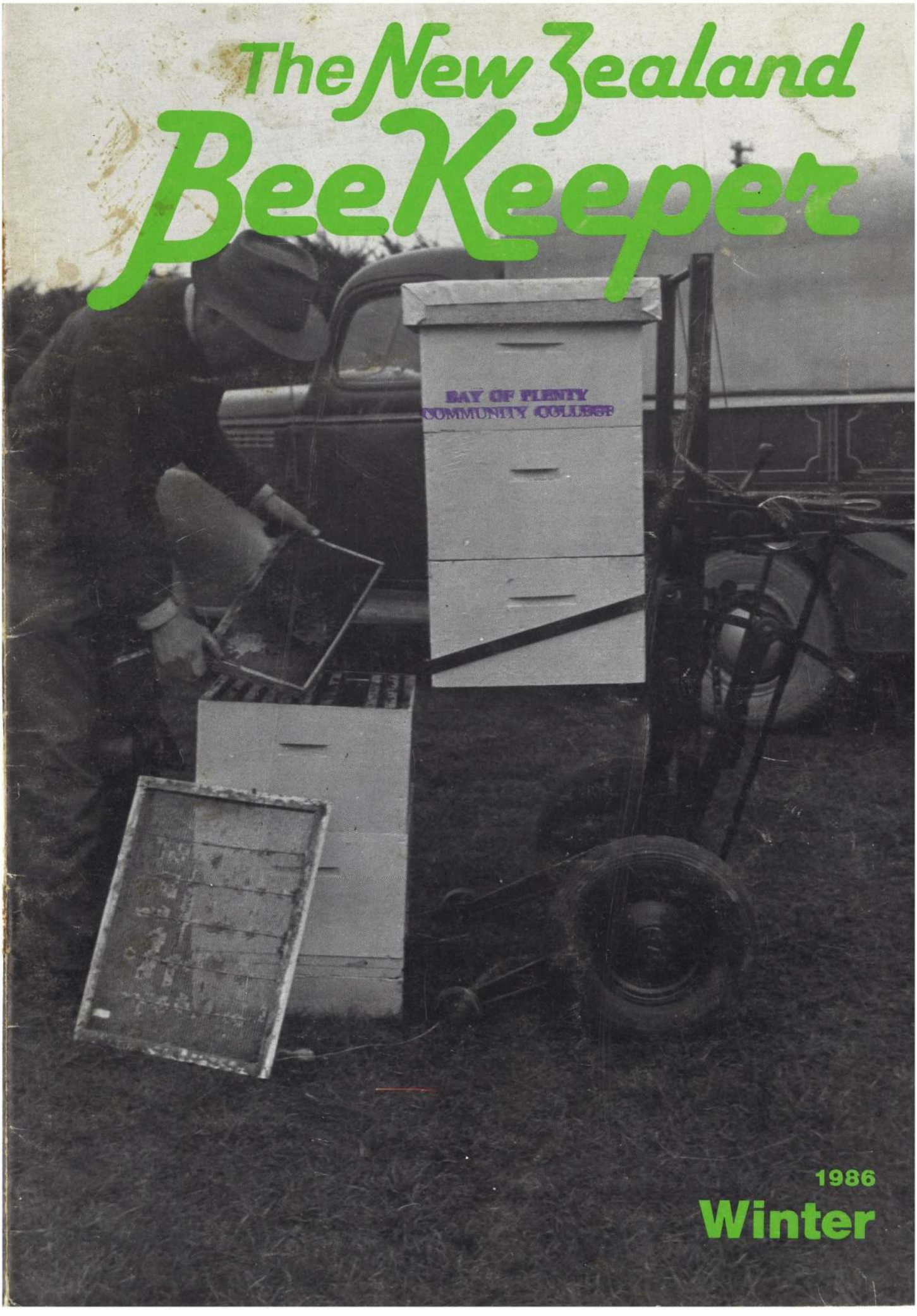
The New Zealand BeeKeeper



1986
Winter

The New Zealand BeeKeeper

OFFICIAL PUBLICATION OF THE NATIONAL BEEKEEPERS' ASSOCIATION OF NEW ZEALAND INCORPORATED

CIRCULATION 1,450

To Members of The National Beekeepers' Association of NZ Inc who own more than 50 hives each and so are legally subject to the annual hive levy. THESE HIVE LEVY PAYERS OWN APPROXIMATELY 87% OF ALL BEEHIVES IN NEW ZEALAND.

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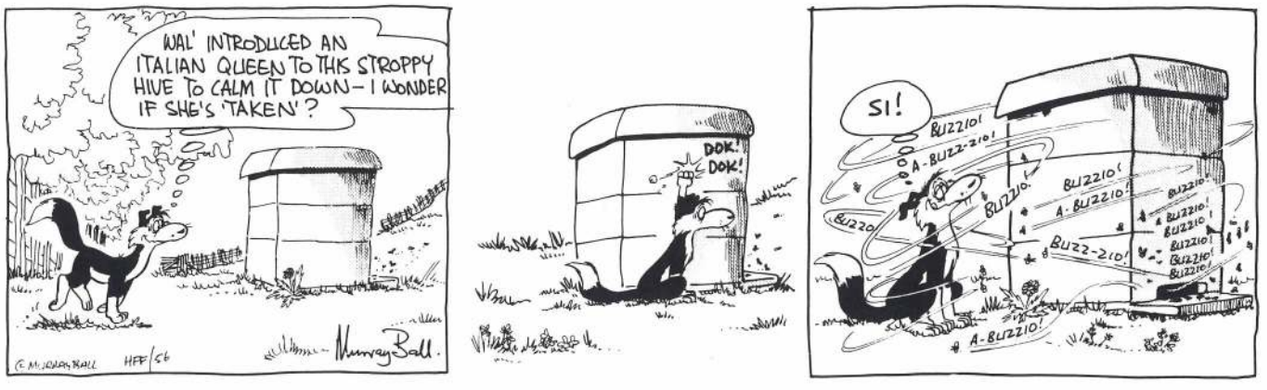
WINTER 1986
No. 190

The New Zealand BeeKeeper

Contents

Footrot Flats

By Murray Ball



Cover photo

A hand-operated mechanical hive loader being used to remove honey supers while the brood nest is examined for swarm and disease control. (1954. Courtesy M.A.F.)

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A Chill Wind Doth Blow

A cold, dark economic winter faces primary producers. Whether you like this Government or not, whether you blame Rogernomics, the world-wide recession, or the previous administration, matters little. Whichever or whatever, the result is much the same and you're stuck with it. You've had the seven fat years. The seven lean ones are here. Sure, at the moment things look good, but that's the calm before the storm so don't be bluffed.

A lean time means having to produce more for less which, in its turn, means a few things you planned for may go out of the window: say the second car, the video, your daughter's ballet lessons, and your wife's new outfit. Your wife, we hope, will understand when she misses out. She's seen the books and is in it with you up to the neck. But how do you explain to the kids that pressing bills take precedence over the junior rugby team's Australian visit?

Unless you have exceptional kids you probably can't. Which means you have what the shrinks call stress. The stress factor, how to handle it, will be dealt with during the MAF's seminar at the coming Rotorua Conference. The seminar will also examine personal motivation, as well as detailing the sources of honey by "fingerprinting", and examining honey research.

This seminar is part of the Ministry's effort to keep you solvent during the economic night. We know the nation needs bees for reasons other than honey, but does the nation need locally-produced honey? Ask the woman in the supermarket whether she's prepared to support you as a matter of principle instead of buying foreign honey at a lower price. Don't expect to like the answer. Most people see things in the light of their budgets.

And if you think you won't have to compete with third world exports, that you're safe because this, that, or the other politician "promised", then think again. Rogernomics is about free trade. It's Taiwanese shoes this week and Mexican honey next. And if you think to use your collective will to combat that through the ballot box, forget it. Your voice will be a pathetic squeak against the healthy bellow from the housewife. Even if it wasn't, the principle of free trade is valid. Ideally we should not have barriers, controls, tariffs and it is unlikely that any Government of a different hue will replace them once they have been dismantled.

Which may well leave you up the creek without a paddle and up to your tail in alligators. Possibly the Ministry can help, and why the seminar will also be dealing with motivation.

That beekeepers can survive there is no doubt. We all do eventually, however much we think we can't. But more than ever the old adage applies. You must get off your backside to make a buck. To keep the Ministry you must use it and profit from its advice. The current concept of making Government departments cost-effective means that if the returns from the beekeeping industry don't measure up, if the Government cannot see sufficient return from the money pumped into the apicultural advisory services, then those services will be cut back. In the extreme it could mean no apiary advisers.

Why you should attend both seminar and Conference. Support your AAO's, help them to help you. Be at Conference to hammer out a concerted industry approach. Make your voice heard in your own interests. Yes, its your future we're talking about. Yours, not that of the bloke down the street.

Michael Burgess

LETTERS

Now You Know

Dear Sir,

The bees McEmmett saw (see NZ Beekeeper, Letters, Autumn 1986) would be queen bumble bees, introduced from England to New Zealand just over 100 years ago for red clover pollination. Four species are established. The main value of three of these species is for red clover pollination where it is estimated 15-20 colonies/ha can improve seed yields 3-4 times that of those presently achieved. The other one, *B. terrestris* which is the commonest species, acts as a generalist complementary pollinator to honey bees on a wider range of crops including almonds, lucerne, kiwifruit, avocados, and feijoas. Several scientists in New Zealand, myself included, are actively investigating the most efficient and economic ways of managing these social bees. Their successful domestication will enable beekeepers to diversify and provide an improved pollination service for certain agricultural and horticultural crops.

Over the last few years we have received several enquiries from Australians about importing these bees. The 1890's attempt to establish bumble bees near Sydney failed. A move to introduce them in the 1930's apparently foundered on the cost. In some respects it would be easy to establish bumble bees in Australia, because we now have efficient means of transporting them, and collection of enough queens of the two commonest species could be achieved for a few thousand dollars. However Australia and New Zealand have a sensible and strict policy about importation of bees or bee products to maintain our bees with fewer diseases and natural enemies. The bumble bees here have their own species of external mites which would need to be eliminated and bumble bees share some diseases e.g. Nosema with the honey bee. The species of bumble bee would also have to be considered carefully. The commonest species here is not very beneficial as a pollinator of broad beans, blueberries, and red clover because it bites holes at the base of their flowers. The other three species provide little benefit in pollination of crops other than red clover, some beans, blueberries, and curcurbits.

R.P. Macfarlane
Entimology Division
DSIR
Christchurch

Pen Friends

Dear Sir,

We would like to express how much we enjoy the NZ Beekeeper and should like to share with you a little about our beekeeping adventures here on the other side of the planet.

We live in Wallowa County, a remote part of the state of Oregon. "Wallowa" means "winding water" in the language of the Nez Perce Indians, our first inhabitants. True to its name it is a land of mountain streams and rivers at every turn. Our home is 4,600 feet above sea level. Generally we have snow on the ground November through March. Keeping bees can be truly a challenge. However, 30 miles away the ground drops to 1,300 feet into a canyon called Imnaha where we take our bees in winter. The climate is milder and the spring blooms come much earlier.

We have 160 strong hives at this time and 50 nucs just getting started. This is the earliest for us in nuc raising. We were able to do this as we took our hives to California in March to pollinate the almond orchards. Their spring is much earlier and gave the bees a good boost. Now we have them in a more central area of Oregon pollinating the apple orchards. Next we will take them to Washington state to more apple orchards. It is all a new experience.

Here at home the spring is just beginning. It is our most unpredictable time of the year. It can be sunny in the morning and snowing by evening. So far it is mild and warm. The pusswillows have bloomed and the buttercups are thick on the ground. Our nucs are in Imnaha where the peaches and apricots are blooming. We will have all the hives home by May when the dandelions are blooming.

Our main honey crop is sweet clover. It is a very fine honey which crystalizes to a thick cream. We sell it in the local shops and out of our home. We also harvest pollen for our own use and to sell. Dandelion is best for flavour.

We enjoy the NZ Beekeeper as we have long been interested in New Zealand as a whole. It sems the best way to get to know a place is through its people and, better yet, people with the same interests. Some day we'll visit New Zealand and taste your honey.

Mark and Debbie Roberts
Rt. #1 Box 126
Enterprise
Oregon 97828
USA

P.S. We would love to correspond.

Thanks

Dear Sir,

In your Spring 1985 issue you were kind enough to publish my letter asking for opportunities to stay with NZ beekeepers from mid-January 1986. I received eight replies from which I was able to organise a working holiday from Auckland to Invercargill, enjoying NZ hospitality and experiencing beekeeping as a working member of five different beekeeping families in both the North and South Islands.

I will, of course, be writing to thank my hosts individually but would also like, through your pages, to pay my respects to the many other NZ beekeeping friends with whom I talked bees, beekeeping practices and problems.

By the time you receive this I shall have returned home. I will, however, carry with me fond memories of my many NZ friends who helped make my stay so enjoyable, some of whom I hope one day to see in England.
Thank you.

C.A. Parrott
6 Pady Court
Cirencester GL 7 1YY
England

Collector

Dear Sir,

My husband is a beekeeper and I collect honey pots. I should love to add a real New Zealand honeypot to my collection, and wonder whether you, through your readers, could help me achieve my dream. I look forward to hearing from you.

Shirley Mead
9 Holtsmere Close
Garston
Watford
Herts WD2 6NG
England

More letters page 23

Let's Examine the Facts

From: Fred Galea

Beekeepers and bees both forage for a livelihood but with different objectives. Apis Mellifera, in making her living, provides by the act of pollination a food source for the next generation. The beekeeper, however, exploits natural resources. He takes what he can by chance, increases his stocks, sits back and expects more, instead of planning and planting for both his own and his bees' future. After all, its much easier to sit and take. However, while that philosophy may offer some pleasant surprises, it can also present dilemmas, compromises, frustrations.

The DSIR is considering releasing gorse mite (Teteanychus Linterarius) for the biological control of gorse. Some will cry in horror, others sigh with relief. But had we a time machine, were we able to watch from the mid-19th century to the present the whole panorama, the introduction of gorse, its spread, the burden of its control, the lost battle for the reclamation or choked ground and then, having seen all that, have the power to turn the clock back, could we in all sanity say:

"Ah yes, a great plant. Hurry, let's spread it so it may benefit future beekeepers".

If an upthrust of our continental shelf miraculously gave us a third large island, would be immediately cover it with gorse for beekeepers?

In the same vein would we consider introducing venomous snakes to control or eradicate rats and mice who eat many colonies out of house and home each winter? Anyone with a scrap of judgement must weigh the benefits to the minority against the disadvantages to the majority and decide: "Thanks, but we'll do without gorse and snakes". As members of an interdependent society the facts are clearly before us.

If Teteranychus Lintearius is released how soon will it destroy existing and regenerating gorse?

If it gets out of control will it turn its attention to other flora when its intended victim is dead?

How soon can a replacement pollen-producing plant take the place of gorse, given the determined and cooperative action of all parties to maintain a high bee population, essential to safeguard pasture quality, seed crops, and fruit fertilisation?

What hardy, drought-resisting, fast-growing, lengthy-flowering, soil-improving, shade-providing, disease-resistant, easily-controlled by animal debarking, fodder-providing in hard times, wind-resistant plant or tree is available to meet the needs of bees in spring?

Tree lucerne fits the bill. Initial plantings pose problems, but that can be overcome.

On the contrary what is the consequence of the status quo?

Is gorse being sustained where most needed?

Is the continued use of 245T desirable healthwise, and is it cost-efficient in our general economy?

Has gorse any hidden attributes. For example, as a fodder for goats or other animals?

How about turning our time machine forward this time, so that in 10 years we can say: "We made our mistakes, we experienced our shortcomings, we planned our future. We altered gorse, of course, but now we're home and hosed."

★ ★ ★

GLUE IN PLYWOOD TOXIC TO BEES

By Pat Clinch, MAF Wallaceville

I was recently asked to test a sample of NZ Forest Products' plywood to determine its suitability for hive parts. Although the wood used to make this plywood was untreated, the glue contained a small amount of the insecticide chlordane. The manufacturers therefore considered it might be hazardous to bees.

Laboratory tests proved the plywood safe to bees by contact. However, when immersed in sugar syrup, toxin leached into the syrup killing bees that fed on it. Missing knots, where large areas of glue were exposed, caused most contamination.

Some water-soluble wood preservatives, such as arsenic, leach into water from condensation in hives and thereby kill bees. It is probable that the toxin in the glue of the plywood we tested will do the same. If this plywood is to be used in the manufacture of hive parts, it is essential that an effective method for sealing in the glue is adopted. Therefore, before any plywood or particle board is used for hive parts, the user should ascertain whether it contains hazards to honey bees.

Chalkbrood: What we don't know, what we do.

By: Cliff Van Eaton AAO

References to chalkbrood abound in world beekeeping literature. But unfortunately much of the information we have about the disease is either conflicting or unscientifically based. This lack of reliable information shouldn't be surprising given the comparatively small research commitment shown apiculture worldwide and the fact that chalkbrood is considered by many to be a disease of little economic importance. Still, as Professor L.A.F. Heath points out in his excellent lecture, "The Chalkbrood Enigma", a danger lies in beekeepers making decisions regarding chalkbrood as if beliefs were facts.

This article reviews what we know about chalkbrood separating, where possible, conjecture and opinion from supportable fact. New data concerning the level and incidence of chalkbrood in Northland is presented, ending with a discussion of the positive approach beekeepers there are taking in adjusting to the disease.

Taxonomy

Ascosphaera apis, the causative organism of chalkbrood in honey bees, is a fungus akin to moulds, yeasts, and even athlete's foot. As with many fungi is has two stages in its life cycle: a spore stage and an active or vegetative stage. Originally known as **Pericystis apis,** chalkbrood has been common in Europe from at least the beginning of this century. Various "strains" of **A. apis** have been collected over the years, but all have proven to be morphologically identical. Another fungi, **Ascosphaera major** has been isolated from honey bee larvae, but has not proven to be pathogenic. Instead it feeds on already dead, decaying matter and is not capable of mating with **A. apis.**

Ascosphaera apis was first isolated in the USA in 1968 from a species of leaf cutter bee (**Megachile inermis**). But while several other species of **Ascosphaera** (including **A. osmophila, A. aggregata,** and **A. proliperda**) are pathogens of leafcutter bees, **Ascosphaera apis,** the honey bee chalkbrood, is not. Spores of **A. apis** can come into contact with various parts of leafcutter bees and their cells but have not been shown to infect them under normal or field conditions.

Life Cycle

The common conception is that chalkbrood infection begins in honey bee larvae when they are fed brood food contaminated with **Ascosphaera apis** spores. The spores are said to germinate in the larval gut, triggered by the presence of CO^2, and grow as white filaments or **hyphae.** The mass of hyphae **(mycelium)** then break through the gut wall and invade the larva's body, finally piercing the cuticle when the larva is sealed in its cell.

Unfortunately the process of infection remains a mystery. Spores may germinate on the larval surface and penetrate inward, since no other fungal parasite of any insect is able to breach the larval gut wall from within. The anaerobic environment said to be required for spore germination is in fact just the presence of higher than normal concentrations of CO^2. The spores may actually receive this signal from the larva itself as it breathes.

Most authors repeat Bailey's finding that larvae three — four days old are most susceptible to infection. Reports have been made, however, of infection occurring in all stages from egg to pupa, although laboratory infections of eggs and pupae have failed. It is claimed that nurse bees can remove infected larvae at an early stage. Gilliam has also shown that at proper temperatures larvae 4.5 —5.5 days old are also susceptible to infection.

There is much firmer agreement on the process of spore formation. Like many fungi, **Ascosphaera apis** has no male and female which can be told apart, only + and - strains. Mating occurs when hyphae from two strains grow together. Spores are formed in dark coloured cysts called fruiting bodies.

Once the fruiting bodies rupture spores are released in sticky clumps. The sticky coating also allows them to attach to various hive surfaces, including cell walls and adult bees. The spores eventually find their way back to host larvae to begin the life cycle again.

Symptoms

The first visual symptoms of chalkbrood infection are apparent in a larva when it turns vivid white, much whiter than the normal pearly white of healthy brood. The whiteness is caused by the first stages of growth of mycelium on the outside of the larva. The growth takes place from the rear of the cell forward.

If removed from the cell at this stage the larva is moist, hexagonal-shaped, and swollen. In most cases the larval head appears clearly as a dark spot. As the fungus continues to feed the larval body dries out, finally becoming a hard chalky lump, or "mummy". Mummies are mostly white, but some turn partly or completely grey to black because of the growth of spore-producing fruiting bodies on the mycelium.

Chalkbrood mummies can sometimes be mistaken for mouldy or white (especially kiwifruit) pollen. Pollen, however, is packed as a solid mass whereas chalkbrood infected larvae retain some of the shape of the host. When probed pollen will break up easily. A chalkbrood larva, especially in the mummy form, will be much more difficult to separate. The pollen mould **Bettsia alvei** (once called **Ascosphaera alvei**) is similar in appearance to **Ascosphaera apis** but does not attack brood.

In light chalkbrood infections worker bees normally uncap diseased cells and the larvae remains can easily be seen. Bees may chew at the remains before they dry out, but once mummies are formed they are usually removed.

In heavier infections, deseased cells may remain capped. In that case it is necessary to pick off the cappings of sunken or discoloured cells to diagnose the disease. Combs with many capped mummies will actually rattle when shaken.

When bees uncap and remove diseased larvae, mummies can often be found discarded on the bottom board or on the ground outside the hive entrance. Once again chalkbrood mummies can be confused with mouldy pollen. Mouldy pollen is cylindrical in shape and can be readily pulverised. Mummies, on the other hand, are elongated, much flatter, and not easily crushed.

Spread

Ascosphaera apis is spread from colony to colony by the 125 spores (average) it produces per fruiting body. Various means of transmission have been suggested although not all have been subject to scientific test. Drifting bees, brood (sealed and unsealed), and pollen have all been shown conclusively to transmit the desease, while floral contamination has been postulated following the discovery of spores in pollen collected at the hive entrance. Wind has been suggested by researchers and beekeepers alike, but at this point there is no scientific evidence which can confirm this means of spread.

Debate continues to centre on both queens and honey. Several investigators

Chalkbrood (Cont.)

cite queens as a mechanism of spread, but in some cases they either did not conduct controlled experiments or provide statistical analysis of their results. At least one test, however, conducted under proper conditions and with little chance of outside contamination, did show a significant result. Herbert, Knox, and Shimanuki were able to infect colonies with queens, although the infections cleared within a month.

Several researchers have detected spores of **Ascospharea apis** in honey, both in comb stores and in retail packs. On the other hand Canadian researchers were unable to detect such spores in honey from a diseased colony and there is a question as to whether such spores remain viable in processed honey which has undergone heat treatment. Needless to say, further scientific research is required.

The question of disease spread has lead Professor Heath to comment that in areas or countries where chalkbrood occurs, most hives are likely to contain spores. As Bailey has shown, spores alone, fed to larvae maintained under normal brood nest conditions, are insufficient to cause the disease. Other factors or conditions must be present at the same time if chalkbrood is to take hold.

Conditions Leading to Develop ment

As Heath points out, while chalkbrood must be regarded as a stress-related disease, it is important to investigate the actual conditions causing stress. Excess humidity is often cited as such a condition, particularly in speculative works. The rationale, no doubt, is that **Ascosphaera apis** is a fungus, and fungii favour damp conditions for growth. Moeller and Williams point out, however, that during the active season, colony humidity is kept relatively constant. Under normal colony circumstances, then, high humidity is not a sufficient cause.

Brood chilling is also often referred to as a contributing factor, especially after Bailey found that larvae were more susceptible to chalkbrood infection if chilled slightly about two days following infection. Some authors state this factor as the reason chalkbrood most commonly occurs in spring, in drone comb, and around the periphery of the brood nest.

Other researchers have found, to the contrary, that heavy chalkbrood infections can occur in hot dry weather, in the summer, and in the centre of the brood nest. As a result, chilling should be regarded not as a pre-requisite for infection, but more likely an enhancement.

Beekeepers observe that chalkbrood is more prevalent in mating nuclei, kiwifruit pollination colonies, or hives which have laying workers, drone layers, or lost swarms. Heath suggests that what these situations have in common is high brood-to-bee ratios. What is unclear is whether the cause is related to nutrition, temperature, or some other factor.

We do know that colonies with inadequate or old pollen stores show higher chalkbrood levels. It is suggested that the resulting amino acid deficiencies in the larvae render them more susceptible. Others have speculated that high CO^2 levels (+5%) resulting from reduced levels of fanning bees both stress the larvae and trigger the germination of spores.

Clearly much more work is needed in this field. The important point to remember is that colonies stressed, particularly in relation to brood-to-bee ratios, provide the conditions required for chalkbrood to occur. These pre-conditions should not be mistaken for the effects of chalkbrood itself.

Incidence/Levels

In most studies of chalkbrood, little agreement exists as to the levels and incidence of the disease. Infections are routinely classified as light, medium, and heavy without any clear reference being

Chalkbrood (Concluded)

made. When numbers are fixed to these headings they often refer to percentages of brood in a colony (such as 5, 10, and even 50%). Fifty percent of a brood cycle comes to some 15,000 cells, while even 5% would be 1500.

While it is difficult to place precise figures on cells of chalkbrood per brood cycle because of the constant uncapping and removal by the bees of diseased larvae, even as few as 1500 cells would hardly be considered a light infection. In one test conducted by Gilliam and Taber the average cell count per brood cycle (done twice weekly) was just under 400.

To be fair, chalkbrood infection levels should be based on actual brood cell counts. Studies should be conducted to derive a conversion factor for brood diseased per cycle.

Unfortunately in the January 1984 Northland survey, infections were classified as "slight, medium, and heavy". This was later referred to in press statements as 5%, 20% and 50% of brood affected, a situation which in most cases clearly did not exist.

This past season a new survey was conducted in Northland using the count system employed in a similar survey in Canada in 1976. Colonies were coded as 0 (none), 1 (1—10 cells), 2 (11—15), and 3 (more than 50). In a sample of 5% of colonies, 39% had some chalkbrood. This is up from the 21% recorded in 1984, but similar to the findings of the large colony survey in Canada. Of those colonies with chalkbrood in the Northland survey, just under 50% had infections of 10 cells or less.

Effects on Colony

Because it is so often difficult to exclude conditions leading to the disease from the effects of the disease itself, very little good evidence exists on colony effects. In addition, good scientific study is difficult because controls often show signs of the disease as well.

One study, often quoted, looked at the effects of chalkbrood on colony population, winter survival, and honey production. While the authors claimed adverse effects, lack of **any** statistical analysis and a small sample size call the results into question. Another author claims a 1—5% loss of honey production, but with no supporting evidence. Dispute even exists on chalkbrood's effect on brood production, with Herbert and Shimanuki showing no significant difference to the sealed brood stage, while another study (using only 6 colonies) observed a reduction.

Obviously much more work is needed in this area as well, but at least for honey production, data collected during the British Columbia Stock Improvement Project would tend to show no significant effect. In tests over a three year period on five samples ranging from 25—41 hives, colony weight gain was not signficantly affected. All colonies began each year as broodless 1kg packages, so the results should be very unbiased.

While normal honey-production colonies are not likely to be adversely effected, the same cannot be said for pollination units and other colonies under stress. In these cases it is important to look to the contributing factors, however, not just the disease itself.

Controls

Controls for chalkbrood listed in the literature fall under three broad headings: environmental, genetic, and chemical. Partial success has been recorded in each area, but not as much as is often believed.

Environmental controls for chalkbrood generally involve lessening the conditions which can lead to infection. Although good ventilation is often recommended, we have already mentioned that excess humidity is not a likely cause.

Avoiding damp, cold sites is also suggested. The effect here may not be the lack of cold itself, but colony over-wintering and spring build-up. Adequate spring nurse bes would likely reduce the incidence of the disease.

Adequate pollen supplies would also play a factor, ensuring that the larvae themselves are not stressed. As well, strengthening colonies can be good practice since brood-to-bee ratios are reduced. This might reduce overall colony numbers but not likely total honey production.

At least one well-known beekeeping book advises the destruction of combs heavily infected with chalkbrood. On its own this is not likely to be a successful control method because of the wide distribution and spread of spores.

Greater potential for effective chalkbrood control lies in the area of genetics. Researchers have found that strains of bees differ markedly in their resistance to chalkbrood. This resistance is no doubt partly the result of physiological properties in the larvae themselves. As well, recessive genes control the ability of hive bees to uncap and remove dead larvae. Gilliam and Taber selected strains of bees for this hygenic behaviour and then tested them for chalkbrood infection. Unfortunately, while they did detect differences, variation was so high that the results were not statistically significant. Milne in Canada conducted a similar test. He found a correlation between chalkbrood resistance and removal behaviour, but not uncapping behaviour. He observed another unknown resistance factor as well.

The 1985 Northland chalkbrood survey confirmed another genetic factor. Compared to yellow, Italian stock, colonies with black bee stock **(Apis millifera mellifera)** have both higher incidence and levels of the disease. The susceptibility may be genetic or behavioural. The reasons are not understood. Still, requeening hives with young, well-bred Italians is an effective chalkbrood control.

Finally, over 33 chemicals have been reported to have some degree of success in controlling chalkbrood. Unfortunately field tests for various substances have not given the same good results. For a chemical treatment to be effective it must be convenient to use and not more expensive than losses due to the disease. Given these criteria, Heath and others are not optimistic about the likelihood of an effective chemical control.

Northland Experience

Following the discovery of chalkbrood and subsequent Emergency Response exercise in 1984, beekeepers in Northland have learned to come to terms with the disease. Realising the need for co-operation they have tried to work together with MAF advisors in taking a positive approach to the problem. Recent experience in the USA relating to exotic bee diseases makes it obvious that anything but a rational, cooperative response is destructive to the total beekeeping industry.

Beekeepers in Northland believe it is important to practice the following management techniques to reduce the impact of chalkbrood on their hives:

a. Maintain strong hives at all times to avoid colony stress.

b. Arrange colonies in anti-drift patterns to avoid spore transfer between hives.

c. Follow a regular re-queening programme using yellow Italian stock.

d. Select breeder queens which show chalkbrood resistance for use in producing commercial queen stocks.

References

In keeping with the popularised approach of this article, references to individual authors have not been included in the text. Listed below are two thorough reviews of chalkbrood which contain full bibliographies. Readers are warned, however, to consult the references themselves before making any conclusions about what individual works may contain.

Gilliam, M (1978) Fungi. **in** Morse, et al. **Honey Bee Pests, Predators, and Diseases.** Ithaca: Canstock Press.

Heath, L.A.F. (1982) Development of chalkbrood in a honey bee colony : a review. **Bee World** 63 (3) 119.130.

A Mid-Winter Night's Beekeeping

By: Skep

As I cast about for topics suitable for this column, this issue is always the hardest. Though, as I write this, the weather is still warm and pleasant, I know that you will be reading it in the throes of winter. My first thoughts were to write about sources of information for the beginner beekeeping.

I've decided to save that topic for the future, while optimistically writing this to give the beginner an overview of the critical operations of beekeeping. Maybe giving you time to think about it in the less rushed time of winter will allow you the chance to critically examine your own beekeeping practices to see how they compare with these thoughts of mine.

In one of the first of these columns I wrote, I referred to something that Arthur Gosset from Canterbury once told me. I'd like to expand on his ideas a little more, because I think he's really got beekeeping figured out, and in a very simple form.

At the time I was fired with complicated and labour-intensive methods of getting as much production from a colony as possible. I was dreaming up all sorts of involved and fiddly gadgets and management systems, involving two-queening and strange hive designs.

Arthur looked at me and simply said that all beekeeping is a matter of watching out for three main things:

You must have a young queen in the hive
You must never let them become short of food
You must give them enough room at the right time to store the crop.

At the time, as a young(er) man, that was all too simple for me. Where is the 'art' in beekeeping if it can be reduced to those few words? At the time, I even thought he was holding out on me, not letting me in on his 'secrets' of management.

Only with experience have I come back to his words and realised how true they are. The complexities of beekeeping come with **HOW** to do the **WHAT** of those three questions. The methods and timing you use to get a queen in the hive, feed the colony if need be, and super it up will determine how successful your beekeeping is.

In previous columns I discussed sugar syrup mixing and feeding and have also spent almost an entire column on supering up. Thee are plenty of options available to you in either operation.

Re-queening is a major topic, and I want to write about it in some detail in the next column.

Of course, with the goal of messing up such a tidy presentation, I would add another few operations to Arthur's three. Knowing how to properly inspect a hive for brood disease should be listed. Another concept I feel strongly about is that of

→

BEGINNERS' NOTES (Cont.)

BEEKEEPING BASICS

√ *Re-queen regularly*

√ *Feed when necessary*

√ *Give them enough room*

using methods and materials related to the scale of your beekeeping.

Disease recognition for the hobbyist is a real poser because it is present in such small levels. The odds are that if you have one hive only it will get infected once every 200 years.

If you trust to that, like many other statistical lies, you'll likely come unstuck. In fact, as a hobbyist, you have several things going against you. Because you'll see cases of disease so rarely, you'll tend to get complacent and even careless in your inspections. After looking for something you don't want to find for some time, its easy enough to decide to stop looking!

Because you probably have your one or two hives in an urban location, yours will be relatively close to other hobbyist hives. All it takes is one careless beekeeper to put everyone else nearby at risk.

If you're not confident that you can recognise American Brood Disease, talk to a local beekeeper who might be able to help you. Contact your local beekeeper's club and ask if they can arrange a programme to help with disease inspection. Get a copy of the relevant Ag Link from the Ministry of Agriculture and Fisheries.

Don't just trust to good luck and the odds; its up to all responsible beekeepers to keep disease levels down. There is nothing wrong with getting a case of disease; it happens to most beekeepers at one time or another. There **is** a problem if you don't know how to deal with disease and become a source of infection for other beekeepers and your other hives.

My other interest, making sure that your approach to beekeeping is of the appropriate 'scale' is not difficult. It is often overlooked by hobbyist (and other. . .) beekeepers.

I mean you don't need to kill flies with a sledge hammer. You are a hobbyist, and your approach to beekeeping should keep that in mind. You don't need a lot of specialised equipment that will be used only once a year.

While keeping your specialised equipment costs down, take advantage of the time you put into your beekeeping. After all, you **are** doing this as a hobby, remember? You can afford to be a little more exacting than a commercial beekeeper, and do things that involve more trips to the hive, for instance.

A good example of keeping your 'scale' in mind is equipment-making. For instance, you probably won't save much money by making your own boxes and frames but if you enjoy doing so go ahead by all means. The scale of your beekeeping should tell you, though, that you'd be better off buying kitset equipment to assemble.

Similarly with honey-handling equipment. What started out as a relatively inexpensive hobby can rapidly change to a major expense if you insist on buying a new stainless steel extractor and building a small honey house in your backyard. Sure, this might suit you, and if you are determined to do it, go ahead. A better method for someone with only a few hives, however, would be to share the bare minimum of extracting equipment with several other hobbyists.

Often, a local hobbyist beekeepers club will have the basic equipment that can be rented for a reasonable daily rate. If not, why not form your own 'syndicate' of two or three like-minded beekeeper friends and share one set between you? Extracting together can be a truly social event if approached in this manner.

I guess what I'm trying to get across is that there are only a few key points to being a good beekeeper, no matter how many hives you have. If you learn how to properly care for the basics, expecially Arthur Gosset's three rules of beekeeping, you will be a good beekeeper.

Its not hard to get a good crop in a good year. Remember the old saying that: 'Bees make honey in spite of beekeepers' I once quoted:

If you are a good beekeeper, you'll get a honey crop in that mediocre season when others get little or nothing. Your hives will be gentle enough so you don't upset your neighbours or

Photo I Four hives set out to reduce drifting

become a nuisance. Your hives will be tidy enough so an apiary inspector will not have to attack the glued up frames with a spade.

The details of **how** you go about taking care of the important aspects of beekeeping, re-queening, feeding and supering at

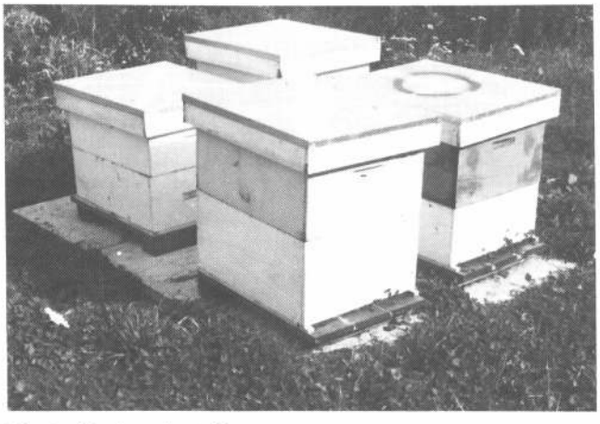


Photo II As photo I

the right time, are the subject of all the talk of beekeepers and the books and the magazines.

Learning what methods work for you in your location for a particular season is the 'art' of beekeeping.

Now you've finished this short article, sit back and think about your own beekeeping systems. Are you re-queening at

BEGINNERS' NOTES (Concluded)

least every two years? Has your hive always had at least two good frames of honey or stores provided by feeding sugar to them? Do you give them the extra room that they need when they need it?

If you do, then you can move ahead to the 'fine tuning' of more intricate management systems, such as two-queening or complicated dividing/uniting procedures suited to your local requirements. If you can't honestly say you are taking care of the basics, make them your special goal over the coming season and see what a difference it makes.

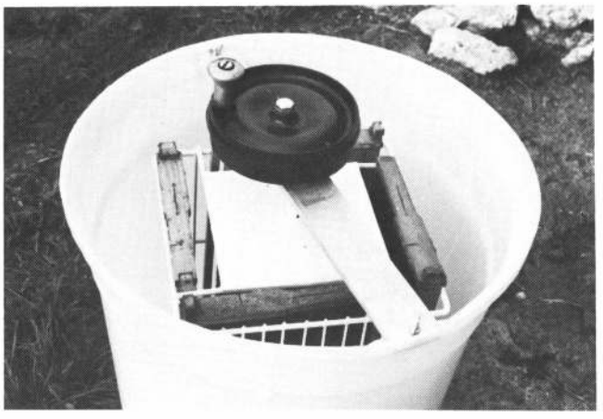


Photo III Typical hobbyist honey extractor

Photo IV Working the brood nest

Young queens, with reduced swarming levels and smooth, rapid, reliable build up. Colonies that never get the set back of running short of food. Hives that get the new honey super before the bees have started to pack out the brood nest. What a difference they all make!

Why is it always such a surprise that beekeepers who consistently get the best crops are the ones who sit quietly at the back of the room and claim they don't have any special tricks or gadgets to share?

From the colonies

NORTHLAND

All is quiet in Northland at the moment. A very poor season followed by an Indian summer has made problems for most of our members. However, hives are going into winter in quite good condition and we hope spring weather will be more normal. Queen producers in the area have had a hectic autumn and will soon be able to take a day off. The Branch is to hold a seminar on planning in early June to assist members over a difficult winter.

Pat Gavin

OTAGO

A very good old friend, Mr Jas Marshall of Outram, passed away recently. As Jim, Life Member of our Branch, would say, he has gone Home after living a very long life of 92 years. We have known Jim as a wonderful person, sharing with and caring for many who crossed his path.

Besides being a beekeeper and farmer Jim devoted much of his time to work in the community, particularly to his beloved church and Sunday school. Always fully supported by Mrs Marshall.

He served his country on the battlefields of Western Europe during WWI.

Our sympathy goes out to Mrs Marshall who has been Jim's partner for nearly 60 years. For all who have known him it has been a great privilege to have been on his long list of friends.

Another season is behind us and, summing up, Otago's honey crop fluctuated from place to place with quite large differences. From 50kg per hive down to a 10kg per hive return.

In general autumn has been kind with many fine days. But now winter is very near, and we have cold south-westerlies with forecasts for hail and snow in the hills. All right if it comes at the right time of the year.

Our AGM was duly held and Ken Trevathan was re-elected President. Secretary John Foote resigned and has been replaced by Neil Walker. Thank you so much John for a job well done.

Preparations are in hand for the Otago-Southland Convention to be held on the Tuesday after Queen's Birthday weekend.

John Heineman

HAWKES BAY

On Saturday March 8 the Branch held a field day at our Community College. The programme ran from 10am to 5pm and included a BYO BBQ lunch. Ted Roberts was the guest speaker and we had a video about pollen under the microscope edited by Greg Gear.

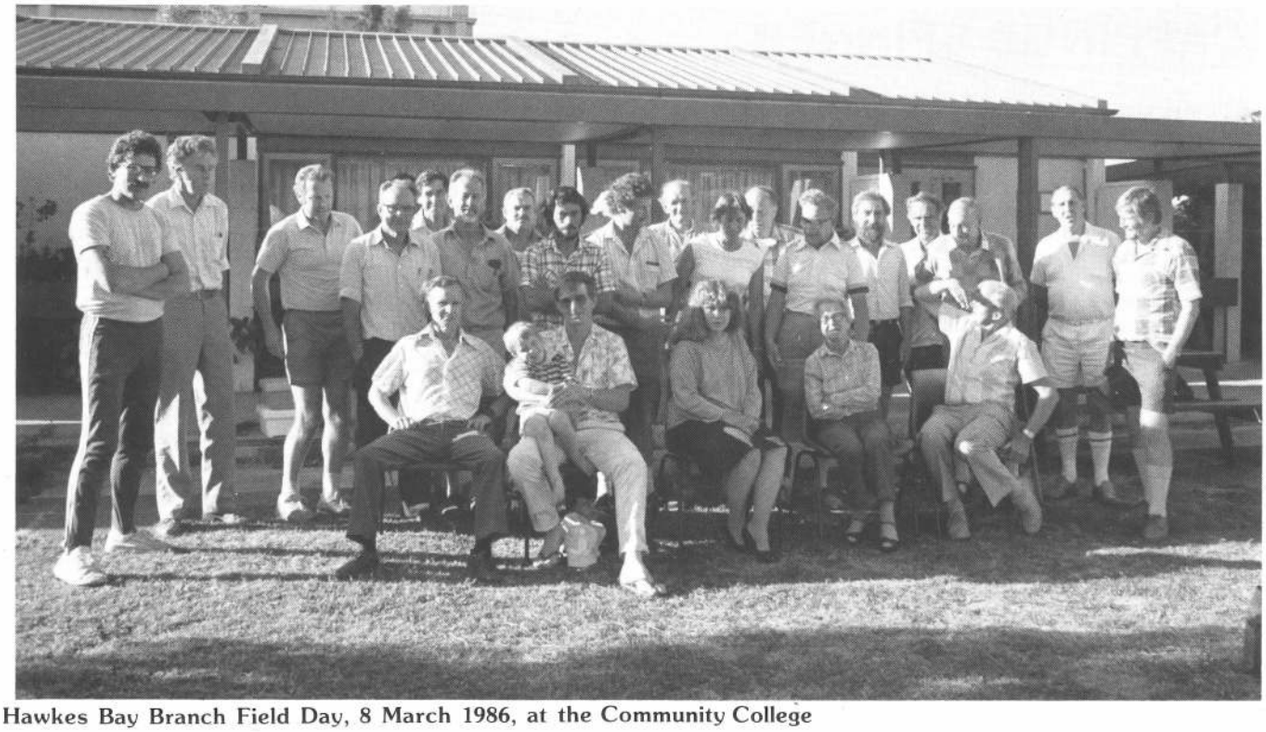
This year's competitions included smoker lighting. It was won by Chris Robinson and John Heise collected the booby prize. However, John won the "Guess-the-weight-of-the-single-storey hive" competition and his wife took the "Cooking-with-honey" prize. We also ran a raffle.

This year's practical theme was "Taking off honey and wintering down". The fine and warm day did not deter the bees from having a go at the tutor and the crowd had to keep moving further away. However, the sausage-sizzle at lunch seemed to cure all. See you at Conference.

John Walker

BAY OF PLENTY

Most beekeepers had a poor honeycrop with the Tawari being rained out and thistles again failing to produce. Many hives went into the autumn in poor condition but fine weather



Hawkes Bay Branch Field Day, 8 March 1986, at the Community College

From the Colonies (Cont.)

has improved the situation in some areas. Those not so fortunate have once again been doing the rounds with the sugar pumps.

Our AGM saw a change of officers with Jim Courtney becoming President, Steve Weenink Vice-President, and Peter Townsend Secretary. After a quiet year we are looking forward to a more active one with a variety of events planned. One of these is the second Young Beekeeper of the Year competition. The contestants have each received two apiary visits and the three finalists have been selected. The final will take place at a social function in June.

A group of local beekeepers spent several enjoyable days visiting beekeepers in the Gisborne-Poverty Bay area and came back with some good ideas and new friends. Visits between districts are valuable; we get to know other beekeepers and understand the other fellow's point of view.

As I write the kiwifruit harvest is beginning and the products of our efforts in November can be seen. A very late and wet pollination season means there is a lot of small fruit about; a problem more acute in orchards with inadequate or poor-quality male plants. Unfortunately some orchardists forget the importance of other factors and some blame the beekeeper if anything goes wrong.

We are concerned that some beekeepers from outside the area are bringing in hives for pollination at ridiculously cheap prices. A lot of hard work has been done in recent years to make kiwifruit pollination a viable business, and to establish a pricing structure that can make it worthwhile for hives to be brought in from outside. Cut throat competition can only bring the beekeeping industry into disrepute.

Some beekeepers will soon be at work in kiwifruit pack-houses while others are making a start with new equipment for next season.

Peter Townsend

MARLBOROUGH

Another season has passed with all hopes dashed. The bumper crop that promised, suddenly evaporated in the second half of January with cold easterlies and southerlies. We ended with a very average crop. It was rather cool in December so most of the bees did a box only by New Year. The 10 days January 6 — 16, however, were perfect and the hives rapidly filled.

Now it is time for winter jobs and perhaps stepping off the treadmill and wondering if all the work is really worthwhile. To increase or not to increase. . .!

James Jenkins

WESTLAND

Autumn to date has seen changeable weather with generally mild temperatures for this time of year. An early cessation of our honey flow and basically nothing dribbling in since, means more topping up of winter stores than usual.

The Branch organised a field trip to Canterbury on April 12. A hired mini-bus — for those who preferred to be driven rather than drive — and three private cars made up the convoy.

The first stop was Hororata Honey. After we inspected their premises and plant, John Hartnell gave a talk on marketing honey, prices, exporting etc. From Hororata we travelled north to Oxford and visited Ray Burnip. We inspected his plant, discussed his operation, then the lunch break muffled the conversation briefly, before proceeding to Rangiora to look round Tom Penrose's establishment. By this time the group was beginning to realise the great diversity in honey houses in other districts. After an unexpected and most appreciated afternoon tea provided by Mrs Penrose, we topped off a most interesting and informative day by calling at Leon Havill's Meadery where Leon duly entertained us with samples of a by-product of our own industry.

We returned via Arthurs Pass and arrived back on the Coast around 11pm. We resolved that further expeditions will follow, next time hopefully to the north, Nelson area, for a full weekend.

Sandy Richardson

NELSON

The timely showers and warmer temperatures in spring indicated The Great Honey Harvest but, alas, the big volumes of water loosed in January put the cap on the honey flow while the bees uncapped the honey they had already capped.

However, the rain may not have been entirely to blame for the variation of the crops harvested. One has to consider the ever-increasing areas under horticulture which mean that the bee-grazing areas are decreasing from carrying capacity to standing room only. The Waimea Plain once supported probably more than 500 hives; today it is a completely "no-go" area.

We will soon have to forget that our bees were kept for producing honey. Their role has changed to that of candy kids with two excursions per annum: from up country to down country, to view and sip nectars of the Gala, Royal Gala, and berryfruits and to give the kiwifruit pollen the "brush off". Meanwhile feral colonies, created by swarms (prevalent after pollinating) returning to the so-called safe place of last summer, are doing nicely, thank you. Very much at the expense of the travel-weary, spray-intoxicated migrants'. Just think, it should be a devil of a good year next year.

Ron Stratford

NORTH OTAGO

Very litle honey on top of hives in some places again; most of it went down below. Again most extracting has been done early. People's enthusiasm maybe started to wain after two years of very poor honey crops on the coastal part of North Otago. The only bright spot was the lower hill country which caught the rain at the right time, but this will begin to drop off within a couple of years.

The downturn in farming and the fact that this type of country needs plenty of fertiliser to maintain production means a lot of farmers on the lowlands are turning to cereals, so it may take a bit of juggling next year with sites.

Another good thing to see is rising honey prices with good competition. Good to see, instead of price cutting which helped no one. It may allow us a bit for hive maintenance after all.

G.R. McCallum

SOUTH CANTERBURY

On Anzac Day Mr Robert Davidson passed peacefully away at Timaru, aged 84.

He was born in the old gold town of Macetown, Central Otago. At an early age he moved with his family to Dunedin where he commenced his working career as an apprentice fitter and turner with Millis and Co. After finishing his apprenticeship he moved to the Hillside Railway workshops where he worked at his trade for the next seven years.

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From the Colonies (Concluded)

In 1927 he married and shortly afterwards moved to Timaru to become a teacher of engineering and allied subjects.

He became a beekeeper by chance. In 1932 a swarm of bees alighted on a shrub in his garden. A neighbour who had a few hives of bees persuaded Robert to hive the swarm and keep it as a hobby. From there his interest grew. He added more hives until 1945 when he bought a beekeeping business and gave up teaching to become a commercial beekeeper. So Davidson's Apiaries were formed.

Robert Davidson knew hardship. A determined man with an analytic mind, he was quick and agile in thought, said what he meant, meant what he said, and had a clear voice which commanded attention. Always ready to help he became a leader in the industry and many young beekeepers owe their success to his advice.

When the New Zealand Honey Marketing Authority was established he was a member of the board and was responsible for the formation of the New Zealand Honey Packers Association and served as its secretary for a number of years. A staunch supporter of the National Beekeepers' Association, he sered as secretary of the South Canterbury branch for many years. He was awarded life membership for his service to the industry.

Mr Davidson is survived by his wife, Sheila, his two sons, Robert and John and his two daughters, Margaret and Joan.

Harry Cloake

SOUTH-WESTERN DISTRICTS

Reflecting over the past three months I remember first our well-attended field day hosted by Stan and Joyce Young at Oakura along the coast just south of New Plymouth. A feature of the programme was six different ways of harvesting honey.

Not all that is happening out on the farm these days is bad news. Our honey is in demand overseas and several beekeepers have been made aware of another diversion — bulk package bees to Canada. Budget planning this winter will include a variety of options: pollination (an increased number of hives for next November), honey and package bees for export, nucleus colonies, and queens for sale.

With this range from simple (but well-organised) monoculture of colonies I sense hope and security for the beekeeper despite the general pains farmers are feeling right now.

A very warm autumn has carried hives through to the beginning of winter with a good supply of stores. To see brood comb filled with new honey in April is unusual.

John Brandon

WAIKATO

The Waikato Branch held its AGM on April 24. Lindsay Hansen did not seek re-election as President so Russell Berry was elected.

We discussed Conference arrangements because we are determined to make a success at Rotorua.

We are concerned because the Government is reducing funds for the MAF and wonder how this will affect our advisory services.

Last season's crop seems to get poorer everytime I hear about it. I've heard of crops as low as two tonnes per 100 hives but think around 2.5 tonnes per hundred would be average.

One of our senior Branch members, a beekeeper in the Morrinsville area for over 40 years and who has never had BL disease, found a hive with BL when taking honey off one of his apiaries. He checked the whole apiary and found another hive with BL. He had to burn both hives and four supers of honey.

An inspection of the area turned up an apiary within a short distance of his with three diseased hives. This apiary belongs to a beekeeper who is into pollination in the Bay of Plenty and who winters the hives where they are now.

Why should a responsible beekeeper who has kept his hives in tip-top order for over 40 years have to suffer for the irresponsibility of another beekeeper who is not doing his job properly? The MAF should take a much stronger line. In my view anyone who has BL should not be permitted to move his hives anywhere for 12 months or until he is proven clear. Only if people are hit in the pocket will they toe the line. When we took over our outfit it was badly affected by disease. We burned hundreds of hives and it took us five years to clear out BL and we've had no disease for 18 years. It can be cleaned up and it should be cleaned up.

Ray Robinson

SOUTH AUCKLAND

Re-reading the May 1974 NZ Beekeeper, I found an interesting article by Mr S. Hopkins, first published in 1916. The following is an extract:

"On the 21st day of March 1884, a meeting of beekeepers was held at the Commercial Hotel, Auckland, for the purpose of forming a Beekeepers' Association. The name of the Association was to be the NZ Beekeeper's Association, and a committee was formed. The Committee met on June 3 and a code of rules was carefully considered and made ready for a general meeting which was held on August 7. The rules were adopted and printed in book form. A meeting of beekeepers was held at Buchanan's Hall, Pukekohe on Feb. 23, 1884 for the purpose of forming an Association Branch to be known as the Auckland Provincial Beekeepers' Assoc."

This makes the Auckland Branch 102 years old on Feb. 23 this year, and the first branch formed. To continue the extract:

"The first Annual Conference of the NZ Beekeepers' Assoc. was held on March 20th, 1885, at Auckland. In conjunction with the conference a number of papers on different beekeeping subjects were prepared for reading, and the first annual report and balance sheet was printed and distributed. Beekeepers attended from Gisborne, Taranaki, Tauranga, Southern Waikato, and from districts north of Auckland."

Dave Young

NATIONAL BEEKEEPERS' ASSOCIATION 1986 CONFERENCE AND MAF SEMINAR

ROTORUA 22-23-24 July

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PROGRAMME

Monday	21	Social 'get together' at Travelodge Hotel 8pm.
Tuesday	22	MAF Seminar — Specialty group meetings during evening
Wednesday	23	Conference. Dine & Dance Social Evening. Afternoon bus trip for ladies.
Thursday	24	Conference all day.

COSTS

Social 'get-together		A complimentary cocktail on arrival — courtesy Travelodge, thereafter drinks own expense.
Seminar Registration	$8	includes morning and afternoon teas.
Conference Registration	$20	includes morning and afternoon teas and bus trip for ladies.
Social Evening	Single $30 Double $55	Dinner dance and entertainment — drinks own expense. Tickets will be available at the 'get-together' on July 21, and in the mornings before the Seminar and Conference. Please send no money in advance.

VENUE

Conference venues are keenly sought after in Rotorua, particularly during July. Of eight possible venues, Mr John Goodall of the Rotorua Travelodge Hotel came up with the best for a great conference at the lowest price. He has made big discounts available in his room rates which he is prepared to give to you for five days before and five days after Conference. Make this your winter holiday!

The Hotel overlooking the lake, is just a few minutes walk from the Government Gardens, Orchid House, Polynesian Pools, and five minute walk to the Rotorua shops and cheap eating houses if you want a change from the reasonably priced food at the Travelodge. A special menu has been drawn up for the beekeepers, $20 per night except for the Social Evening. An a-la-carte menu is also available. Although the Hotel is very close to town it is in a quiet area (before we arrive anyway) with lots of space for trade displays and free parking even if you all bring your trucks!

Book your accommodation now. We recommend the Travelodge where all the informal get-togethers, meetings, and the social function will be held. Just one room rate irrespective of number of people per room — $70.00. One single, one double bed per room, bath, shower, fridge, telephone, Tv, tea making facilities, and cot available.

Book directly with the Rotorua Travelodge.

How many of you can remember your last Rotorua Beekeepers' Conference? Don't miss this one!

The NBA Waikato Branch cordially invites you to attend the 84th Annual NBA Conference. For information please phone
President R. Berry (073) 38-091 Reporoa, Secretary T. Lorimer (071) 69-625 Hamilton.

For a Change a Simple Super Jig

By: Cliff Van Eaton

Faced with the chore of super assembly, New Zealand beekeepers have constructed some very sophisticated technical aids. The frustrated mechanics amongst us have come up with all manner of air rams, self-positioners, and rotating clamps. And there's no doubt that these devices really do help to speed the task.

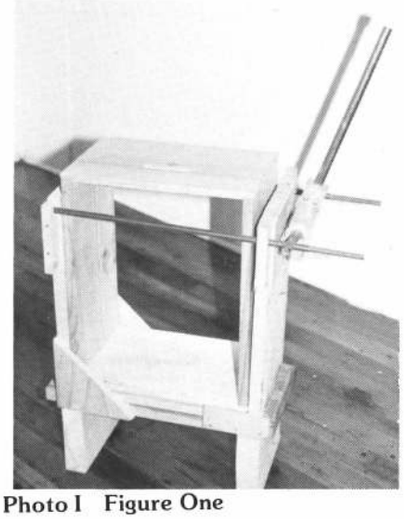


Photo I Figure One

But for those of us without an engineering shop (and the capital to go with it) there must be something better than a pair of old sash clamps.

That "something" turned up a couple of years ago at the Telford Beekeeping Unit work bee. Ian Spence of Wendonside, Southland, brought along a super jig which, when used with a staple gun, was able to keep up with the massive air ram. And best of all, it was mostly made out of wood.

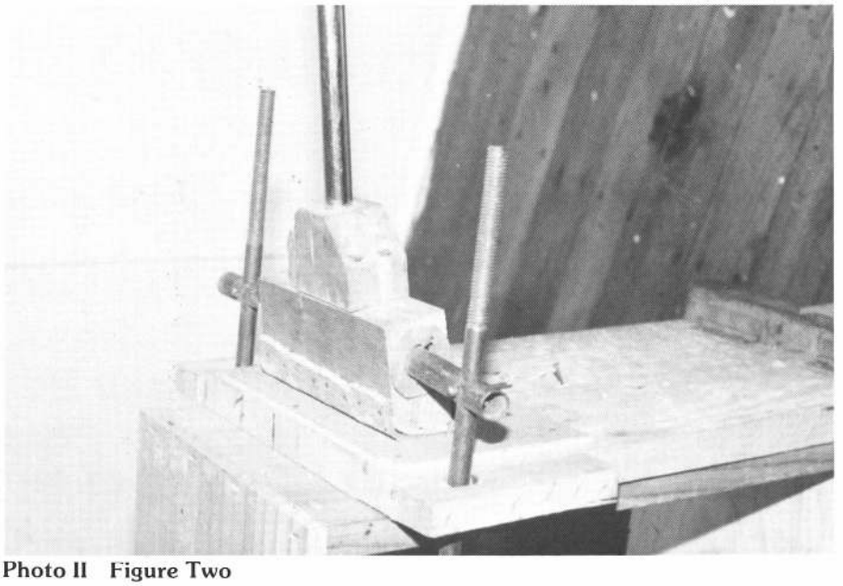


Photo II Figure Two

Ian claims there isn't much to it, but to me that's the beauty of the thing. The jig is built just wide enough for the super side pieces to fit (Fig 1). The pieces also rest snugly into grooves built into the base. One side of the jig is fastened to the base with hinges and acts as a clamp. The pressure is supplied by a cam made of hardwood covered with a piece of carpet strip (Fig 2).

With the super sides positioned and one super end laid on top, pressure applied by the cam holds the pieces under tension for nailing. The jig does a great job of straightening the inevitable warps found in super timber.

Once nailed, the half-constructed super is simply flipped. The other super end is put in place and the tension applied again.

The cam handle is an aluminium chair leg and the steel bars are from an old two-man hive lifter, but obviously anything will do. The whole jig can be made up from bits and pieces, but don't forget to warn visitors (i.e. the local AAO) about the three-legged chair!

beelines

By: Jenny Bee

Pity Friendly Local Farmer wore trousers that day. He'd stopped by to introduce himself and unwittingly parked his Landrover and working dogs in front of our hives. The bees objected hotly to this instrusion of their air-space, sending in the Bee 17s in retaliation which produced howls of protest from the dogs. F.L.F. shot out sporadic but ineffective bursts of "SettledownSams" and "Getinbehinds" until it suddenly dawned on him that there was more to their complaints than canine high jinks. We watched transfixed as crazed dogs, furious bees, and F.L.F. exploded in all directions. He was very lucky to escape with nothing more serious than a pounding heart and a bad case of 'the twitches' which kept him busy brushing away imaginary insects and scratching odd little itches. We carried on chatting and after a while Mrs Beekeeper left to go inside. Once she was out of the way F.L.F. wasted no time. Certain there was something suspicious crawling up his leg he hastily 'downed trou'. What an introduction! He'll never live that one down —and neither will we.

In our local farming community, bee farming sticks out like the proverbial (and sometimes literal) sore thumb. We are diversification at its most diverse. They never had bees down on the farm in Old McDonald's day and it's still rather unusual.

This vast difference in occupation means we are at a distinct disadvantage when it comes to the sort of knowledge everyone else cut their two tooths on. We are the only ones who feel squeamish at docking time, and who can't tell a Romney from a Charolais. Knowing how to manage zzzillions of bees is no help at all in coping with a runaway mob of sheep or a dozen bulls bellowing obscenities at each other and practising their 'jerk and lifts' with the fence behind our house. I've tried challenging them with assertiveness ("Leave our fence alone you big bullies") outright anger (fist waving/foot stamping) and threats ("I'll set the bees on you . . .") but nothing works. They demolish my arguments by narrowing their eyes, lowering their heads and staring . . . I've never waited around long enough to find out what happens next.

Sometimes it seems that there are bulls to the right of us, bulls to the left of us, and bulls at the front gate too. We learnt that bulls at the front gate mean F.L.F.'s livelihood is disappearing down the road and he appreciates a phone call — even if it is only 5.45am. Once, feeling very pleased with our initiative, we chased an escaped mob back into our absent neighbour's farm and shut them in securely. Neighbour arrived back to find the bulls having a ball in his carefully-stacked hay barn.

We gave up after that. Now if we spot a stray beast or two we give F.L.F. a buzz and leave him to it. Each to his own is smart advice.

The funny thing is, our F.L.F. who handles bulls with such bravado, finds *little* beasties quite terrifying. One neighbour gives a prolonged salute every time he passes on his farm bike. I used to respond in kind until I realised it wasn't me that was the distraction — it was the bees.

Still, the bees do provide a great way for us to make friends and influence people: Everyone wants to be our friend when there is a swarm in their backyard and our home-brewed honey mead has caused more than one guest to be slightly 'under the influence'.

We have, by the way, discovered an effective way of curing our friends' beebee jeebees. We invite an F.L.F. family to a meal and afterwards pull out the old veils and suggest they may like to take a look inside a real hive. Although most initiates go off with glazed eye and unconvincing fixed smile, they all return beaming with wonder and achievement. We've never had a casualty yet — although it's been close at times as we've endured the: "At least you've got no b- fencing to worry about!" and "Must be awkward getting the ear-tags on."

One of our F.L.F.s even suggested we might like to join *him* one day when he dosed his bulls. "They're not so bad up close. You just grab their tails and steer them in the right direction. Give it a little twist and 300 kilos of bull stops in his tracks. Course, you've got to know what you're doing."

I don't know — sounds like a lot of bull to me . . .

Several subscribers have written asking for the addresses of the authors of the Article "A New Beekeeping Concept" published on page 25 of the Autumn 1986 issue of the New Zealand Beekeeper. These addresses are:

Erik Osterlund
P1 5062 B
S-69400 Hallberg
Sweden

Bjorn Lagerman
Liljendal, Ramsberg
S-71700 Stora
Sweden

Supering Mating boxes for pollen tests

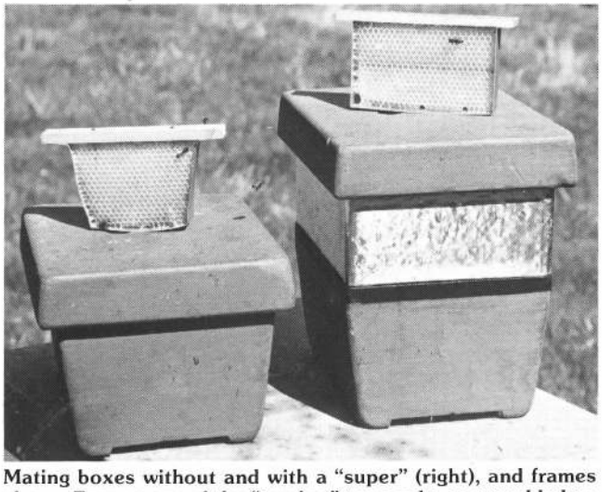
By: PatClinch, Anton ten Houten

Since 1945 the Apiculture Section at Wallaceville has developed numerous test methods to assess the effect of pesticides on adult honey bees, and has tested many pesticides with them. However, not until 1979, when fungicides were first applied on flowering kiwifruit, were test methods developed to specifically determine their effect on immature stages.

Laboratory tests had shown that these fungicides were of low toxicity to adult bees, but there was still the possibility that their contamination of pollen might affect brood development. Initial tests, in which fungicides were applied directly on larvae, showed that the compounds differed markedly in their effects. However, it was clear that the only effective method of determining the risk to brood was to feed fungicide-contaminated pollen to colonies. Accordingly nucs were prepared and placed in cages (to deny bees access to sources of uncontaminated pollen). Then disaster in the form of AFB struck and as replacement colonies were not available at the time, the experiment stopped. As examination of brood from colonies in fungicide-sprayed orchards in the Tauranga district failed to reveal adverse effects, further work was deferred.

In late 1984 we were asked to test two new insecticides to ascertain if they could be applied to flowering kiwifruit without harming honey bees. Laboratory tests showed they were safe to adult honey bees, but it was essential to determine their effect on brood. Anton joined the Section soon after this, and suggested that, instead of using nucs, we use polystyrene mating boxes of which he had experience.

Shortcomings of mating boxes used for experiments in cages soon became apparent. The major limitation was that the area of comb (1056 sq cm) did not allow both unrestricted brood production and adequate storage of honey. Furthermore, when initially several colonies were placed together in each cage, drifting and robbing occurred. We overcame this by dividing the cages into compartments with only one hive in each. Nevertheless, mating boxes had advantages over nucs; they required much less pollen, and it was possible to count individual brood cells instead of estimating brood areas, and thus accurately detect changes in brood production.



Mating boxes without and with a "super" (right), and frames above. Frames are of the "top bar" type only, so we added an aluminium strip to give extra strength for handling.

To improve the performance of mating boxes in these experiments, we increased their size by adding to each a "super" 10 cm high (see photo) made from expanded polystyrene held together by aluminium building tape. Each super allowed space for six 8 x 15 cm frames, although only five were used, the space for the sixth being taken by a container for pollen.

This modificaion more than doubled the comb area and allowed more bees to be used per hive with the result that brood production increased by nearly 50%. There was always extra comb available for brood expansion. Because the entrance is underneath the mating boxes, we feared ventilation might be inadequate. However, as at the time we could buy only low-density polystyrene, the bees chewed small holes in it and no overheating occurred. Experiments are currently being undertaken with the modified mating boxes, and results will be published in due course.

LIBRARY NOTES

Especially for use by beekeeping-course students who find it difficult to buy their own: *The Hive And The Honey Bee:* two copies, 1984 edition. Also two extra copies of *Honey Bee Brood Diseases* by Henrik Hansen.

The Illustrated Encyclopedia of Beekeeping, edited by Roger Morse and Ted Hooper, 1985, 432 p, UK. Hard back with over 500 entires from many specialists. Well illustrated with b/w and colour photos and many diagrams. Entries have been alphabetically arranged with a good system of cross-referencing. A very useful addition to our library alongside the other popular reference books such as *ABC/XYZ* and *The Hive And The H.B.*

The 29th International Congress Of Apiculture, Budapest 1983, 495p. Not just a summing up of the proceedings and papers of academic importance. Scanning this voluminous book one suddenly discovers lots of valuable information for the practical beekeeper.

"Information On Beekeeping", by Mr Elbert Jaycox Ph.D. A series of 10 sheets much along the lines of our New Zealand Aglinks. Informative and useful. Mr Jaycox is a well-known US beekeeping tutor and author. It was a thrill to have Mr and Mrs Jaycox call on us during their recent stay in New Zealand. They live in Las Cruces, New Mexico.

The OTAGO BRANCH has allocated up to $60 for the purchase of library items. This money comes from a fund fed by the proceeds of four hives, originally intended as an educational apiary. It has, however, not been a great success. By donating some of this money to the library it can still be used for the right purpose.

N.B. I will be away from home from June 7 until after Conference. Would Library users please exercise a little patience. However if you do require an item urgently drop a line and write **Urgent** on the back of the envelope.

Also some borrowers are badly overdue with returning books. Please attend to it. A reminder means extra trouble and a 30¢ stamp. You will have to pay for that!

John Heineman
Hon. Librarian

Floral Source Identification: A Chemical Approach

By: S.T. Tan, A.L. Wilkins, Waikato University and Murray Reid, National AAO.

Food laws in many European and other developed countries demand a declaration of the origin of food offered for sale. This legislation covers honey. Such legislation can only be implemented if reliable methods exist for determining the geographical origin of honey. The microscopical investigation of the constituents of honey provides such a method, which goes back as far as the turn of the century. Honey microscopy has until now been the only method used for determining the major floral constituents of honey and the country of origin of importing honey. Floral source identification is particularly important for marketing honey with a named floral source. For example, clover honey fetches a premium price. The procedure of pollen analysis (honey microscopy) has proved to be invaluable especially in the hands of an expert.

Honey microscopy however is limited and requires a detailed knowledge of pollen taxonomy. Different proportions of pollen may be present from the proportions of nectars from which a honey has been produced. In addition, there are cases where the plant only produces the pollen and not nectar as in the case of kiwifruit. Since pollen production varies greatly between species, some unifloral honey may contain less than 20,000 pollen grains per 10g sample, and some more than 100,000. Therefore pollen analysis can give only some guide in determining the floral source of a honey.

A detailed discussion of the microscopical determination of the origin of honey was given by Maurizio. However, for honeys from which all solid components (including pollen and other plant constituents) have been eliminated by excessive filtration, or by pressure-filtering through diatomaceous earth or similar material, microscopic analyses are of little use. As export markets for New Zealand honey increase, it becomes clear that customer and legislation requirements, including those of product quality, have to be met. The simplicity of the 'GC technique' would make it preferable to pollen analysis if reliable results could be obtained.

A recent report of pollen analysis of New Zealand honey by Moar suggests the complications which could arise from the conventional technique. His report included the general requirements outlined by the International Commission for Bee Botany regarding pollen analysis. For most unifloral honey, absolute pollen content in the range fo 20,000 to 100,000 is regarded as "normal". Some unifloral honey may contain less than 20,000 pollen grains and others more than 100,000. Honey in the lower range is "under-represented" in terms of "normal" absolute pollen content, and that in the higher range is "over-represented". The validity of pollen analyses become especially important when the quality of the "under-represented" absolute pollen content honey is questioned by importing countries.

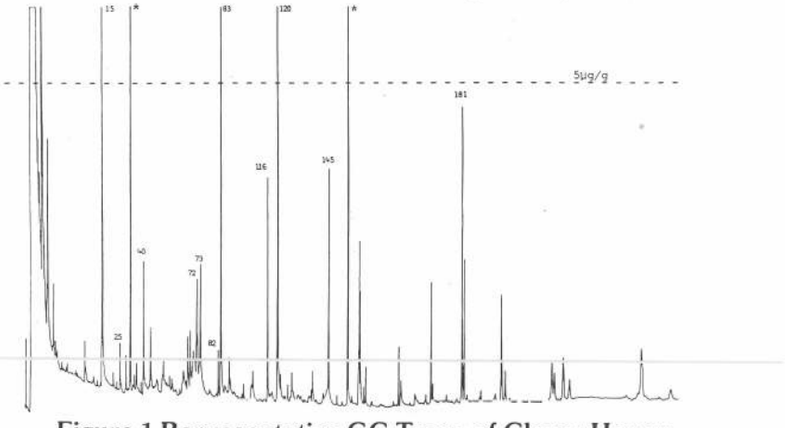


Figure 1 Representative GC Trace of Clover Honey
*** Denotes added internal standards, peaks referred to in the discussion are numbered**

It would therefore be desirable if a more direct method could be developed to provide a quantitative indication of the different proportions of nectars from which the honey is derived. This can only be achieved if the components on which the assessment is based originate from the nectar itself. It is considered that the 'GC technique' would at least in part solve the complications arising from the pollen analysis.

Although the major components of all

Floral Source (Cont.)

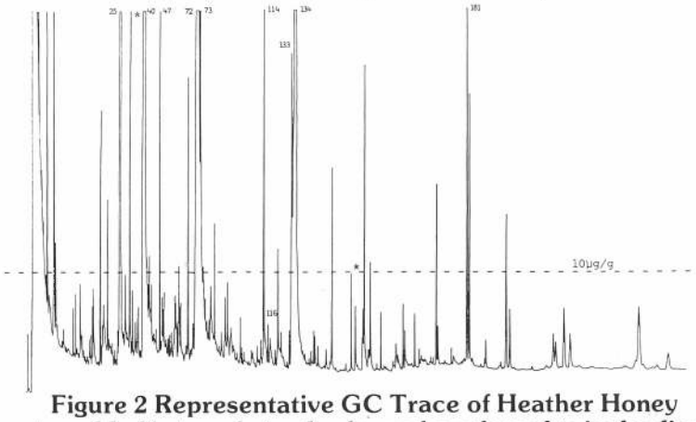


Figure 2 Representative GC Trace of Heather Honey
*** Denotes added internal standards, peaks referred to in the discussion are numbered**

honeys are sugars and water, different honeys are, however, often very distinctive. To anyone who examines a variety of honey, it is evident that an infinite number of variations in aroma, colour, and flavour can exist. Consequently, it can be anticipated that the chemical analyses of the aroma and flavour components of a given unifloral honey, using an advance technique such as capillary gas chromatography (GC), would give a 'finger-print' which would be dependent on floral source.

A collection of 30 honey samples was examined. These samples came from beekeepers throughout New Zealand during the 1982-1984 flowering seasons. The majority were considered to be unifloral specimens. Floral source identification of each honey was based on flavour, colour, and aroma, also the season and location of its production. It is accepted that a truly unifloral honey is impossible to obtain. Strong flavoured and dark honeys such as manuka may contain a significant percentage of clover. In the analyses of organic extractives from all the above samples, the following typical capillary GC profiles were obtained. It is apparent from these GC traces that the floral source of the honeys examined can be reliably inferred from the GC profiles.

Figure 1 shows the GC trace of clover *(Trifolium repens)* type honey. It is characterised by the presence of peaks 82 and 83, and low overall extractable organics. This is in accordance with the fact that clover honey is considered to be a light flavoured honey. The description "clover type" is used because North Island clover contains a combination of pastoral flowers, the nectar of which is widely available to bees.

Heather honey (see Figure 2) is characterised by peaks 114, 133 and, 134, and high overall extractable organics. Others with high extractable organics are kanuka and manuka honeys. However, manuka and kanuka honeys are devoid of peaks 114, 133 and 134.

GC profile of rewarewa *(Knightia excelsa)* honey is depicted in Figure 3. At first glance, rewarewa honey is akin to clover honey in that only low levels of organics are recoverable. However, the absence of peaks 82 and 83 serve to distinguish rewarewa honey from clover honey. In addition, the presence of peaks 35 and 45 appear to be indicative of rewarewa honey.

Manuka *(Leptospermum scoparium)* and kanuka *(L. ericoides)* honeys (Figure 4) are characterised by the presence of peaks 60, 63, and 132 with peak 72 dominating the GC trace. Manuka and kanuka are of the same family and genus. Consequently it can be anticipated that the two species may produce similar types of honey, and this is indeed what was observed. However, as there were only two kanuka honey samples available for analyses, this result cannot therefore be considered conclusive.

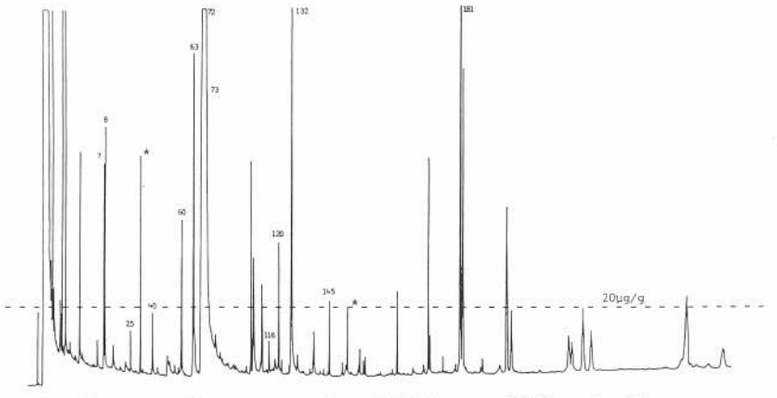


Figure 4 Representative GC Trace of Manuka Honey
*** Denotes added internal standards, peaks referred to in the discussion are numbered**

Similarly, nodding thistle honey (Figure 5) appears to be characterised by clusters of peaks at 36 and 66.

The GC traces of the five honey types investigated in this study are sufficiently diagnostic that even an observer untrained in the art of GC analysis can distinguish one honey type from the other.

Although pollen analyses is cheaper compared to the GC technique, a sound knowledge in pollen taxonomy is required in interpreting the results. Such knowledge involves years of practice to acquire. On the other hand, for the GC technique, once the GC profile is established for each floral type, any technician with the knowledge of operating a GC could extract a given honey sample and run its chromatogram. It is then a matter of comparing the spectrum obtained with the established spectra.

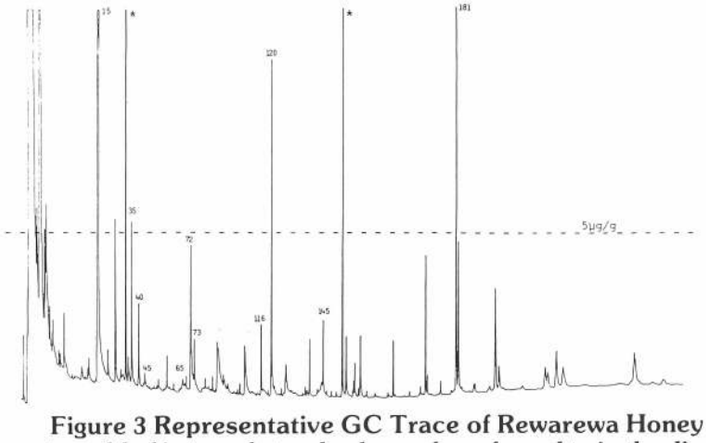


Figure 3 Representative GC Trace of Rewarewa Honey
*** Denotes added internal standards, peaks referred to in the discussion are numbered**

Floral Source (Concluded)

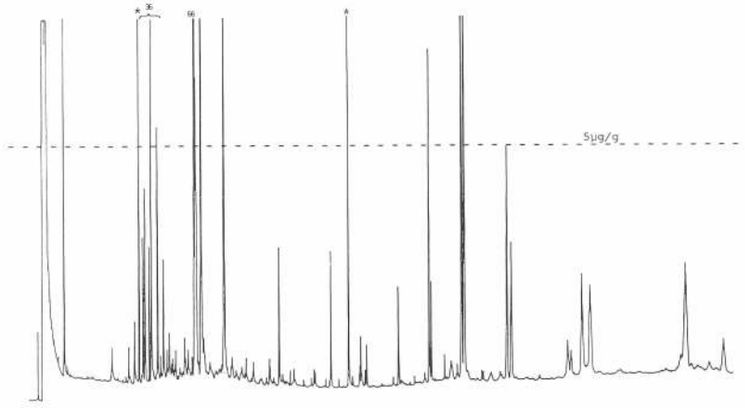


Figure 5 Representative GC Trace of Nodding Thistle Honey
*** Denotes added internal standards, peaks referred to in the discussion are numbered**

However, before GC technique can be accepted as a standard method, more work will have to be done in obtaining repeatable traces for honeys selected as being unifloral. This is because of the likelihood of the samples analysed not being completely monofloral or true to a floral type. In order to eliminate such complications, a large number of samples will have to be studied to establish the reliability of the technique. This is being done at the University of Waikato.

Acknowledgements

The authors thank the many apiarists who provided all the honey samples used for this investigation. Thanks also go to Dr P.C. Molan, who initiated this project.

References

1. Tan S.T., *Chemical investigations of some New Zealand honeys.* University of Waikato: M.Sc. Thesis (1985).
2. Maurizio, A., Microscopy of honey. Pp 240-257 *from* Honey: A comprehensive survey. *ed.* E. Crane. *London: Heinemann in cooperation with International Bee Research Association (1975).*
3. Moar N. T., Pollen analysis of New Zealand honey. *New Zealand J. Agri. Res., 28: 39-70 (1985).*

LETTERS

Dear Sir,

I shall be very grateful if you help me to find work. I have 20 years' commercial beekeeping experience (I am 42 years old). I know beekeeping techniques, bee disease control and diagnosis, queen breeding, and I would be able to do other work if necessary (e.g. truck driving, carpentry, etc.).

When I acquire more practice in your Western technologies, I can make designs and software for computer systems (for your business and for identification technological works in your apiaries). I am very interested to get to know all about your bee techniques.

Maybe I could change a little of your bee techniques because I have my European experience and my own view-point on certain problems. For about 20 years I have been working in my own commercial apiary but in Poland this brings little profit, so I would like to work hard for you, for a longer time. I am married (my wife is a dentist) and I have two daughters (schoolgirls). I am healthy and I would like to work a season or two with the possibility of prolonging my stay. I could come with a friend, a very experienced queen-breeding specialist (his name and address: Josef Jasina, 20-857 Lublin, St. Harnasie 7/59 Poland). In case you or your fellow apiarists are interested in my offer please send me a contract mentioning the following details: my full name and address, monthly salary etc.

Jan Pawel Jedrszczyk,
St. Wielkopolska 110,
20-725 Lublin,
Poland.

Dear Sir,

I am a hobbyist beekeeper but have the knowledge and experience to be a professional one. I am emigrating to New Zealand with my wife and two children next year and will be looking for a job. Anything you can do to help me will be greatly appreciated.

R. Bliekendaal
Burg Erundemannstraat
2651 EB Berkel en Rod
The Netherlands

Dear Sir,

I am interested in living and working in New Zealand as a beekeeper and would like to hear from any apiarists prepared to employ me. I am 24 years old, have three year's experience at my father's apiary, and passed the Master of Beekeeping exam. Thank you for your help.

Michael Mehler
Haupstr. 47
5531 Salm
West Germany

NEW PRODUCT

Lucas Industries NZ Ltd is manufacturing under licence to the Genpak Corp., USA, a new line of round containers with a lid-sealing system to keep products air tight and secure. The lids can be opened and sealed time and time again without damaging the seal.

Manufactured from both polypropylene and polyethylene the containers come in seven sizes from 250ml to 20 litres with a varied choice of coloured lids for product identification. If the containers are dropped on their sides they will not open because a rim acts as a bumper bar. The containers are being used for such diversified products as cured mutton, pickled onions, chemicals, wall coatings, jam, and paint, and have a multitude of uses beyond their primary function; the smaller ones around the house and the larger ones, with handles, for anything from liquids to litter. The manufacturers say they can be steam cleaned and chemically sterilised.

BEE PRODUCTS & NOVELTIES 1986

ITEM	COST
HONEY LINES	
Kiwifruit & Honey Tablets	$4.76
Orange & Honey Tablets	$4.76
Griffins Lemon and Honey	35 cents
Honey Nut Bars	59 cents
Honey Bees (250 quantity)	$8.50
Honey & Carob	55 cents
Honey Comb	55 cents
Snak Logs & Honey Date	50 cents
SOAPS & CREAMS	
Propolis Soaps	$1.50
Floating Soaps	$2.60
Goats' milk Honey	85 cents
Good Earth Soaps	$2.60
Bromley Soaps small	$1.10
large	$3.09
Bees wax Handcream	$2.00
Milk & Honey Skin Balm	$4.44
PROPOLIS PRODUCTS	
Propolis Lozenges (1 kg bulk)	$12.62
Boxes each	$2.99
200gm Poly Jar each	$4.35
Propolis Toothpaste	$2.99
Propolis Tincture 25 ml	$4.52
Propolis Ointment 100gms	$3.18
Propolis Capsules 50s	$3.79
100s	$6.73
POLLEN PRODUCTS	
Pollen Ointment 85 gms	$2.34
Herbal Pollen Ointment	$3.54
Synergy Selenium & Pollen	$5.64
NOVELTIES	
Bees on Stalks large	90 cents
small	50 cents
Bee Magnets large	75 cents
small	70 cents
Bee Hangers	75 cents
Bee Puzzles — Bee Flower	$6.95
— Flower	$6.95
— Thread Bear	$6.95
Bee Mobiles small	$9.32
double	$16.95

ITEM	COST
Flower Press	$7.95
Teddy Bear Broaches	$2.99
Teddy Bear Magnets	$2.99
Bee Earrings	$4.50
Bee Necklaces	$6.50
Bee Bracelets (Price to be advised)	approx. $5.00
Bee Postcards	35 cents
Bee & Bear Stickers	75 cents
ROYAL JELLY PRODUCTS	
Melbrosia Tablets for Men	$9.50
Women	$8.00
AVAILABLE FROM STH ISLAND ONLY — (Mrs J. Chisnall)	
Sharps Lemon & Honey Lollies	45 cents
Tins Honey Chews	$3.02
Soft Toy Teddybears	$6.95
Fork & Spoon Set (Bear Motif)	$4.95
Christening Set (Enamil Motif)	$16.95
one set of spoon, knife & fork	
Wooden Honey Dippers	$2.92
Bear Musical Mobile	$29.95
Faberge Handcream	$5.95
Dadants Cook Book	$17.95
Set of Pooh Books	$8.95
Honey for Health	$17.95
AVAILABLE FROM NTH ISLAND ONLY — (Mrs J. Ashcroft)	
Books:	
Wonderful World of Honey (Cookbook)	$12.95
Bee Pollen — Donsbach	$2.35
Bee Pollen and your health Carlson Wade	$4.85
Propolis Natural Antibiotic (Ray Hill)	$3.85
Bees Wax Polish (small)	$1.26

N.B: ORDERS
Under $5.00 please add $1.50 p & p.
Over $5.00 please add $3.00 p & p.

All prices subject to change.

Available from:

Jan Chisnall, "Maungatai", R.D. Greta Valley.
Jackie Ashcroft, Ashcroft Honey House Ltd,
P.O. Box 461, Havelock North

Beekeeping Monitoring Part III

By Trevor G. Bryant, AAO, MAF, Tauranga

Beekeepers in other regions may be rather envious of the industry situation in the Bay of Plenty from the budget figures presented in Part II of Financial Monitoring (N Z Beekeeper No. 188 Summer 1985).

The budget presented requires a more critical analysis as what appears to be a highly profitable business has in reality, problems when a cash flow for the year is presented, Table III.

Cash is working capital generated from the previous year's production or is borrowed (overdraft) until the new season's crop is sold. The budget as presented in Table II did not take into account the cash situation at the start of the year and the income was projected and not on hand.

Cash derived from the sale of honey more often than not is banked over many months as most honey is sold pro-rata with the final cheque arriving 12 months or even longer after the crop is actually sold.

For producers/exporters of specialty crops such as comb honey, the uncertainty of a sale creates problems as crops may be in storage for 6 - 18 months. No interest is generated by stock on hand but the overdraft facility required to keep the business operating does, to the tune of 30% at present, and is an additional cost which must be met.

Few beekeepers need reminding that the months when little or no income is being banked are those months when operating expenses are at their highest and of necessity expenses must be paid as accounts are rendered.

For the true financial status of beekeeping to emerge, simple straight line budgets must be accompanied by a cash flow spread sheet. The computer age has enabled cash flows to be produced with relative ease, provided the information put in is factual, then the data presented gives an accurate picture of the cash situation at any one moment in time.

The information provided enables managers to make the appropriate decisions at the right time and indicates to financiers the ability of the enterprise to met commitments now and in the future. The manager is therefore in control of his/her destiny.

The totals in Table III are slightly different from those in Table II and are a true reflection of what has actually happened. Rather than analyse the situation for you, readers are left to draw their own conclusions. The only comments made relate to the bottom line, the closing balance.

If the cash in the bank at the commencement of the financial year (April) had been nil, the business would have been $2235 in credit by March, and the maximum overdraft for December $43,581. The deficit balance of $7250 as at the 1st April plus the interest incurred produced a deficit of $5015 by the end of March with a peak overdraft of $50,831 in November, a very different picture indeed and one which may not be acceptable to the bank manager. It is not until a projected cash flow for the following year is done that the account goes into credit (April) when the first substantial cheque for the new season's crop comes to hand.

Financial monitoring has proved extremely worthwhile in those regions where it has been established. The data compiled by MAF was useful in providing additional information about beekeeping in Southland during their recent problems and in the BOP in their case for exemption under the recent price freeze regulations.

The change in RBFC criteria for use of beehives as security is another example of financial monitoring being useful to the policy makers.

Individual participating beekeepers indicate that they have accrued many benefits which have enabled them to operate more effectively and efficiently and enhanced the decision making process.

The information gained in the package has proved worthwhile when comparing their performance against the model for identifying strengths and weakness and where opportunities for improvement exist.

Trends that have emerged are:

* Mechanisation, more efficient vehicles/plant have helped keep costs down.

* Migratory equipment, particularly lids, bottom boards and palletisation in conjunction with 10 frame brood chambers (33mm end bars) has reduced workloads as beekeeping field work is easier and quicker, result, more hives/labour unit.

Beekeeping Monitoring (Cont.)

* More capital is being invested in producing units (hives), there is greater utilisation of existing processing plants, result, better use of capital.

* Sugar feeding is now part of a standard spring management system giving beekeepers greater flexibility in the decision making process, and a higher percentage of producing hives.

* Autumn requeening is gaining greater favour with the performance of young queens on production/polination unit being critically assessed and buyers of queen bees demanding better performance from stock purchased.

* Participants have enhanced their relationships with their bankers, financiers and accountants, seasonal and short term monies are more readily attainable viz. there is a more professional business-like approach to beekeeping.

* Opportunities identified for beekeepers include -
  i) Better use of cash for investment and income equalization
  ii) Long term planning, objective setting and action plans to achieve goals.
  iii) Increased utilisation of plant and equipment, viz, assume truck milage 25000 km/yr, av. 50 km/hr equals 520.8 hrs truck driving plus 1 labour unit as passenger equals 1040 man hours and $7.80 per hour equals $8100.20 or $6.00 per hive for sitting down. Opportunity : more hives per apiary site, planned and methodical hive management systems, wintering earlier and autumn feeding to reduce spring work load.
  iv) Co-operative marketing strategies, crop diversification, promotion of beekeeping and its products, export and targeting markets by tailoring the product to suit the market.
  v) The list is endless, the industry is recognising its strengths, weaknesses, and has taken steps to identify the opportunities and the threats. All that is required in most instances is the will and the desire to succeed, to guarantee quality as well as quantity; to look to the future with no preconceived ideas; to think laterally and be prepared to listen, discuss rationally and compromise where necessary; co-operate and work as one industry and strive for excellence in all things. Out goes mediocrity, in comes superiority in every aspect.

TABLE III

Cash Flow
Actual Figures
a 1985
Cash Monitoring
Revised 1985

Opening Balance — $ -7250.00; Overdraft Interest rate (per period) — 1.86%

Income		**Apr**	**May**	**Jun**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
Bulk Co Op													
Bulk Packer	32220		8055			8055			8055			8055	
Packed Local	18500	1542	1542	1542	1542	1542	1542	1542	1542	1542	1542	1542	1542
Comb Export	11600		6960			4640							
Rebates													
Rents													
Beeswax													
Pollin	61920									18576	27864	7430	8050
Farm Inc	5200		520			520		2340		780		1040	
New Borrowing	6500			3250			3250						
Total Income													
Forecast													
Actual	135940	1542	17077	4792	1542	14757	4792	3882	9597	20898	29406	18067	9591

Expenditure		**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
Telephone	650		162			162			162			162	
Account	1050			1050									
Subs	50	37					12						
Travel	130		19	19	78			6			6		
Postage	210	52			52			52			52		
Legal Fees	1180							1180					
Sugar	7200					3600		1800	1080				720
Queens	2196	659					659		878				
Chemicals	240				240								
Drums	420										420		
Packing	5457	3274		1364			273					546	
Founda.	710					710							
Advertising	570	47	47	47	47	47	47	47	47	47	47	47	47
Comb Honey Chgs	920	460			460								
Commissions	949				380					569			
Electri.	1688		422			422			422			422	
Wages	18500	1542	1542	1542	1542	1542	1542	1542	1542	1542	1542	1542	1542
Wages P/T	4200							1050	1050	1050	1050		
Protective Cth	420				420								
R&M Hives	6959		1740	1740	1740	1740							
Woodware	680		340										340
Freight	1852	463				463			463	463			
Road User Fees	450				112			112			112		112
Vehic R&M	3493		873		1746		349				524		
Fuel/Oil/Gas	7810	651	651	651	651	651	651	651	651	651	651	651	651

Registration	328			328									
R&M Build	1850		462	925	462								
R&M Plant	1300	130			650	520							
Ins Build	420										420		
Ins Plant	440											440	
Ins Vehic	280					280							
Ins Business	260										260		
ACC Levy	215												215
Rates	220								220				
Rent													
Hive Levy	296										296		
Long T Int	15885	3971			3971			3971			3971		
Short													
Int Curr AC													
Princ Repa	5250	1312			1312			1312			1312		
1st Provisional	1746						1746						
2nd Provisional	3300												3300
Taxation	194												194
Pers Exp	17160	1430	1430	1430	1430	1430	1430	1430	1430	1430	1430	1430	1430
Pers Insur	340											340	
Elect Personal	470		117			117			117			117	
Development	6120		3060			3060							
Cap Exps	5850			3510		2340							
Farm Exs	3797	316	316	316	316	316	316	316	316	316	316	316	316
Total Expenditure													
Forecast													
Actual	133705	14346	11183	12923	15612	17401	7026	13472	8380	6069	12412	6014	8868

SUMMARY		Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Surplus/Deficit													
Actual	2235	-12804	5893	-8131	-14070	-2644	-2234	-9590	1217	14829	16994	12053	723
Forecast													
Actual-Forecast	2235	-12804	5893	-8131	-14070	-2644	-2234	-9590	1217	14829	16994	12053	723
Closing Balance — taking into account overdraft payments													
Actual		-20054	-14161	-22292	-36362	-39007	-41241	-50831	-49614	-34785	-17791	5738	-5015

F — forecast figures used for this period

Sticky Problems in South Island Beech Forests

From the DSIR

A conflict is developing between the birds and the bees in South Island beech forests.

Both feed on honeydew, the surgary excrement of a sap-sucking insect which infests mainly black and mountain beech trees in Canterbury, parts of Westland, and Nelson.

Honeydew is a high energy food for many birds and may be a crucial part of their diet. Bees use it to make dark, strongly-flavoured bush honey and, for many years, it was considered fit only for feeding to bees over winter.

Now lucrative overseas markets have developed and export sales are now worth several million dollars. As many as four hives can be worked per hectare of suitable forest and each hive can yield up to 50 kg of honey each year. In native forest, honeydew is virtually the only food available to bees.

However that means birds and bees are having to compete for the same food. Wasps are also partial to honeydew and this South Island plague further reduces the amount of honeydew.

With the help of an Msc student from Auckland University, Shaarina Boyd, Dr Henrik Moller of the DSIR's Ecology Division, Nelson, is endeavouring to discover what effect beekeeping in beech forests is having on the birds. They are building on previous research by other Ecology Division staff.

Their study area is a 10 ha patch of beech forest in the midst of Baigents pine forest inland from Nelson: an oasis of native birds where the bush resounds with the calls of bellbirds and tuis in contrast to the quiet whispering of the nearby pine forests.

Most of the beech trees are covered with shimmering beads of honeydew dangling at the end of long silvery wax tubes and the air is perfumed with a distinctive heady sweet smell.

To measure how important honeydew is to the birds, they are trying to monitor what individual birds do each day. They are catching birds and attaching coloured plastic leg bands that make the birds look as if they are wearing bright little football socks.

Dr Moller is especially interested in finding out how many trees covered with honeydew birds are prepared to defend.

According to a theory on the economics of defence, animals are lazy and do not take risks. They must get an adequate return for the amount of energy they spend on defending their territory and only defend enough food for their own needs.

"We could find that birds need to defend 10 trees infested with the scale insect which produces the honeydew. The beauty of this research on honeydew is that it is a simple system to study and allows us to test behavioural and ecological models," he said.

"We also hope to advise how much of this beech forest should be set aside to conserve native birds."

The honeydew itself is produced by scale insects (or to put it scientifically, Ultracoelostoma assimile). They burrow just inside the bark and are like straws, extracting what they need from the tree's sap and then excreting the rest through their waxy tubes.

Birds, bees, and wasps then lap up these droplets of sugary food.

Although this means the tree loses some energy, it also benefits from the invasion. Honeydew dripping on to the forest floor can increase the amount of bacteria which fix nitrogen in the soil so the tree gets more nitrogen back through its roots.

As Dr Moller explained: "This is a delicate balance. If the tree is infested with too many scale insects it can die."

Honeydew also feeds a sooty mould which lives on infected trees as well as on shrubs and the forest floor

Sticky Problems (Concluded)

underneath the tree. This fungus gives the characteristic blackness to South Island beech trees.

Dr Moller expects his honeydew research will keep him busy for at least three years. He also plans to keep bees so he can see what effect this has on the amount of food available to birds.

"We don't know enough about the impact bees are making, yet more beehives are being set up in beech forests. While we are hoping that beekeeping has no impact, we may find that it does at a certain level and then people will have to decide what is more important — the birds or the bees," he said.

A honey bee laps up a shining bead of dew from a beech tree.

MAF, Chalkbrood Policy clarified

Apicultural Section Advisory Services Division

With the continuing spread of chalk brood this season throughout New Zealand, the Ministry of Agriculture and Fisheries is taking this opportunity to clarify its current position regarding the disease. The Ministry also wishes to recognise the importance of commercial queen bee production to the New Zealand beekeeping industry.

Apiaries Act:

While the Act gives permanent inspectors wide powers in dealing with any pest or bee disease listed in the Act, MAF's policy on chalkbrood is as follows:

a) Chalkbrood is regarded as endemic and widely distributed in New Zealand, although many areas still remain apparently clear of the disease.
b) MAF does not require hive or comb destruction when chalkbrood is found.
c) No quarantine of chalkbrood infected hives will be imposed.
d) No inter-district hive movements or sale of bees or hives will be refused on the basis of chalkbrood infection alone.

Chalkbrood and Beekeepers:

Of particular concern to MAF is the uncertainty chalkbrood has created in the minds of potential queen bee purchasers. This is unfortunate because annual requeening with well-bred Italian queen bees is acknowledged as one of the best methods of chalkbrood control.

Because of the nature of this disease MAF cannot give any asurances that queen bees, hives, or used beekeeping equipment from any beekeeper will be free of chalkbrood. MAF accepts that queens and bees, as well as hive parts, can carry chalkbrood spores but these spores do not necessarily cause an infection when introduced into apparently healthy colonies. There is some evidence that chalkbrood may also be spread by wind and by bees foraging on flowers contaminated with chalkbrood spores.

Chalkbrood and Queen Bee Producers:

The New Zealand Queen Bee Producers Association (NZQBPA) has requested that if any beekeeper feels he has a specific problem regarding queen bee sales then the matter should be brought to the queen producer's attention as soon as possible. If a MAF adviser is involved in the discussion he will also attempt to work with the producer in the first instance. More general problems may be referred to the NZQBPA itself.

Advisory Programmes:

In areas where chalkbrood occurs, apicultural advisory officers have instituted programmes to help beekeepers deal with the disease if so requested. The programmes are scientifically based and concentrate on lessening the conditions which can lead to chalkbrood outbreaks. These are covered in more detail in a review article by Cliff Van Eaton, AAO, Whangarei.

CORRECTION

In the New Product article, page 28, NZ Beekeeper, Autumn 1986, Lilypac's new 395SP container was shown as containing 599 gm. This should have been 500 gm.

WATCH IT, IT'S YOUR BACK!

By Michael Burgess

Lifting can do your back in so watch it. What you can safely lift depends on many things: sex, age, build, strength, condition, etc. The ILO (International Labour Organisation) suggests the following as the maximum:

Men 40kg to 50kg
Women 15kg to 20 kg
Boys (16—18) 15kg to 20kg
Girls (16—18) 12kg to 15kg

Since there is no such thing as an "average" person these figures are somewhat arbitrary. Nor do they take into consideration the size, or awkwardness, of a bulky load.

What you must remember is that it's not always the weight you lift but the way you lift it. Its easy to injure your back, even rupture yourself, by lifting a comparatively light weight the wrong way.

Never try to lift anything you suspect is beyond your capacity. When lifting with someone else take care that the load is equally shared; both should lift together and put down together. And beware of the trap for young players: the box you think is empty but isn't.

When lifting stand as close to the load as possible. If you can, place one foot on each side of it. Begin from a squat or crouch and hold the load close to you. Tighten your abdominal muscles. Use your leg muscles for the lift. If you must turn during a lift use your feet and not your back. Do not twist your spine while carrying or lifting, particularly if your back is bent. Leonard Ring M.Sc (Eng.), MSCP (Eng.), a British consultant ergonomist says:

"If you expect a worker to do a tango every time he does a lift well you're wrong.

The natural technique has three steps:

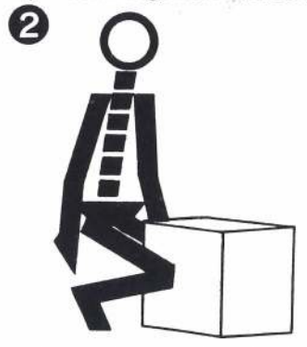
(a) The back is in a position comfortable for the worker and limited by the object to be lifted, or lifted and carried. This is not necessarily straight vertical or straight hori zontal.

(b) The knees are flexed in a position afforded by the size and shape of the object to be transported.

(c) The most important element of the technique is to bend the knees and use the legs to take the weight of the lift. Once this is taught the spine unconsciously assumes the angle most comfortable and natural for the worker and the load."

A final word. Make it easy for yourself. If you can find a trolley use it instead of your back.

1 Size up load — good balance

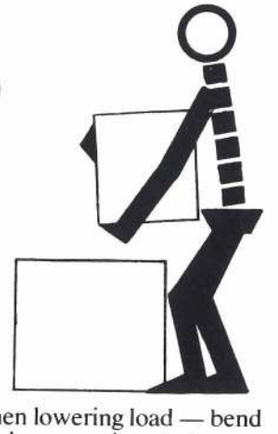


2 Bend knees — keep back straight as possible (not necessarily vertical)

3 Grip load with palms of hands and fingers

4 Use body weight to start load moving — then lift by pushing up with legs

5 Keep arms and elbows close to body



6 When lowering load — bend knees — do not stoop

Illustrations courtesy of the ACC.

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