer and there may not be any harvest. If you do not have time to think of an ergonomically correct plan at the start of the honey season, you will have ample time after the injury puts you on the sidelines. We keep bees because we enjoy it. Let's not let an injury take that away from us.

Ronald J Bogansky and Joel T Oleksa
Acknowledgement: Bee Culture

Varroa mites in Hawke's Bay

No; they are not here yet but it is certain that we will get the Varroa mites in the next few years so we must be ready to attack them.

These little horrors live in beehives and are spread by contact between bees. If untreated the numbers build up until the hive dies out leaving honey for other bees to rob out and spread the problem. Eradication is desirable but has been judged to be impractical. When they do appear in Hawkes Bay in a couple of years we must all be prepared to treat our hives to keep the mites at manageable numbers.

You ask why treat the hives? Why not destroy infested hives as they are found? One mite in a hive is not easy to find and by the time numbers have exploded to a detectable level bees will have carried mites to other hives and to the wild nests. The best we can hope for is that responsible beekeepers will work together checking and treating all hives in an area at the same time. Known treatments will not get all the mites as they begin life in the larvae cells where they do not come in contact with the impregnated strips placed in the hives. Remember that chemicals used must be potent enough to kill the mites without also destroying the bees. The best that can be hoped for is about a 90% kill at the time when there are not many larvae growing in the cells. In the first few years the mites will spread rapidly as infestation of wild nests and unmanaged hives will be unchecked. In the next few years these will die out and the incidence of reinfestation will drop off.

Honey is not spoiled by the mites provided the treatment is done correctly and the local beekeepers are confident that enough hives will be available for the pollination of crops grown by those who have traditionally hired bees. The downside is that charges will have to be higher as apiarists face up to the cost of treatment. Clover pastures and other crops which have relied on wild bees will have to be managed differently and the home gardener will notice the absence of honey bees. Wasps and bumble bees are not attacked by the mites but they have been detected clinging to the latter.

The National Beekeepers' Association in conjunction with MAF have proposed a strategy to control the spread from the Auckland area. This includes restrictions on the movement of hives and bees. In previous years thousands of hives have been moved all over the North Island plus many queen bees and packets of bees have been sent overseas or to the South Island. Because of this controls have to have the minimum impact on the earnings of apiarists who must accept that they are necessary and in the best national interests.

On 22 August the Hawkes Bay branch is holding a public meeting at 7.30pm in the St. John's Hall, 22 Napier Road, Havelock North. All those who may be affected or want to learn more about Varroa mites are invited free of charge.

PMS report to conference July 2000

AFB has captured the focus of the New Zealand beekeeping industry since 1992. In three short months, varroa has stolen this focus, but it is critical we remember, AFB has not gone away.

Undeniably, Varroa is going to place huge burdens on beekeepers, financially, physically, and mentally, but we need to remember why the PMS was voted into existence by the industry. We need to re-evaluate our attitudes to AFB, because these attitudes will determine the level of integrity and success our AFB disease programme is able to attain.

We need to remember: We ignore AFB at our peril.

A number of problems have been experienced by the NBA, our contractors, and Government agencies, since the PMS was implemented.

Many are minor and nothing more than part of the huge learning curve experienced by all parties in the PMS. Some problems are so serious, they actually threaten to prevent the NBA complying with their statutory obligations.

These major problems are:

1. The unregistered beekeepers and apiaries uncovered during the varroa delimiting survey. Similar levels of noncompliance are likely to be found elsewhere in New Zealand. This non-reporting makes a mockery of AFB statistics and destroys the integrity of the PMS.
2. Noncompliance within the Annual Disease Returns and Certificate of Inspection programmes. The 1999/00 contract had approximately 1250 beekeepers failing to return their apiary registration lists, and 1000 beekeepers had no DECA or CoI. This means 20% to 25% of registered beekeepers are not part of the AFB PMS program. This creates a huge dollar cost to the NBA, and generates false AFB statistics.
3. Export Certification requirements are penalizing AFB PMS compliant beekeepers. There is no distinction between beekeepers with serious AFB problems, and a beekeepers finding one isolated hive which is quickly destroyed.
4. The NBA requires direct access to the apiary register to make informed decisions on AFB management and in designing strategies on noncompliant beekeepers. AgriQuality will provide extra reports, but there are costs and time delays in this procedure. Flexible management requires faster access to data base information.
5. The number of honey samples returned so far is 46%. The varroa incursion has effected the returns, but for this audit programme to work, the level of honey samples needs to increase dramatically and quickly.

Despite these problems, the PMS has many positive attributes.

Positives

1. An increase in beekeepers awareness of AFB issues and management techniques. Care needs to be taken to ensure varroa does not damage this process.
2. 680 people have sat or due to sit the AFB competency examination.
3. 2934 beekeepers have received DECA's, with a further 1080 opting for a CoI. Approximately 80% of beekeepers have committed to the principles of the PMS.
4. The AFB knowledge base within branches is expanding through more AFB training courses. This willingness to learn will prove crucial as we embark on varroa education programs.
5. AFB levels have increased. A strange positive, but it was always logical with greater awareness, and the more we looked, the greater the chance of finding AFB. Finding and destroying AFB has to be good news.

The PMS is still a viable strategy, but to ensure a strong future, minor changes are required to the way the PMS is implemented, and beekeepers need to commit to a greater level of compliance.

The future

Varroa will create a challenging environment for the AFB PMS this year. On top of a 20% noncompliance level, the following comments are being received: "Now we have varroa, it is pointless worrying about AFB. If we are going to use Apistan for varroa, we may as well use Terramycin for AFB and forget about the PMS. The NBA won't get any more money from me as I'll need it for varroa control"

Compliance, Attitude, and Finance will be our biggest problems this year.

The PMS Review committee has recommended the following strategy to the NBA Executive in an attempt to address these three points. The Order in Council and the AFB Operational Plan were used as guidelines.

Contractors

1. Our major contractor with the PMS is Agriquality New Zealand. It is our recommendation that the services of Agriquality are retained for the year 2000/2001 contract. I would like to take this opportunity to thank Murray Reid and his team for their efforts, support, and advice both to the PMS committee and the beekeeping industry at large.

The components within the contract such as Apiary Register maintenance, Annual Disease Returns, and Certificate of Inspections will remain virtually untouched, except for initiatives to address the non compliance problems.

DECA auditing will focus specifically on disease statistics and at risk areas. The DECA budget will be reduced by 50% to ensure money is available for the other essential components of the PMS. This is a contingency plan to cover the risk of budget shortfalls in NBA finances.

The DECA programme is the only area budget reductions are being recommended.

2. Inspections and audits

The major change to the way the PMS will be implemented this year is in the areas of Inspections and Audits.

Remember: the problems facing the PMS were:

* Beekeepers compliance
* Attitudes: is the PMS worth worrying about with varroa.
* Money. Will the NBA have enough?

To solve these problems, we had to get beekeepers focused back on AFB, while acknowledging the huge effect of varroa. We had to create an opportunity for beekeepers to feel some ownership of the PMS, and provide some finances to branches.

Our recommendation is to split this part of the contract between the NBA branches and Agriquality New Zealand. NBA branches will be offered inspection and audit contracts specifying the number of apiaries to be inspected and auditing duties required.

One or two disease coordinators will be required in each branch to run this programme similar to diseaseathons. For branches that have not run diseaseathons, help will be provided in organising and coordinating an inspection programme.

Authorised level two beekeepers will be appointed in each branch to allow right of access and inspection. Planning is underway on the course these beekeepers will need to attend.

Branch contracts will be voluntary, but for branches not participating, either no AFB inspection will occur in your area, or at best Agriquality will be employed to perform a small audit programme. Branches, who do participate, will receive between

$1000 and $3000 depending on apiary numbers contracted. Agriquality will be employed in a back up role to provide apiary information, disease destruction notices, and some auditing.

Note: I need to stress at this point, these changes have not been made because of the performance of Agriquality. They have been recommended, because if beekeepers were not involved and branches financed, there was a very real danger the AFB PMS would be ignored, thus destroying the integrity of the AFB programme.

3. Branch advice and help will be utilized in the attempt to reduce ADR and CoI defaulters.
4. Dr Mark Goodwin and this committee, will write a proposal seeking an AFB check on every hive having an Apistan test during South Island varroa surveillance programme. Beekeeper involvement will be part of this programme.

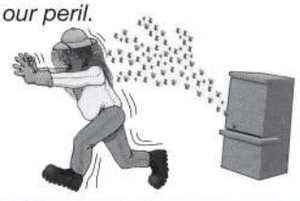
Summary

The PMS needs to be a living document, which adapts to new beekeeping problems. We need to recognize the legal obligations set out in the Order of Council, and our moral obligation to the beekeeping industry. The success and survival of the AFB PMS will depend on beekeepers accepting their obligations to comply, and grasping the opportunity to become directly involved.

Beekeepers have requested the opportunity to be part of the PMS and to gain ownership of the PMS. Well this is your chance to be very involved.

"Use it or Lose it"

Remember: We ignore AFB at our peril.



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NATIONAL BEEKEEPERS ASSOCIATION

CANTERBURY BRANCH

President - Richard Bensemann
13 Spring Place
Leeston
Phone/Fax: (03) 324-4410

Secretary - Trevor Corbett
80 Glenmark Drive
WAIPARA, NORTH CANTERBURY
Phone/Fax: (03) 314-6836

CANTERBURY BRANCH

AUGUST EVENING MEETING

Date:	29 August, 2000, Tuesday
Time:	7.30pm sharp
Venue:	Federated Farmers NZ Building 78 Armagh St, CHRISTCHURCH
Programme:	1. More on varroa 2. General business

Supper/cover charge $1 per head.

The Canterbury Branch has carried out two DECA Tests this winter, testing a total of 48 beekeepers. This branch will be carrying out tests again next winter, mainly for commercial beekeepers. For those of you still wanting to do the test this year, the Christchurch Hobbyist Club is running a course and test on the 16 September 2000. Contact their secretary Mr Lindsay Moir. Phone: (03) 388-3313 ASAP for details.

TW Corbett,
Secretary

RECIPES

Illinois Champion Honey Glazed Loin Roast

2 (14 inch) boneless pork loins
2 cut cloves of garlic
4 tsp Beau Monde seasoning
3 cups cola
4 tsp salt
4 tsp freshly ground pepper
1 cup honey

Rub loins with cut cloves of garlic and season with mixture of Beau Monde seasoning, salt and pepper. Rub in. Tie loins together; place in plastic bag and refrigerate overnight. Put on spit. Roast two to two and a half hours over moderate heat, or until meat thermometer reads 170°F. Pork must be thoroughly done, and there should be no pink colour. Baste every 15 minutes of roasting time with honey-cola sauce. *Serves 8 to 12.*

Baked Beans (Spanish Style)

1/2 cup coarsely-chopped onion
1 medium green pepper, diced
1 clove garlic, finely chopped
2 tbsp butter
2 (1 lb, 12 oz) cans baked beans, undrained
1/2 cup hot or seasoned ketchup
1/4 cup honey
1 cup grated sharp cheese
1/2 cup dry bread crumbs, salt, pepper, paprika

Saute onion, green pepper, garlic and butter until tender. Remove from heat; add to beans, ketchup and honey. Pour into two quart casserole. Combine cheese, crumbs, and seasonings; spoon over bean mixture. Bake (uncovered) at 350°F until mixture is hot and top is browned, about 45 minutes. Freezes well.
Makes 8 servings.

German Potato Salad

6 medium potatoes, cooked and sliced
6 slices of bacon
1/2 cup honey
1 small onion, minced
6-8 tbsp vinegar
1 tbsp water if needed
1 1/2 tbsp flour
dash pepper

Cook potatoes in small amount of boiling salted water. Slice (when room temperature) into casserole. Cook bacon until crisp; cool and crumble. Add onion, honey, vinegar, flour, salt, pepper, and water, if needed, to bacon drippings and add crumbled bacon. Cook a few minutes. Pour sauce evenly over the potatoes. Heat in 350°F oven for 20 minutes. *Serves 4 to 6.*

Cinnamon Honey Butter

1 cup honey
1 stick oleo
1/2 cup powdered sugar
2 tsp cinnamon
(1 tsp maple flavouring instead of cinnamon.)

Mix quite a while in mixer. Refrigerate.

Honey Apricot Muffins

2 1/2 cups all-purpose flour
1 1/2 tsp baking powder
1 tsp baking soda
1/2 tsp salt
1/2 tsp ground ginger
1/2 cup butter or margarine, softened
1 cup honey
2 eggs
1/2 cup 2% milk
1 cup coarsely chopped dried apricots
1 cup chopped walnuts

Grease muffin tin or line with muffin cups. In small bowl, mix flour, baking powder, baking soda, salt and ginger. In large bowl, cream butter with honey until light and fluffy. Beat in eggs and milk. Stir dry ingredients into wet mixture until just moistened. Stir in apricots and walnuts. Pour into muffin cups. bake at 350°F for 25 to 30 minutes, or until golden brown and toothpick inserted in centre comes out clean. Cool on wire racks. *Makes 12 muffins.*

Lemon Dream Pie

1 prepared or homemade 9-inch pie shell
1 1/2 cups water
1 cup honey
1/2 cup lemon juice
1/3 cup cornstarch
2 tbsp butter or margarine
1 tsp grated lemon peel
1/4 tsp salt
4 egg yolks, lightly beaten
1 1/2 cups heavy whipping cream, whipped to soft peaks.

Bake empty pie shell according to package directions until golden brown. In medium saucepan, combine water, honey, lemon juice, cornstarch, butter, lemon peel and salt. Bring to a boil, stirring constantly. Boil for two minutes. Remove from heat. Stir small amount into yolks. Pour yolk mixture back into honey mixture; mix thoroughly. Pour into pie shell. Chill. To serve, top with whipped cream.

Honey Tarte Tatin

Prepared or homemade pie dough for 9-inch pie
1 tbsp butter or margarine
1/2 cup honey
1/4 tsp ground cinnamon
4 tart apples such as Granny Smith or Pippin
Honey Whipped Cream

Roll pie dough out to 10-inch circle; set aside. Generously butter bottom and sides of 9-inch overproof skillet or glass pie pan. Pour honey into skillet or pan; sprinkle with Cinnamon. Peel, core and cut apples into quarters. Arrange apple wedges, curved side down, in pan. Lay pie dough over apples. Fold and tuck edges down between apples and sides of pan. Bake at 400°F for 45 minutes, or until pastry is golden brown. Let cool in pan for five minutes before inverting onto serving platter. Let cool to room temperature before serving. Serve with Honey Whipped Cream. *Makes 8 servings.*

Honey Whipped Cream

1 cup heavy whipping cream
3 tbsp honey
1 tsp vanilla extract

In medium bowl, beat cream with electric mixer until soft pearks form. Fold in honey and vanilla.

IMPORTANT DATES FOR 2000

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Editor: Colin Bell
Phone: (09) 818-4325

NORTH CANTERBURY BRANCH
Meet the second Monday of every month
March to November inclusive.
Contact: Mrs Hobson
Phone: (03) 312-7587

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

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

CHRISTCHURCH HOBBYIST CLUB
These are held on the first Saturday each month, August to May, except for January on which the second Saturday is applicable.
The site is at 681 Cashmere Road,
Commencing at 1.30pm.
Contact: Mr Lindsay Moir
33 Shackleton St,
Sth Brighton, Christchurch
Phone: (03) 388-3313

DUNEDIN BEEKEEPERS CLUB
We meet on the first Saturday in the month September - April, (execpt January) at 1.30pm. The venue is at our Club hive in Roslyn, Dunedin.
Enquires welcome to Club Secretary, Dorothy, phone: (03) 488-4390

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Meet second Sunday of each month at 10.00am for cuppa and discussion and at 10.30am open hives.
Secretary - Gwen Whitmore,
RD1, Tuakau.
Phone: (09) 233-4332
All welcome - Ring for venue

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

MARLBOROUGH BRANCH
We are holding a Deca course and exam at the end of April.
For application forms and meeting dates contact
Jeff: (03) 577-5489

MANAWATU BEEKEEPERS CLUB
Meets every 4th Thursday in the month at Newbury Hall, SH 3,
Palmerston North.
Contact: Andrew MacKinnon
Phone: (06) 323-4346

NELSON BRANCH
Phone: Michael
(03) 528-6010

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Phone: (06) 753-3320

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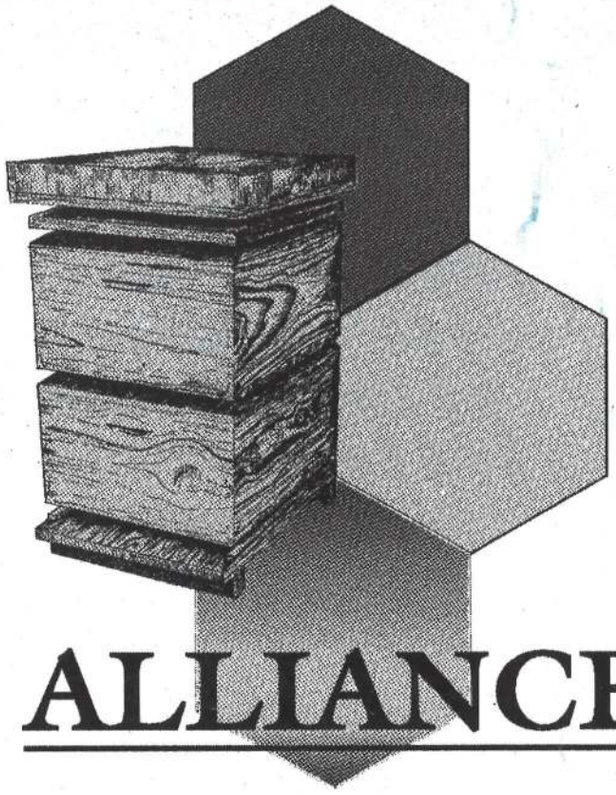
Call Tony: (07) 856-9625

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

WELLINGTON BEEKEEPERS ASSOCIATION
Meets every second Monday of the month (except January) in Johnsonville. All welcome.
Contact: James Scott, 280 Major Drive, Kelson, Lower Hutt.
E-mail: JLscott@clear.net.nz



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