1987

SPRING

The New Zealand BeeKeeper

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.**

To Beekeepers with less than 50 hives who subscribe to the journal at $22.00 a year (incl. GST) which also includes membership of the National Beekeepers' Association of NZ Inc.

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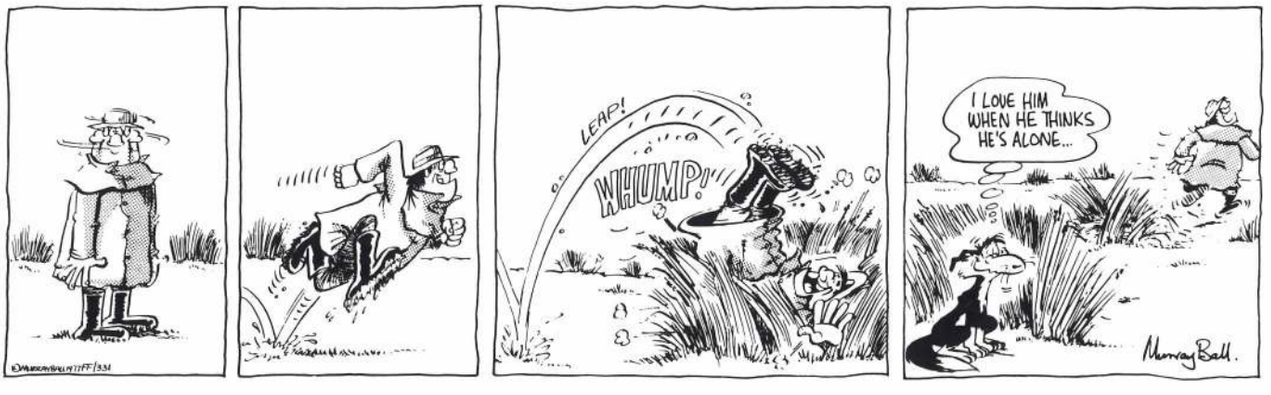
SPRING 1987
No. 195

The New Zealand BeeKeeper

Contents

Footrot Flats — Diogenes Designs Ltd



FRONT COVER — Russell Berry with two of his new bee packages. See story page 8.

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Those little grey cells

Marketing skills are now paramount. Gone are the days when good-enough-is-near-enough because demand exceeds supply. To sell currently on both domestic and foreign markets we must compete. To catch the customer's elusive buck we must apply every available skill, as those who attended Conference '87 discovered from Dr Richard Buchanan's fascinating lecture.

The aspects of marketing stretch far and wide and seldom stop simply with the presentation of the product, the slicker advertising campaign, the training of staff. Beyond these your product might not be competitive in its present guise. For example, a water bottle that keeps a pint of water ice-cold in the hottest desert sounds marvellous until you learn it weighs a ton and needs its own transport. Similarly a hip-pocket motor providing the same power as a contemporary 4,000 cc engine may be remarkable except that its peculiarities preclude mass production, and so it costs the earth.

When such problems arise those with an inventive bent squat in the back paddock, chew a straw, and either stare myopically into the distance to ponder the inponderable or contemplate their navels. Interestingly, more inventions, radical adaptions, eminate from such people working in backyard bicycle sheds than from the host of boffins comfortably established in elaborately-equipped and funded laboratories. Possibly because the former frequently own a vital stake in their object and no salary appears magically each month whether they produce or not.

In New Zealand such people invented the jet boat, Railways' "whistle-for-a-signal" equipment and, some pundits suggest, one backblocker even beat the Wright Brothers to the punch.

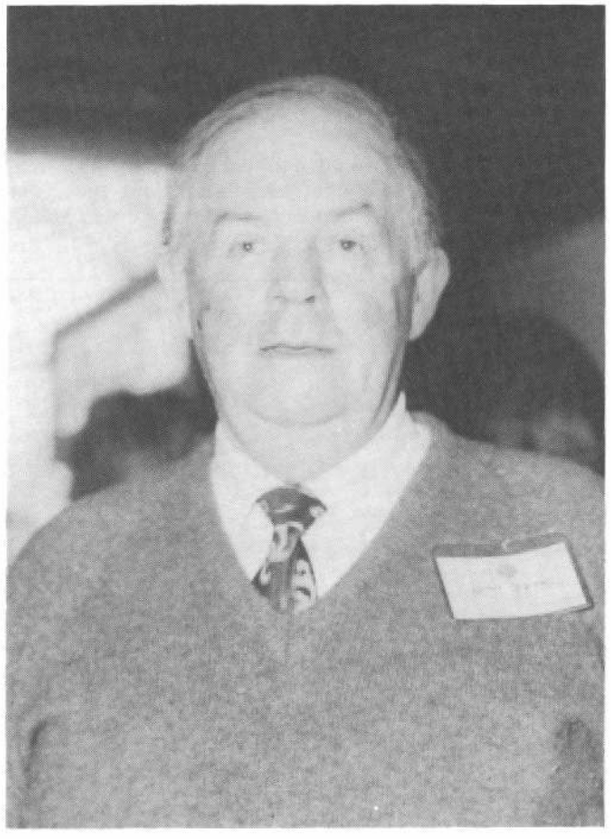
Whether Russell Berry of Arataki Honey ever chews straws or contemplates his navel is a moot point. He may well prefer a full moon and to commune with the wee beasties of the night. Whatever, he faced a problem: how to export bees economically to Canada in competition with United States suppliers with but a fraction of the distance to ship.

An impossibility, of course. The cost of flying bees that distance must kill all thoughts of competing dead. Go home, Russell. Forget it. Watch Dallas instead!

Except that instead of watching Dallas, Russell sat down, designed, redesigned, worried the problem into the small hours of many a morning until he solved it. The result? A revolutionary new package for shipping bees to Canada, not only successfully, but economically.

Congratulations, Russell. It's a great achievement!

Michael Burgess



Stan Young, from New Plymouth, the new Member of the Executive elected to replace retiring Member, Ian Berry.

LETTERS

Clover Honey

Dear Sir,

In the NZ Beekeeper Winter 1987 we have a letter from Susan Adams: "Do they put icing sugar into honey", and an article by Reg Clarke: "Many New Zealanders eat little or no honey". He suggests offering the customer a diversity of flavours and colours.

The snag is that all over the world there is a vast surplus of clover honey and very little of anything else. Let's face it! Clover is a pathetic honey, it looks like cooking fat and tastes like sugar and water. The good salesman calls it "delicately flavoured". Hence the customers' query about icing sugar.

We really must make more effort in New Zealand to produce and market the gourmets' honies: heather honey from National Park, thyme honey from Southland, and manuka honey from the northern half of the North Island. We should try to get a snob market going in England by charging three times the price for our better honies, selling them in Fortnum and Masons or Harrolds. How about shipping a sample to the Duke of Edinburgh or to the Prince of Wales?

After all, if we cannot sell a large number of Morris Minors we might as well sell a few Rolls-Royces.

George Nichols

Mailing Bees

Dear Sir,

A number of beekeepers in New Zealand have in recent years been exporting small quantities of live bees overseas. These exports have been travelling by ordinary airmail which has not proved wholly satisfactory. The special handling involving the use of ventilated bags and special documentation including advance telex advice to destination countries has meant that the service has been carried out below cost recovery. Apart from this, some beekeepers have suffered substantial losses where delays have occurred causing bees to be dead on arrival at their destination.

In an endeavour to provide an improved service in the transportation of bees, trials have been undertaken using the Express Post International (EPI) service and these have proved successful and acceptable to the customer concerned.

Negotiations have taken place with the British and Canadian postal administrations and each has agreed that the International Express Mail service (EPI) in New Zealand is the best way to guarantee customers a satisfactory service for the shipment of live bees. It has been decided therefore, that the acceptance of live bees in the international mail will be done on the basis that they are sent by EPI. Telex messages will continue to be sent with the cost being met by the customer. As an example, a consignment of bees weighing up to 500 grams to the United Kingdom would cost the customer on current charges $34.60; $31.00 (EPI charge) plus $3.60 (telex charge).

In exceptional cases where consignments need to be sent to countries that are not part of the EPI Network, these would be accepted at ordinary airmail parcel rates plus the telex charge and special handling arrangements would be made.

However, I should point out that the "money-back" guarantee that goes with non-dutiable EPI items is conditional upon any delay being the fault of the postal service. As bees would be subject to Agriculture Department inspection on arrival at the destination country, there could be some delivery delay incurred if documentation is not in order. Should something like this occur the guaranteed refund would not apply.

T. S. Cordue
for Manager
Network Transport
New Zealand Post

Sick Beekeeper

Dear Sir,

I wish to advise you that my husband is confined to hospital and has been since January following several strokes which have left him unable to do anything for himself. I am very sorry to have to let the subscription for the journal go as I have always enjoyed it and I worked at my husband's side for many, many years, queen rearing as well as honey production. I would like you to mention him in your journal as he must be one of the oldest remaining queen breeders (Ex).

(Mrs) F. D. White

Delighted to hear from you, Mrs White, and I'm sure we all hope that your husband's condition improves soon. Editor.

Auckland Beekeepers' Club — 'Beemaster' Award

The Auckland Beekeepers' Club has instituted the award of 'Beemaster' to recognise those members who have demonstrated significant achievement in the field of apiculture and have consistently advanced the aims and reputation of the Club.

Here (left to right) Ray Chapman-Taylor, Ivo Davey, and Bob Long display awards shortly after they were presented by Club President Ted Legget at the 1987 Annual General Meeting.

The award to Ray Chapman-Taylor and Ivo Davey recognises their long and consistent contribution to the life of the Club and their co-authorship of the book 'Beekeeping for Fun', now widely used and appreciated by novice (and experienced!) beekeepers throughout New Zealand and abroad. The award to Bob Long acknowledges his significant involvement in the life and development of the Club and, in particular, his many innovations in the field of beekeeping gadgetry. Bob has also been very active in introducing young people to the joys of beekeeping and the mysteries of the hive.

Paying for quality

By George Nichols

An accurately-constructed beehive with correct bee spacing is a joy to use. It is unlikely to be stuck solid with wax or propolis at the whim of the bees. Over the years I have bought storeys and frames from many suppliers and with varying success. For example, those ghastly hives with the lock corners they sell to amateurs are a real menace. However well you treat them with copper mapthenate or paint they soak up rain in the cut ends and rot inside. I gave them up many years ago!

One supplier has timber which warps badly. After four or five months storage you try to assemble the boxes and nothing fits. When you try to straighten warped boards with hammer, nails, and brutality, the boards split.

The next supplier has decently-seasoned wood which stays flat, but the boy cut the planks and the sides tapered. That makes for rocky boxes which the bees take a great delight in propolising together into hive tool busters. If you try to plane the boxes flat they become too shallow and the bees use wax to glue the frames solidly to those in the box below.

It is then a real battle to dismantle the boxes and frequently you accidentally pull up the brood frames in the lower box. That is regarded by the bees as a challenge to come up and fight.

My latest supplier is incredibly precise. His frames fit together so well that you hardly need to nail them. The boxes are accurately made, slip together well, and make a correct size, non-rocky box. But the timber he uses is full of knots, many of which you can push out with a horny thumb. Other pieces have star-shaped cracks right through the knots. I make a putty out of resorcinol glue and sawdust to fill the holes. However, that is expensive in time and materials and I feel it would be better to pay more for decent-quality timber.

It really lies with my own meanness because I tend to go for the cheapest quote. My oldest hives have lasted 27 years, so a few dollars more for decent timber would be money well spent.

STOP PRESS

We regret to announce that Patricia Roberts, wife of popular AAO Ted Wallace, died as the result of a vehicle accident on 25 August last. Over 300 attended her funeral at Terracehaven Chapel, Palmerston North, on Friday 28 August 1987. Michael and Elisabeth Burgess extend their condolances to Ted.

QUICK COFFEE CAKE

1½ cups sifted flour
2 teaspoons baking powder
½ teaspoon salt
1 egg
⅔ cup milk
⅓ cup honey
3 tablespoons melted shortening

• Sift together dry ingredients. Beat egg. Add milk, honey, and melted shortening. Stir into dry ingredients. Mix lightly (only enough to moisten flour). Spread in lightly greased 8-inch square pan. Cover batter with Honey Topping. Bake in hot oven (400° F.) 25 to 30 minutes.

The Arataki Tube Package: A major breakthrough in air-freighting bees

Russell Berry's innovative new bee package has revolutionised the carriage of bees between New Zealand and Canada.

"I realised a better method of air-freighting bees had to be devised when John Craighead, of F.W. Jones & Son, Ltd, Canada, bought his first shipment of bees from Arataki Honey Ltd", Russell said. "That shipment, incidentally, was the first ever from New Zealand to Canada.

Arataki tube packages ready to leave Rotorua, New Zealand, for Canada.

"On that occasion we packed the bees in the traditional wooden packages used over the years to truck bees from the United States to Canada, but it was patently obvious that with air-freight from New Zealand taking up a far greater percentage of the total cost than a simple trucking operation from the States we needed an entirely new concept were we to become competitive.

"I attended this year's beekeeping association conventions in both Saskatchewan and Manitoba, discussed the matter at length, studied the current situation, and decided that it was time to design the new package.

"After examining all aspects of shipping bees I concluded that a tube that could be transported vertically and in large numbers could be the answer," Russell continued.

"The result was the Arataki Tube Package (patent applied for under NZ Patent No. 220150 © NZ 1987 Russell Berry).

"The principal aims of the package, and those which we appear to have achieved, are as follows:

(1) "To give the bees a greater degree of control over their environment inside the package, despite changes of temperature outside, than is available in the traditional package. My design allows the bees to draw cool, fresh air from low down and to discharge warm, aromatic air high up. That prevents them breathing stale air discharged from other packages while working natural air convection.

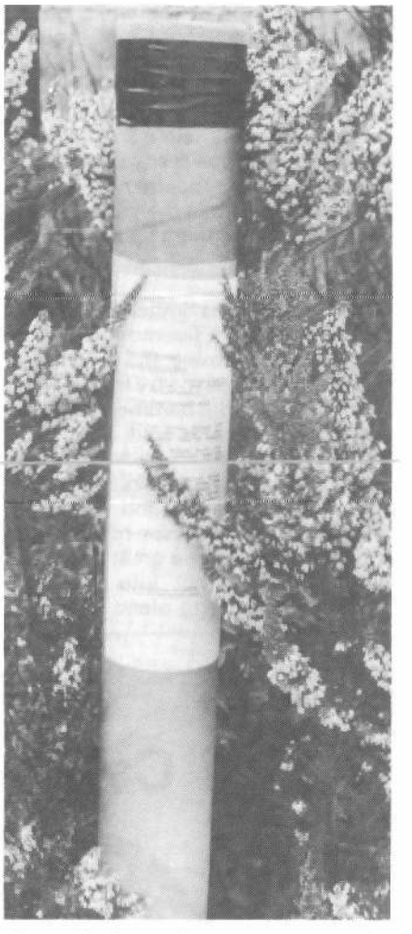
"We also made the packages narrow enough for the bees to restrict the airflow when it is cold outside the tube.

"This narrowness has the added advantage of reducing the light entering the tube, thus modifying the effect on the bees when the tubes are moved from dark into light.

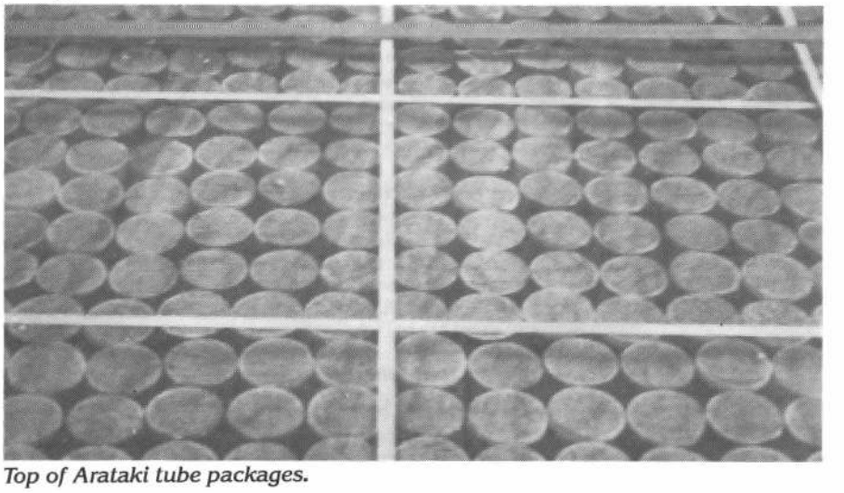
(2) "To reduce the chance of bees accidentally escaping.

(3) "To make a cheaper package and one easier, and so less labour intensive, to fill.

(4) "To create a leak-proof feeding system, not subject to air pressure or jarring, and which is reliable under a



Arataki tube packages surrounded by winter-flowering heath — a good pollen and nectar source.



Top of Arataki tube packages.

variety of conditions including those when the tubes are laid on their sides to be transported in small numbers at hiving time. We achieved this with a long sock of synthetic-mesh cloth filled with sugar syrup gelled with agar.

(5) "To make a package with a large interior surface on to which the bees can cling during transportation so lessening the stress which occurs when they cling to each other.

(6) "To create a product cheaper to transport than conventional packages. On our initial shipment we transported 432 orthodox two-lb packages on a 3170 mm x 2240 mm airline pallet without contouring. Recently we shipped 704 Arataki Tube Packages of the same weight on the same-size pallet again without contouring.

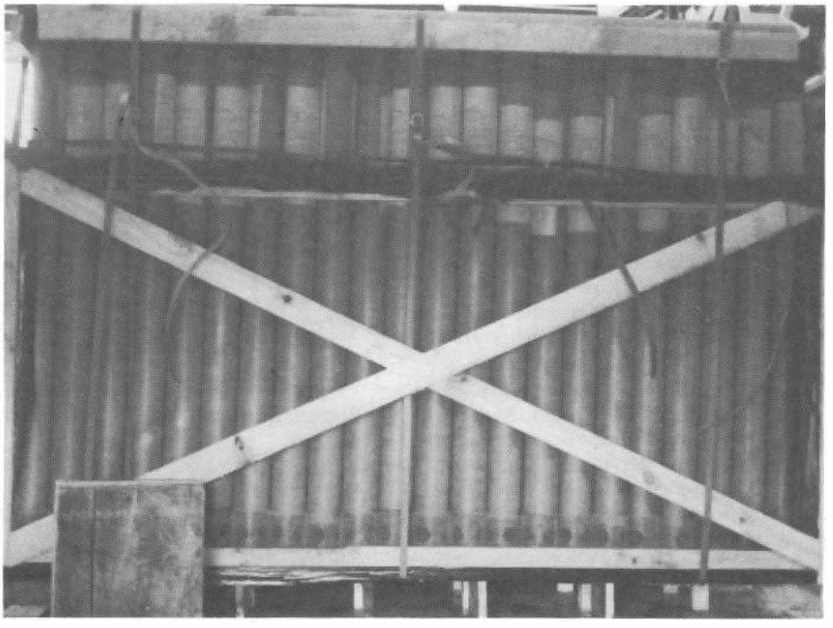
(7) "To be able to water all packages en route, if necessary, even when double-screened.

(8) "To lessen the general stress on the bees and have them arrive in prime condition despite the long journey.

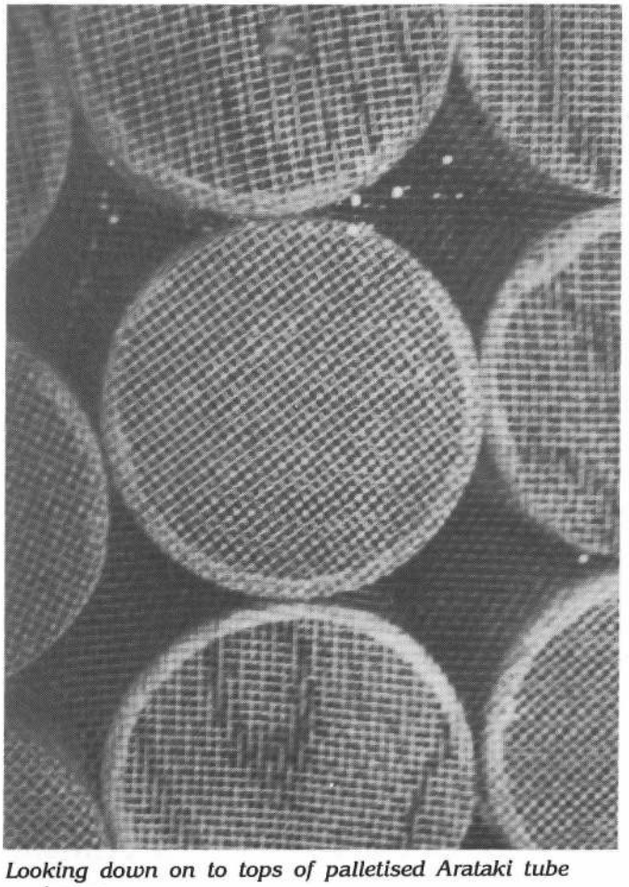
(9) "To make the bees easier to hive at their destination.

"I was delighted to find that, with our first shipment of the Arataki Tube Packages, we had achieved all these aims", Russell continued. "In fact, I was extremely excited by our success in delivering the bees to Toronto, Winnipeg, and Montreal in first-class condition, despite an arduous journey half way around the world by a variety of trucks and four different aircraft.

"No less exciting was the surprise, interest, and praise of beekeepers who ex-



Arataki tube packages ready to leave Rotorua for Canada.



Looking down on to tops of palletised Arataki tube packages.

amined the Arataki Tube Packages, and the visit with Dr Jay two days later to see our newly-hived bees with queens already laying and with fresh pollen and honey coming in.

"It was a thrill that a beekeeper is lucky to get once in a lifetime.

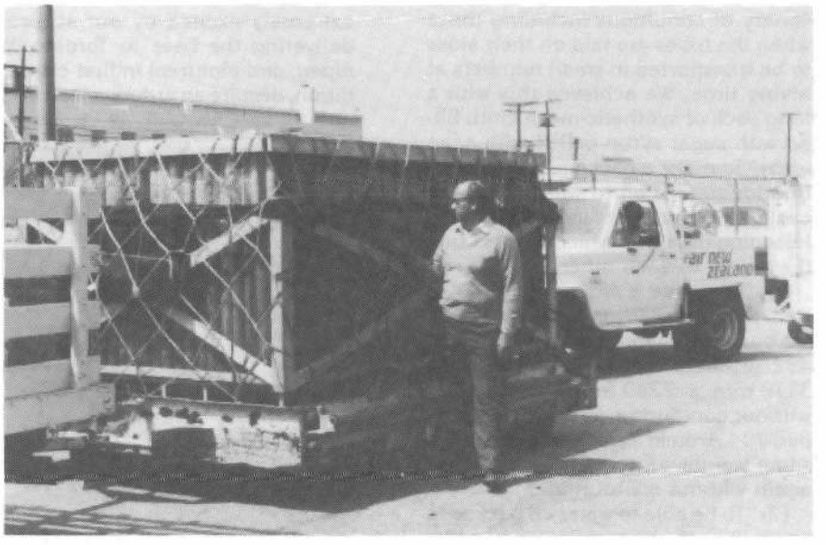
"Of course, the development of export bees to Canada has been a long-term project for us. My family and I visited North America first in 1980 and then again in 1983. We travelled some 25,000 miles in all in motor homes, enjoying the beauty of both the United States and Canada and the hospitality of the citizens of both nations.

"During these visits we endeavoured to ascertain the future for our queen and package bees in Canada, a future which I consider has established itself with our latest shipment.

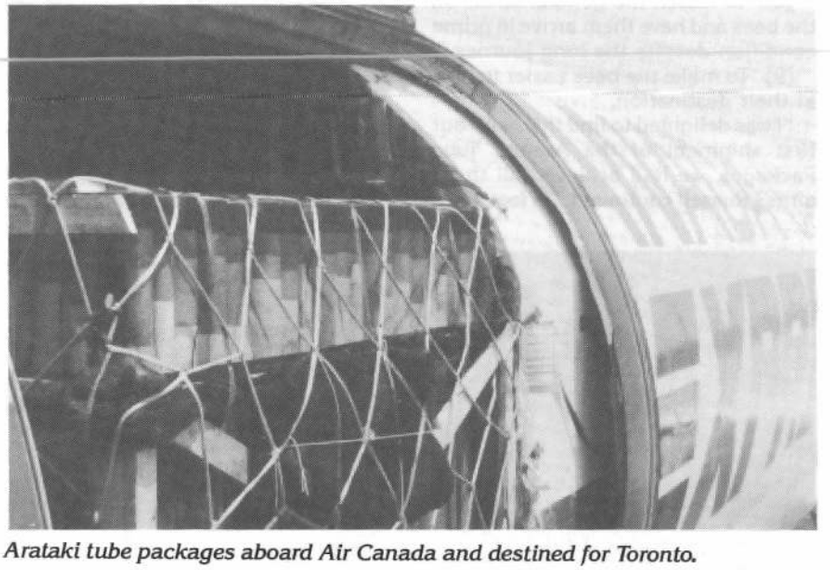
"Naturally the project was not without hazard. Had my judgement been faulty, had the bees died during their long trip, then it would have cost Arataki a good $NZ35,000. However, nothing worth-while is without risk, and I have the satisfaction of success and the knowledge that I can now offer Canadian beekeepers another economic source of bees.

"All aspects of the operation gave me great satisfaction: the challenge of designing a new package, working with our New Zealand staff to raise the queens, to fill the packages, load the pallets, to acccompany the bees on their journey, even though it meant spending many days with little or no sleep. All in all I thoroughly enjoyed the whole gamut of creating and of doing something well.

"However, I could not have managed single-handed and I should like to thank our own staff who poured much of themselves into the project, the various American and Canadian beekeepers who have given me their time and a great insight into their industry over the years and, in particular, I should like to thank Dr Jay for his invaluable assistance."



Russell Berry at L.A. Airport with Arataki tube packages.



Arataki tube packages aboard Air Canada and destined for Toronto.

Air-conditioning truck pre-cooling Air Canada freight plane.

PEAR SALAD

Pears
Pimento cheese
Honey French Dressing
Lettuce

• If canned pears are used, place can in refrigerator to chill pears before making up salad. Allow ½ pear to a person. Place cut side down on lettuce. Cover pear with riced pimento cheese and serve with Honey French Dressing. Rice cheese the same way one rices potatoes.

President's Report

I am pleased to have the opportunity to present the President's Annual Report to this Conference.

When accepting the nomination for President of the Beekeepers' Association, I was warned by my predecessor, Ian Berry, that the job was both rewarding and demanding. I am not certain I fully appreciated this message at the time, but after what has been a very busy and stimulating year's work, I have developed a much better understanding of its meaning. During the year, I have had the satisfaction of meeting a number of interesting and talented people, which has largely compensated for the added workload involved in overseeing the affairs of your National Association. I can confidently report that those affairs are well in order, and the Association set to face the challenges ahead.

THE HONEY CROP AND MARKETING. Production this season has been a good average in most districts, with the usual local variations resulting in excellent crops in some areas, and low yields in others. Some districts have suffered a succession of poor production years, and economic pressures have now meant the appearance of a number of beehives on the market.

Rapid increases in hive numbers over recent years now seem to have the effect of producing an annual surplus for export, above local consumption requirements: a situation which must be addressed in developing our future market strategies. Whereas last year's good export returns saw quite fierce competition amongst exporters to buy honey, to the producers' advantage, this year the 'bubble' has definitely burst.

Declining world prices for bulk honey on a very competitive and oversupplied market, a high NZ dollar exchange rate, and very high internal interest charges has meant a dramatic slowdown in export sales over the last six months. Fortunately for most producers, early season prices were buoyed up somewhat by expectations based on the previous year's good trading results. Much of this honey still remains in New Zealand at present despite best efforts of most exporters. With the added cost of financing taken into consideration, the pressure to sell at reduced price levels is very difficult to resist.

Indications are for the current world market situation to persist for some time into the future. This will very likely have a detrimental effect upon returns for honey in the coming season, and beekeepes must consider this in their budgeting and future capital expenditure. The old saying of only spending this year's income after you received next year's was never more relevant.

I firmly believe that with good communication between producers, packers, and exporters, and a commitment to closer cooperation, we can come through the present situation with a minimum of bad effects. Already some alarming reports of export and local market price-cutting have been circulating. The worst possible effect would be for a major price war on the

local market. Within our own small packing operation we recently received an enquiry from a supermarket owner who had attended a meeting of the Dunedin Retailers' Association. There it had been announced to the meeting that honey was available in excess supply, and retailers should ensure they purchase their honey "at the right price".

Our early market research results would indicate that price cutting does not sell more honey — it merely shifts the purchasing emphasis and drives other prices down as well. Where the market is relatively finite, it seems pointless to me for packers to compete with each other for sales — the *real* competition is surely the alternative products to honey, such as spreads and jams.

MARKET RESEARCH. The Executive has again commissioned market research surveys this year, through Auckland and Massey universities. This is in line with our stated policy of developing a marketing strategy for NZ honey (Industry Plan — Goal A, Objective 2). There are some in the industry who believe we should be devoting most or all of our Trust Funds to promoting honey by means of a generic campaign such as television advertising. I do not share this view. Without careful research, and substantial extra finance such as a levy on production, we could never generate the income to meet the staggering costs of mounting such a campaign.

I believe the task of this Association is to provide as much information as possible through research, from which opportunities for diversification or expansion in both local and export markets can be identified. This will then allow individual producers or packers to take up the challenge and develop these potential outlets. We have made a start — a great deal remains to be done and we intend to continue this research which is presently supported by the Trust Funds.

This year the NBA joined the NZ Food and Beverage Exporters' Council, through which information of overseas trade promotions and displays is received and circulated to members. In addition, we have initiated discussions with the Market Development Board with a view to exploring new product development, and the possibilities of off-shore packing of honey through their Government-funded support schemes.

POLLINATION. Numbers of beehives placed in orchards for pollination were again a record this year, resulting in a substantial input of finance to this expanding sector of beekeeping. This has benefits for the whole industry, in that it relieves some of the pressure upon beekeepers to sell their honey to generate working capital, and should assist in developing a more orderly approach to our honey marketing. The demand for beehives is expected to remain steady, and the development of various pollination associations in the country is a noteworthy response from beekeepers concerned to maintain professional standards in pollination. This should ensure an improved service for orchardists and beekeepers alike, and has the wholehearted support of your Executive. The call through a remit to this Conference for recognition of these specialist groups within our Association is worthy of favourable consideration.

BEEKEEPING RESEARCH. This year we have progressed further in our aim to provide adequate research capabilities for our industry in New Zealand. A Bee Scientist position has now been established at Ruakura jointly funded through the NBA, the Kiwifruit Authority, and MAF Tech Division. Dr Mark Goodwin has been appointed to the position with technical assistance from Mr Anton ten Houten, formerly of Wallaceville Apicultural Section. This appointment, along with continued support for the vital research work currently underway at DSIR Auckland by Dr Denis Anderson, is a commendable committment by our Association and the Industry Trustees, towards greater self-determination in this area.

Further support has been given for Mellitiphus mite studies at Invermay Research Centre, honey identification research at Waikato University, and wasp parasite development work at DSIR, Lincoln. Concern has been expressed to me at the level of our funding input to Government organisations. Providing research is carefully planned, and relevant, in my view this is money well spent, and the results will speak for themselves. Undoubtedly the majority of research expertise lies in these departments, and as overseas purchasers of our beestocks and products demand more creditable and accurate information, then access to this expertise becomes more crucial. Such services as the newly established Lynfield Disease Diagnostic Unit will, in my view, gain importance as beekeepers recognise greater efficiency and productivity in their beekeeping practices, in an effort to counter rising costs.

INDUSTRY TRUST FUNDS. The tax-paid revenue of the Industry Trusts for the year ended 31 December 1986 was $66,247. Details of allocations of funds are contained in the 1986 Executive's Annual Report, which has been circulated. We are grateful for the continued support of the Trustees and the time given in considering applications.

At the time of writing negotiations were still underway between the Trustees and the Honey Producers' Cooperative for the terms of repayment of capital borrowed from the Trust Funds. It is expected that these terms will be along the lines of the original proposal for establishment of the Industry Trusts. The three years to 31 December 1987 are expected to produce income totalling approximately $190,000 from which it is anticipated that grants totalling $123,500 will be paid.

FUNDING OF INSPECTION AND ADVISORY SERVICES. To date, the MAF Apicultural Section still has not received final approval for the establishment of a beekeeper registration fee aimed at funding apiary registration services. This, despite a clear indication from this industry to accept part of the funding responsibility through the proposed registration fee and an increase in the hive levy, due in 1988. This delay is very hard to understand, particularly in view of present user-pays policies. Government appears to want a dollar-each-way in this case, and unless a satisfactory result is achieved in the registration fee proposal, the Executive will have great difficulty in justifying a substantial Hive Levy increase to meet the required funding balance.

Apicultural advisory services are under severe threat from retrenchment and cost-recovery policies. A reduction in adviser numbers is inevitable, with their role already changed markedly, causing a number of the advisory officers to reconsider their future position within the service. Your Executive will continue to lobby for maintenance of this vital input to the orderly development and control of our industry.

INDUSTRY PLANNING. Copy of the 1987-1988 Industry Plan has been circulated to all hive levy payers, following a further meeting at Flock House in May of this year. The assistance of Murray Reid, Andrew Matheson, Ted Roberts, Nick Wallingford, and Peter Bray is gratefully acknowledged by the Executive. As a result of our discussions, a number of new avenues are to be explored, including efforts to improve our public relations, and the effectiveness of our Association. A 'Beekeeping Industry Profile' and public information pamphlet are presently being drafted, along with an advertising pamphlet on the value and work of the NBA. It is also proposed to produce a training handbook for branch offices to assist them in understanding the operation of the NBA.

FUTURE DEVELOPMENTS. While there are uncertainties with regard to present market conditions affecting our industry, I believe the future outlook continues to be most promising. With careful research and management, and above all a commitment to communicate and work together for the advancement of beekeeping, opportunities are available for diversification and expansion in local and export markets. Sufficient attention must be paid by all beekeepers to keeping costs and expenditure to a minimum while present difficulties prevail. I see encouraging signs of a more professional approach being adopted by many beekeepers in their operations, and in the specialty groups which have been set up to meet the needs of the market.

I further believe that this Association will be called upon to play an increasingly important role in the administration of beekeeping in New Zealand. We no longer have an industry marketing organisation to dominate our affairs, and traditional Government support is diminishing. The need for a strong, effective representative body is now greater than ever.

I remain convinced that the direction which the National Association has taken over the last few years has placed us firmly on the right track. Policies set in place in beekeeper education, research support, improved relationships with Government agencies, and above all, strategic Industry planning, have placed us in a position of strength from which to move forward. Much has been achieved, and a great deal remains to be done. There is little room for complacency, and the support of all beekeepers is needed as we face increasing world competition in our markets, high internal costs in production, and uncertainties in the nature or amount of traditional Government support.

ACKNOWLEDGEMENTS. I would like to record my thanks to a number of people who have provided assistance over the past year. To my family and business colleagues who have 'held the fort' while I attended to NBA matters; to Stewart Goodman and Olive Hebron for their guidance and ever-capable efforts in head office; to the five executive members for their support and willing effort. Particular thanks go to Murray Reid and the apicultural advisers for their expert assistance; and to a number of other members who have been co-opted to provide help as our involvement becomes more complex. This includes Peter Bray, John Nimmo, and Mike Stuckey for their marketing research input, Dr Denis Anderson for his research advice, Nick Wallingford for educational input, Michael and Elisabeth Burgess for the stewardship of our beekeeping journal, and John Heineman for his capable management of the National Library.

Particular acknowledgement must go to retiring Executive member Ian Berry. The longest-serving present member, and President for three years, Ian's considerable knowledge and experience on our executive will be sorely missed. His influence was one of the main forces behind the positive changes which have taken place in our Association in recent years. It has been an honour to serve with Ian on the National Executive for the past four years.

In conclusion, I would urge you all to keep an open mind in your deliberations of the issues before this Conference — let's look ahead with confidence to the future. No opportunity should be allowed to go unexplored for the advancement of our beekeeping industry.

Allen McCaw

HONEY ROLLS

1 cup milk
¼ cup shortening
½ cup honey
1 cake compressed or dry granular yeast softened in ¼ cup lukewarm water
1½ teaspoons salt
4 cups flour
1 egg

• Scald milk, add shortening and honey, cool to lukewarm. Add yeast, salt and 2 cups of flour. Add beaten egg and remainder of flour to form a soft dough. Knead lightly until smooth. Let rise twice, then form into rolls. Let rolls rise until light. Bake at 400°F. about 20 minutes.

MAF Report

ORGANISATION AND STAFFING

During the year the Ministry of Agriculture & Fisheries underwent a massive reorganisation and restructuring. The 10 divisions in MAF were reduced into four business units viz. MAFTech, MAFQual, MAFFish, and MAFCorp. The AAOs have been placed in MAFQual with the exception of the Nelson position which remained in MAFTech. MAFQual includes the former Animal Health, Dairy, Meat and Agricultural Quarantine Divisions of MAF, plus the regulatory personnel from the Advisory Services Division.

Government requirements and especially reductions in appropriations meant that MAF had to become commercially orientated. For the financial year ending 31 March 1988 MAFQual has received an appropriation from government of $57.496 million. Our expenses are estimated at $114.125 million and our income at $49.670 million. This still leaves a deficit of $6.959 million. Forecast reductions in what government will contribute to MAFQual in each of the next three years to 1991 are down by another $2.427 million in 88/89; down another $6.818 million in 89/90 and down a further $5.64 million in 90/91. This is a cumulative reduction of $14.885 million by 1991 and will have to be met by increased earnings and a reduction in expenditure.

As about 80% of MAFQual's budget goes into salaries, any savings that can be made in that direction are keenly looked at. More than ever staff are being expected to generate income equal to or exceeding their salaries.

The effect on the apicultural advisory section is dramatic as with such a small client base our opportunities to generate high levels of income are much reduced. As a result of this it was with some difficulty that approval was given to replace Cliff van Eaton, AAO, Whangarei following his resignation. Trevor Bryant, AAO, Tauranga also resigned and Andrew Matheson, AAO, Nelson is being transferred to Tauranga to fill the vacancy. Negotiations are continuing over appointing an officer to Nelson. Mark Schrader, AAO, Oamaru, is taking extended leave without pay and the Oamaru position has had to be relinquished. It is hoped to combine the Oamaru and Gore apiary districts into one and service them from Invermay. The three officers leaving MAF will be sorely missed as they represented over 25 years of collective experience. Their contribution to MAF and the beekeeping industry is gratefully acknowledged.

Mark Goodwin began duties as an apicultural scientist in MAFTech at Ruakura. His position is jointly funded by the beekeeping and kiwifruit industries and MAF. The apicultural technician position, currently held by Anton ten Houten, was relocated from Wallaceville to Ruakura.

Over 33 field officers and livestock officers and 69 beekeepers were engaged as part-time inspectors last year. Again, a large number of beekeepers (45) did not seek payment for this work and this support is gratefully acknowledged.

Mr Brian Milnes, Field Officer, Auckland, began offering a bee disease diagnostic service from Lynfield, later extended to queen bee quality testing. These services are on a cost-recovery basis but beekeepers are encouraged to make better use of the service or it may have to be withdrawn.

BEEKEEPING STATISTICS

(a) Beekeepers, Apiaries and Hives

There were 7452 beekeepers owning 340, 433 hives of bees at 31 May 1987 (Fig. 1). Some of the increase in the number of registered beekeepers can be attributed to the "Bee Legal, Bee Registered" campaign initiated by AAO, Oamaru, and run nationwide by MAF in 1986. Over 30 articles were published plus several television and radio programmes and posters and stickers were given to beekeepers to distribute. Increased registrations ranged from 2% — 40% over the previous year in different apiary districts.

Hive numbers continued to increase dramatically as a response to increased demand for kiwifruit pollination, e.g. Whangarei 7% and Tauranga 13%.

(b) Honey Production

The total honey crop was assessed at 10091 tonnes (29.7 kg/hive) compared to last years crop of 9471 tonnes.

Every apiary district produced a honey crop this year although within districts there were wide variations in production. The honeydew crop was one of the smallest on record with many hives producing about 10 kg/hive.

Early sales were made at $1.75 — $2.00/kg with white honeys fetching their usual premium. However, a depressed export market saw a marked lack of buyer activity later in the season and much honey remains in beekeeper or exporter hands.

Sales of comb honey were bouyant with prices ranging from $34 — $40/doz. Some specialist honeys, such as manuka and ling leather, commanded very good prices.

(c) American Brood Disease

A small increase in infected hives was found by MAF or reported by beekeepers. Some areas continued to experience localised outbreaks especially Auckland where the spread can in part be blamed on the failure of several large beekeeping operations to observe their responsibilities under the Act. These outfits have often refused to register

Fig. 1: Beekeeper, apiary, and hive statistics for New Zealand as at 31 May 1987

	Beekeepers		Apiaries		Hives	
	1987	1986	1987	1986	1987	1986
Whangarei	690	659	1927	1849	19656	17867
Auckland	1492	1197	2848	2953	23509	27450
Hamilton	753	726	3041	3100	45705	46288
Tauranga	790	833	3788	3661	58423	52324
Palmerston North	1537	1393	4082	3851	40969	39434
Nelson	592	596	2260	2268	26341	25907
Christchurch	835	804	3782	3816	47869	48751
Oamaru	390	360	3661	3189	47710	41730
Gore	373	366	2231	2179	30251	29210
NZ Total	7452	6934	27620	26866	340433	328961

apiaries or obtain permits for sale of equipment and hives.

The Hawkes' Bay branch of the NBA initiated a hive inspection day that was organised and controlled by Ted Roberts, AAO, Palmerston North. Twentyone beekeepers (commercial and hobbyist) inspected 320 hives in 72 apiaries belonging to 65 different beekeepers; 10 hives were found infected with American Brood Disease in four apiaries. This initiative is to be commended and it is hoped other branches in similar situations will endeavour to have an inspection day as well.

(d) Queen and Package Bee Production

The estimated production of queen bees for sale on the domestic market was 73,900. A further 30,941 queen bees were exported to nine different countries while over 10,134 one kg-equivalent packages (each with one queen bee) were also exported.

Fig. 2: Honey production in tonnes by apiary district as at 31 May 1987

Year	Whangarei	Auckland	Hamilton	Tauranga	Palmerston North
1985	572	930	1697	1550	1088
1986	402	1096	1492	1150	887
1987	417	705	1506	1450	1012

Year	Nelson	*Christchurch	Oamaru	Gore	Total	Kg/hive
1985	685	1650	1352	790	10314	33.3
1986	871	950	1473	1150	9471	29.0
1987	966	1070	1954	1011	10091	29.7

*Christchurch figure includes honeydew

The estimated value of export queen bees and packages was NZ$569,500 C & F.

MAF EXPENDITURE

(a) Regulatory

MAF spent $100,073 on apiary inspection, export certification, and quality assurance to 31 May 1987. This included salaries and expenses for MAF staff when involved with these activities, and also wages and expenses for beekeepers acting as part time inspectors.

This compares with $133,414 spent in 1985/86. The decrease can be attributed to budget and employment restrictions imposed by MAF management in some regions. These costs are least costs and do not include any provision for overheads, replacement of

Fig. 3: American Brood Disease levels in apiary districts to 31 May 1987 (1985/86 figures in brackets)

Apiary District	Diseased Apiaries		Diseased Colonies		Apiaries inspected by MAF or MAF agents
	No.	%	No.	%	%
Whangarei	40 (65)	2.1 (3.5)	94 (141)	0.48 (0.8)	6.3 (10.6)
Auckland	240 (177)	8.4 (5.0)	867 (740)	3.7 (2.7)	4.0 (17.0)
Hamilton	87 (127)	2.9 (4.1)	175 (218)	0.4 (0.5)	8.9 (12.7)
Tauranga	267 (163)	7.1 (4.5)	595 (454)	1.0 (0.9)	6.7 (7.0)
Palmerston North	143 (112)	3.5 (2.2)	340 (344)	0.8 (0.9)	7.9 (11.0)
Nelson	130 (153)	5.8 (6.2)	266 (278)	1.0 (1.1)	7.6 (6.1)
Christchurch	81 (56)	2.2 (1.5)	432 (145)	0.9 (0.3)	14.7 (11.0)
Oamaru	103 (107)	2.8 (3.4)	193 (284)	0.4 (0.7)	9.7 (10.0)
Gore	107 (102)	4.8 (4.7)	447 (307)	1.5 (1.1)	11.5 (9.3)
Total	1198 (1050)	4.4 (3.9)	3409 (2920)	1.1 (0.9)	8.6 (10.5)

Fig. 4: Number of apiaries and hives with American Brood Disease found by MAF or reported by beekeepers to 31 May 1987. (1985/86 figures in brackets)

	No. Apiaries	No. Hives
Found by MAF or MAF agents	252 (276)	709 (1204)
Reported by beekeepers	946 (774)	2700 (1716)
Total	1198 (1050)	3409 (2920)

Fig. 5: MAF expenditure on apiary inspection export certification and quality assurance for the year ending 31 May 1987. (1985/86 figures in brackets)

	No. Used	KM	KM Cost (40c/km)	Days 8 hr	Wages $
MAF Staff	44	36607	14642	550 (900)	69119
Beekeepers (paid)	24	8932	5407	129 (136)	10905
Beekeepers (unpaid)	45				
Total	113 (141)	45539 (53214)	20049 (21304)	679 (1036)	80024 (112110)

vehicles, computers etc., or operation of the apiary register.

Cost recovery for certification work has been in place for some time and the application to the Minister for a regulation to permit an annual registration fee to be charged to all beekeepers is still being actioned. The Minister has given aproval for the regulations to be drafted. The fee applied for was $15 per beekeeper including GST.

It is anticipated that such a registration fee will cause massive evasion by hobbyist beekeepers and will make the maintenance of an accurate register even more difficult than it is at present.

(b) Apicultural Advisory and Inspection Service

The following budget has been prepared for the year ending 31 May 1988. The apicultural section is in a deficit situation and is likely to remain so at present staffing levels.

	Year Ending May 1988	Year Ending May 1989
Consulting (mainly auditing kiwifruit pollination hives)	31,000	40,000
Import/Export certification	700	1,200
Hive registration fee (if passed by parliament)	90,000	90,000
Foreign Affairs contracts	3,000	
Disease control contract NBA (15c hive)		43,500
Less salaries and expenses (no provision for overheads)	328,897	330,094
(deficit) surplus	(204,197)	(155,394)
plus salary saving	10,273	23,944
(deficit) surplus	(193,924)	(131,450)

The options for MAFQual managers are as follows; bearing in mind the expected MAFQual busines unit deficit of $6.959 million for 1987/99:

★ Accept the deficit and make savings elsewhere within MAFQual.

★ Reduce services unless full cost recovery can be obtained. This may mean further reductions in AAO positions.

★ Generate more Income.

ADVISORY ACTIVITIES

(a) Kiwifruit Pollination Hives

MAF audited a large number of hives either for individual beekeepers or growers or various pollination associations. Lack of grower-beekeeper contracts and acceptance of agreed hive standards caused some problems. MAF, orchardists and beekeepers have been working to redress these concerns with good effect. Most of the pollination was done by members of the various pollination associations. Grower awareness of the importance of quality hives increased and price was not so important. Pollination advice is available to growers through Pollenplan, a consultancy service supplied by MAF.

Over 80,000 hives were placed in kiwifruit orchards in 1986 for an average fee of $75.00. Some 233 beekeepers were involved and the pollination fees represented a gross return in excess of $6 million to beekeepers. Thirty three beekeepers placed 9147 hives in other crops requiring pollination.

Following a difficult season in 1985/86 many growers increased their orders for bee hives, frequently exceeding the MAF recommendation of 8/ha for orchards with competing floral sources nearby.

Failure to secure loads by beekeepers continued to cause concern as did the indiscriminate placing of some apiaries.

(b) Beekeeping Organisations

MAF liaised closely with a number of groups but especially the pollination associations and the queen bee producers' association. A tape slide display and pro-

NEW ZEALAND BEEKEEPER, APIARY & HIVE STATISTICS AS AT MAY 31 1987

	1-5 hives			6-50 hives			51-250 hives		
	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives
Whangarei	457	512	986	185	432	2692	30	294	3398
Auckland	1119	1233	2296	326	762	5151	33	276	3829
Hamilton	454	537	1026	233	511	3447	34	329	4953
Tauranga	429	509	1028	259	541	4690	49	414	6870
Palmerston Nth	1112	1115	1833	355	819	5341	41	464	4948
Nelson	366	438	822	158	436	2562	39	367	4523
Christchurch	570	687	1148	172	497	2730	52	455	6944
Oamaru	208	240	483	108	282	1959	37	489	5074
Gore	196	229	451	116	223	1398	27	228	2368
NEW ZEALAND	4911	5500	10073	1912	4503	29970	342	3316	42907

	251-500 hives			501-1000 hives			More than 1000 hives		
	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives
Whangarei	7	182	2784	7	277	4726	4	230	5070
Auckland	10	250	3839	0	0	0	4	327	8394
Hamilton	10	295	4635	10	348	8500	12	1021	23126
Tauranga	26	444	9725	15	504	12396	12	1376	23714
Palmerston Nth	11	289	3365	9	407	6916	9	988	18566
Nelson	17	390	6155	9	364	7341	3	265	4956
Christchurch	16	298	7247	16	699	12280	9	1146	17520
Oamaru	8	300	4178	15	844	11057	14	1506	24959
Gore	9	211	3242	18	766	12679	7	574	10113
NEW ZEALAND	114	2659	45170	99	4209	75895	74	7433	136418

	1-50 hives			More than 50 hives			Totals		
	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives	Beekeepers	Apiaries	Hives
Whangarei	642	944	3678	48	983	15978	690	1927	19656
Auckland	1445	1995	7447	47	853	16062	1492	2848	23509
Hamilton	687	1048	4473	66	1993	41232	753	3041	45705
Tauranga	688	1050	5718	102	2738	52705	790	3788	58423
Palmerston Nth	1467	1934	7174	70	2148	33795	1537	4082	40969
Nelson	524	874	3384	68	1386	22957	592	2260	26341
Christchurch	742	1184	3878	93	2598	43991	835	3782	47869
Oamaru	316	522	2442	74	3139	45268	390	3661	47710
Gore	312	452	1849	61	1779	28402	373	2231	30251
NEW ZEALAND	6823	10003	40043	629	17617	300390	7452	27620	340433

NEW ZEALAND HONEY PRODUCTION, IN TONNES
(As at 31 May Annually)

	Whangarei Auckland Hauraki Plains	Waikato King Country Taupo	Bay of Plenty Coromandel Poverty Bay	Hawkes Bay Taranaki Manawatu Wairarapa	NORTH ISLAND	Marlborough Nelson Westland	North & Central Canterbury	South Canterbury N & Central Otago	South Otago & Southland	SOUTH ISLAND	New Zealand	Yield per Hive (kgs)
1971	440	1239	671	581	2931	207	711	895	914	2127	5658	28.2
1972	489	1247	518	1079	3333	252	406	1082	620	2360	5693	27.9
1973	573	1069	600	551	2793	424	600	610	914	2548	5341	25.7
1974	386	1094	680	702	2862	255	600	490	1055	2400	5262	25.5
1975	448	1378	750	890	3466	330	1200	1300	1115	3945	7411	36.3
1976	375	530	280	554	1739	256	1200	950	770	3176	4915	23.9
1977	482	1433	490	704	3109	483	1000	821	665	2969	6078	29.3
1978	450	1646	1000	1440	4536	394	950	959	1440	3743	8279	39.2
1979	420	1360	640	835	3255	265	1050	1249	655	3219	6474	28.5
1980	550	1129	400	810	2889	590	1750	1225	1035	4600	7489	32.0
10 yr Ave	461	1213	603	815	3091	346	947	958	918	3169	6260	29.7
	Whangarei / Auck.											
1981	650	1043	470	1088	3251	491	1150	1100	940	3680	6931	29.1
1982	600	1465	1130	1020	4215	325	430	550	975	2280	6495	25.6
1983	696	877	720	360	2653	300	1050	900	150	2406	5053	18.8
1984	300	731	682	495	2208	800	1150	1100	560	3610	5818	21.0
1985	572 / 930	1697	1550	1088	5837	685	1650	1352	790	4477	10314	33.3
1986	402 / 1096	1492	1150	887	5027	871	950	1473	1150	4444	9471	29.0
1987	417 / 705	1506	1450	1012	5090	966	1070	1954	1011	5001	10091	29.7

Report by Dr Denis Anderson, Honey Bee Pathologist

INTRODUCTION

During the 1986 National Beekeepers' Annual Conference at Rotorua I outlined my major research projects as well as those which would commence in the near future. Also outlined were some preliminary results from the previous years' work and their implications for the New Zealand Honey Bee Industry. Most of the work described at that Conference was done with no technical assistance. However, during the work that I will be describing to this year's Conference I am pleased to acknowledge the assistance of Mrs Helen Murray. I sincerely thank the industry for sponsoring the costs of employing Helen who has shown herself to be a competent and conscientious worker as well as a keen learner. Her newly-acquired skills and expertise will be a valuable resource to the industry in years to come.

In this brief report I will describe aspects of my work over the past year and outline future research directions. The projects that will be described and the approximate percentages of work time allocated to each are as follows:

- Studies of bee viruses, particularly Kashmir bee virus (10%)
- Nationwide survey of honey bee diseases (30%)
- 'Half-moon' disorder (50%)
- Other projects (10%).

STUDIES OF BEE VIRUSES

Studies of the ecology, worldwide distribution, and the molecular biology of Kashmir bee virus (KBV) have continued. It is essential that this research continue, as the Ministry of Agriculture, Food and Fisheries (MAFF) in the United Kingdom is presently collating recent information about KBV before reassessing their current policy on live bee imports.

During the past year I detected KBV in honey bees in Fiji. Thus I have now found the virus in honey bees from Australia, New Zealand, Canada, and Fiji. Molecular studies on the coat proteins of the virus isolates indicate that the Australian, New Zealand, and Fiji isolates are closely related even though they are serologically distinguishable. However, the size and serology of the coat proteins of the Canadian isolate are much different from the other isolates.

KBV has also been found to cause natural inapparent infections in three other insect species in New Zealand. This is an interesting discovery as all the other known bee viruses, except acute bee paralysis virus, have been shown to be host specific. Further studies in this area may shed more light on the origin of KBV.

NATIONWIDE SURVEY OF HONEY BEE DISEASES

The objectives of a nationwide survey of bee diseases were to determine and monitor the occurrence and distribution of the known honey bee pathogens in New Zealand and to identify those areas requiring future research. The survey is one of the most comprehensive of its type ever undertaken. It involves co-operation from the nine Ministry of Agriculture and Fisheries (MAF) apicultural advisory officers, and 75 commercial beekeepers, distributed evenly throughout New Zealand and representing 10% of all New Zealand commercial beekeepers.

The survey, for those who may be unfamiliar with it, commenced in the spring of 1985 as an ongoing quarterly survey. However, after the spring 1986 survey it became an annual spring survey. The surveying procedure involves each of the 75 participating beekeepers collecting samples of brood, and live and dead adult worker bees from one of their colonies. These samples are sent to me for testing for protozoan, bacterial, fungal, mite, and viral infections.

Returns from all the surveys, except one, have been analysed and the results placed on computer files. These, as well as the results of the unprocessed survey returns (i.e. spring 1986), together with those of the forth-coming spring survey returns, will be made available to all members of the beekeeping industry at the end of this current year in the form of an illustrated, comprehensive report. Only small sections of this report, mainly the methods sections, will be written in a technical style. All other sections will be written in a non-technical descriptive manner so that it may be read and understood by most beekeepers. The report will list the results, and describe their implications to the industry. It will also assess where future research would be best directed. Such information cannot be given in short, concise, scientific papers. Nevertheless, information will be extracted from the report for later publication in scientific journals.

To date, the results from the survey have proven rather interesting. For example, nosema disease, caused by the protozoan *Nosema apis* has been found to be the commonest, widespread, and most serious disease of adult worker bees in New Zealand. Its level in many spring and summer colonies is unacceptably high and must be affecting honey yields in certain areas. Chronic paralysis, caused by chronic bee paralysis virus, is another common disease of adult worker bees. Overseas studies have shown that the presence of overt symptoms of chronic paralysis are dependent on several genetic resistance factors being present in bees. This suggests that New Zealand bees generally may be lacking some of these resistance factors. The presence of amoeba disease of adult worker bees caused by the protozoan *Malpighamoeba mellificae* has also been confirmed.

American foulbrood, caused by the bacterium *Bacillus larvae* is potentially the most serious brood disease in New Zealand. However, chalkbrood, caused by the fungus *Ascophaera apis*, is the most common serious disease of brood and the results from consecutive surveys since 1985 have shown that the distribution of the disease in New Zealand has increased during the previous two years. For example, results of early surveys showed that the disease was restricted to the north of the North Island, but later surveys showed that areas in the south of the North Island were infected and the latest surveys

MAF Report Concluded

motional leaflets were designed and sent to Canada for showing at three beekeeper conventions in an attempt to increase New Zealand queen and package bee sales.

(c) Foreign Affairs

One off-shore project was completed for Foreign Affairs in Fiji as well as several on-shore training programmes for beekeepers from Tuvalu and Thailand.

(d) Apiary Databank

This computerised system, which forms the basis for the apiary registers, was developed by John Smith, AAO, Christchurch, and Bob Halliday, Systems Analyst, Christchurch. Major development work on the programme was completed before charging for such services was implemented.

have shown that the disease is now present in the South Island. These findings support the theory that the present chalkbrood epidemic may have resulted from a recent accidental introduction of the disease in the far north of the North Island. Alternatively, the disease may have been present in New Zealand for many years and perhaps the current epidemic may reflect the spread of a more virulant strain.

Sacbrood, caused by sacbrood virus, is a common spring disease of larvae, but its spring occurrence in New Zealand has been found to be significantly less than its spring occurrence in Australia. Kashmir bee virus, black queen cell virus, bee virus X, and cloudy wing virus have also been detected.

Four species of mite have been detected. These are *Mellitiphis alvearius, Acarapis externus, A. dorsalis,* and *Neocypholaelaps zealandicus.* These mites have been detected from widespread locations but their occurrence is not common.

Despite extensive testing the bacterium *Melissococcus pluton,* which causes European foulbrood disease, the trachael mite *Acarapis woodi,* the external parasitic mites *Varroa jacobsoni* and *Tropilaelaps clareae,* have not been detected in New Zealand.

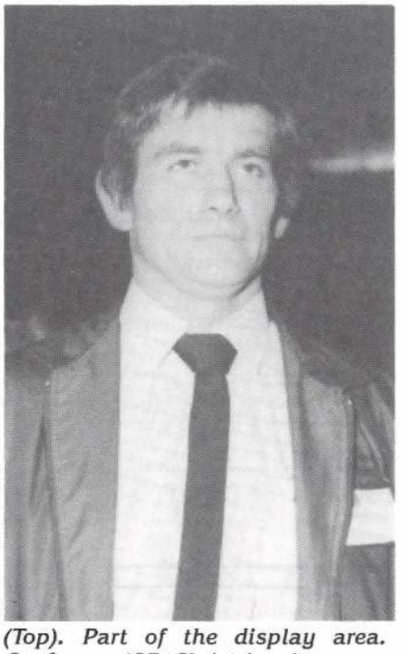
'HALF-MOON' DISORDER (HMD)

Much effort has been spent during the last year determining the cause of half-moon disorder (HMD). This disorder has been referred to in the past as 'Canterbury disease' and 'Chatham Islands' disease. Originally Vandenberg and Shimanuki (1985) proposed that a bacterium, which they tentatively called *Bacillus coalulans* was the causative agent. However, my work has shown that the disorder is not a disease of larvae but rather it is a queen-related disorder. The disorder can be transmitted to a healthy colony by replacing its queen with one from a colony affected with HMD, although a healthy colony that is given a frame of brood displaying HMD will remove the affected brood and show no symptoms. Queens from severely affected colonies appear physically normal, have been adequately mated (i.e. have high numbers of sperm in their spermathecas), but have melanized regions on their ovaries. No causative agent has been found to be associated with the melanization.

Severely affected colonies show four obvious symptoms:

- **Many brood cells contain more than one egg.** These eggs are not commonly deposited independently, but rather, the eggs may be 'stuck' together side by side, or end on end.
- **Eggs are often deposited on the walls of cells.** They may be found on the top, bottom, and side walls of cells, from the bottom to the lip of the cell.
- **Larvae of all ages may die in their cells or may be removed** by nurse bees from their cells as they are dying. Thus the brood pattern may become 'spotty' or 'peppered' in appearance. **One to four day-old larvae that die in their cells lie in a 'C', sickle, crescent or 'half-moon' shape,** similar to larvae with European foulbrood disease. **Older larvae and prepupae may die stretched lengthwise in their cells.** The wax cappings on their cells may become dark and sunken, and may be perforated by nurse bees. The colour of dying larvae varies from colony to colony. However, in many colonies dying larvae first turn a 'yellowish' colour, then become brown. Their tracheae often become prominant. The dried scales of dead larvae are easily remov-

BUZZING AT CONFERENCE '87



(Top). Part of the display area. Conference '87, Christchurch.
(Above) Arthur Day of Dayline Queens, Auckland.

Richard Seccombe (left) and Nick Wallingford.

Trevor Mathews, Dunedin (left) and Dave Warr, Tauranga.

Neil Stuckey (left) and Graham Cammell, both from Auckland.

Ivan Dickinson enjoys a cup of tea. Ivan is a Member of the Board of Governors at Telford and has done much to promote beekeeping cadetships. he began his working life as a Post Office morse telegraphist but yearned for a more rewarding occupation. After working for a beekeeper for some three years he began beekeeping in his own right with 25 hives. Now he owns some 2,000.

Joining the NBA Executive in 1968, he served three years as an ordinary Member and then three as Vice-President. He was subsequently elected President, a post he held for four years. He was Chairman of the HMA at the time of its demise in 1981.

FRUIT SALAD

White grapes
1 orange
1 banana
1 pear or peach
1 small apple
1 lemon
lettuce

• Cut grades into halves and remove seeds. Cut orange into halves and remove sections with a sharp-pointed knife. Slice banana and pear, or peach, and dice the apple. Pour juice of lemon over apple and banana. Moisten all fruit with honey and serve on crisp lettuce or chicory.

ed from their cells.

• **Drone brood is often present in worker cells.**

Some colonies may be less affected by HMD than others and these may be difficult to diagnose. Affected colonies often try to supercede their queen, but may not succeed. This often leads to the death of the colony. The bee population in affected colonies may not increase, or if it does, the rate of increase is often extremely slow. The disorder can often appear in association with other diseases such as chalkbrood, sacbrood, nosema, and American foulbrood.

Studies have also shown that the disorder is heritable, that is, small proportions of daughter queens from a half-moon affected queen become affected with the disorder. Present studies, utilizing artificial insemination techniques, are focussing on how it is inherited.

The proportion of time that has been spent researching HMD over the past year was originally justified on the grounds that other countries were very concerned that the disorder may have been caused by a pathogenic microorganism. However, the results from my work indicate that future research on HMD will benefit all New Zealand queen breeders and queen exporters as well as all New Zealand beekeepers who requeen their colonies whether or not these queens are 'home-raised' or obtained from commercial breeders. The research will also indicate whether or not we need to examine the fundamental quality of our present breeding stocks. Finally, the HMD research is internationally significant as many countries have occassionally reported similar disorders in their bees and in all cases no causitive agents have been found. It may be worthwhile in the future to survey other countries for the presence of the disorder.

I would like to take this opportunity to thank all beekeepers who have contributed equipment or 'know-how' to the HMD project. This has undoubtedly helped to make this project yield quick results.

OTHER PROJECTS

As well as the projects outlined above, several minor projects have also been undertaken. One of these projects has involved surveying the diseases of honey bees in Fiji.

CONCLUSION

The results obtained during the past year have contributed to a better understanding of bee diseases and disorders in this country as well as those in other countries. Much time will have to be spent during the coming year in reporting these findings to the scientific community. The research projects of the past year will continue into the coming year. However, the future direction of bee disease research in New Zealand will be reassessed with the release at the end of 1987 of a report on the national honey bee disease survey.

Reference:

Vandenberg, J.D., and Shimanuki, H. (1985). Isolation and characterization of a *Bacillus* sp. from larvae of the honey bee *Apis Mellifera*, suffering from half-moon syndrome. in 'The Proceeding of the Society for Invertebrate Pathology XVIII Annual Meeting, Ontario, Canada, August 4-8, 1985. p. 23.

SUPER DELICIOUS CHOCOLATE CAKE

3 squares unsweetened chocolate, melted
⅔ cup honey
1¾ cups sifted cake flour
1 teaspoon salt
½ cup butter or other shortening
½ cup sugar
1 teaspoon vanilla extract
2 eggs, unbeaten
⅔ cup water

• Blend chocolate and honey; cool to lukewarm. Sift flour once, measure, add soda and salt, and sift together three times. Cream butter thoroughly, add sugar gradually, and cream together until light and fluffy. Add chocolate-honey mixture and vanilla. Blend. Add eggs, one at a time, beating thoroughly after each addition. Add flour, alternately with water, a small amount at a time, beating after each addition until smooth. Bake in two greased 8-inch layer pans in moderate oven (350°F.) 30 to 35 minutes. Spread with French Honey-Chocolate Frosting.

At Conference '87

Shifting Beehives

How many of you remember the first time you shifted a bee hive?

Often it's one of the funniest stories in a beekeeper's long list of 'How I hope I learned from my mistakes'. A complex operation, it is often forced on the beginner before he or she has had the chance to think or read about it. It often comes as something you must do immediately, because you have just bought the hive and need to get it home.

And the hive is often no more than boxes and frames barely held together by the holes . . .

And the floorboard is rotten. You put your hand through it when lifting it from the ground . . .

You eventually manage to lift it on to the car trailer, but it shifts and slides apart on the way to its new location . . .

All in all, it becomes a hilarious story of mishap. Later on, after you've forgotten about the worry and the stings, that is. If it makes you feel any better my first experience was no different.

I had read 'some of the books', though, about how you should secure the hive by nailing laths on the diagonal, to keep the floor, boxes, and lid together. The bees didn't like that hammering much, I remember. And the nail holes later let in moisture to rot the boxes. I had no trailer; I managed to get the hive into the boot of the car!

But all in all that first shift of my newly-acquired hobby was better than my experience two weeks later when I helped a sideline beekeeper move 35 hives. A wreck with bees all over the highway, an overturned truck with diesel tanks on fire and two days to clean up the whole mess! No fun at the time, but exciting, and still a good story fifteen years later. At least no one was injured.

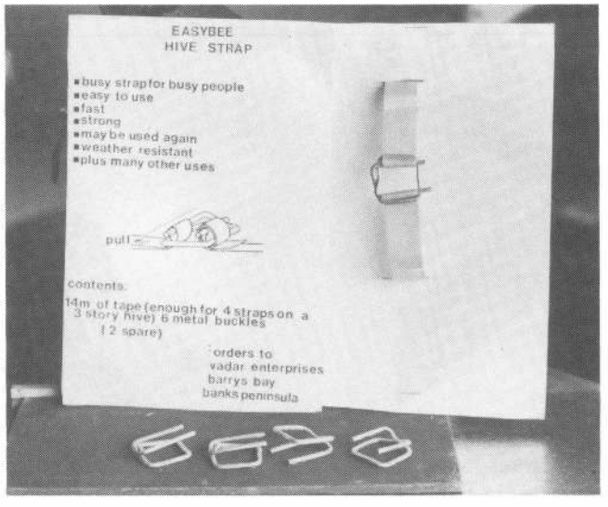
I don't think it's simply because of that experience that I always get an adrenalin surge when it comes to shifting bees. I think it must be a part of the process, a real-life indicator that you need to think the whole job through and plan accordingly, every time, whether it's your first time shifting bees or whether you consider yourself an 'old hand'.

First let's give away that idea of nailing the hive parts together. It's absolutely unncessary. In the US they even sell hobbyists special staples, about 60 mm wide, to nail into the hive parts. An utter waste of time and effort, and who wants to perforate their woodware, anyway?

If you need to shift one or more hives regularly, even only two or three times each year, invest in some form of hive strapping. You'll wonder how you ever managed without it.

At the most basic all you really need is a piece of rope. But that means you must know how to tie 'proper knots', a dying art nowadays. Securely hitched, several pieces of rope will hold your hive together very well.

Better for most beekeepers will be nylon fabric, galvanised iron, or stainless-steel belting. Which you finally use will depend on several factors: what you have on hand, the cost, and whether you want to keep it around the



(Left). Plastic strap with metal clip.

hive permanently.

Bear in mind that most metal parts may rust if left on the hive. Be aware, too, that ultraviolet light from the sun will cause many plastics to perish over one or two seasons. They become brittle and unusable.

If you keep straps on hives that stand in paddocks with stock, you will be amazed at what animals will chew and destroy.

You must also decide whether you want the straps to secure the hive so tightly that you can roll it down a hill, or whether you simply want them to prevent the hive falling apart with the normal movements of shifting on a trailer.

I must say that, as much as I curse the thing at times, the Emlock system is hard to beat. It's expensive, it's unwieldy, it's terrible to work with in the dark, it can give you nasty cuts, it can be tensioned so tight you'll crush your box into small pieces — all of these, and still I like it. Its real advantage is that it doesn't take very long to strap a hive, you need no extra equipment, and once it's fixed, the hive is a solid unit (suitable, but not recommended, for rolling down hills!)

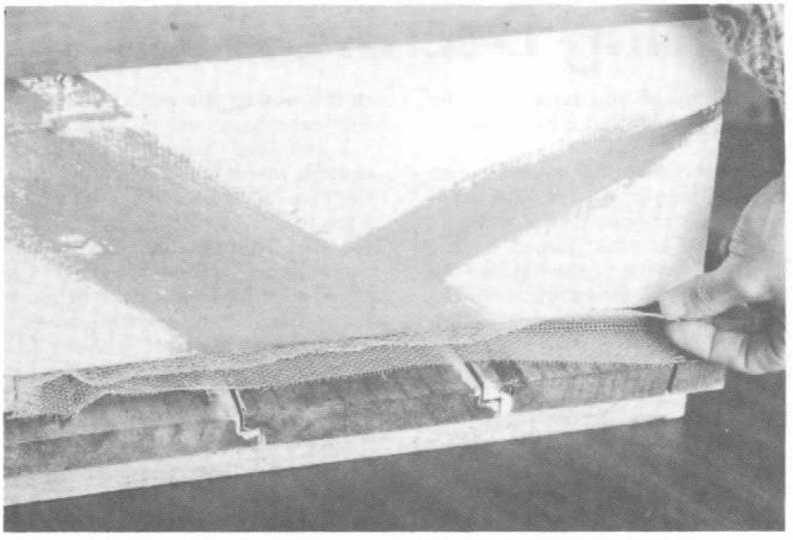
Another choice of mine is nylon cloth tape and quick-fix and open fasteners with the type of buckle arrangements used on lifejackets. The advantage here comes with the flexibility of the straps, making them easy to handle in the dark, and extremely easy to tension up and remove. They won't, however, hold a hive together under 'extreme provocation'. If the hive is jolted the boxes can still shift apart enough to let the bees out.

A cheap method many beekeepers use is bent-wire type buckles and plastic tape arrangements. They work fine, and relatively quickly, but won't hold the hive together if it is dropped. And they often require a bit of memory and knack to work.

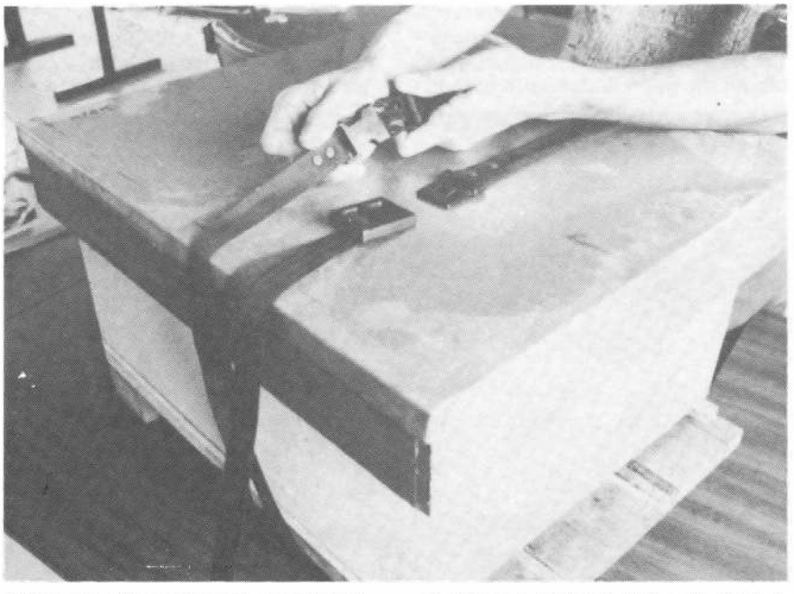
Many beekeepers, mostly South Islanders, use variations of a type of strap first made, I think, by Sandy Richardson. Ask beekeepers in your area and you may come across a simple, cheap design that might suit you.

Another trick when you're shifting your hives is leave them alone for a week or so before the night of the shift. If you haven't broken the propolis seal between hive parts, you're much less likely to come to grief with boxes sliding around.

Along these same lines, four fencing staples in your floorboard will make shifting hives easier and safer. They stop the bottom box sliding around, probably one of the most common problems when shifting bees.



(Above). Using flyscreen to close off the hive entrance.
(Below). Nylon strapping with two types of quick-release buckle.



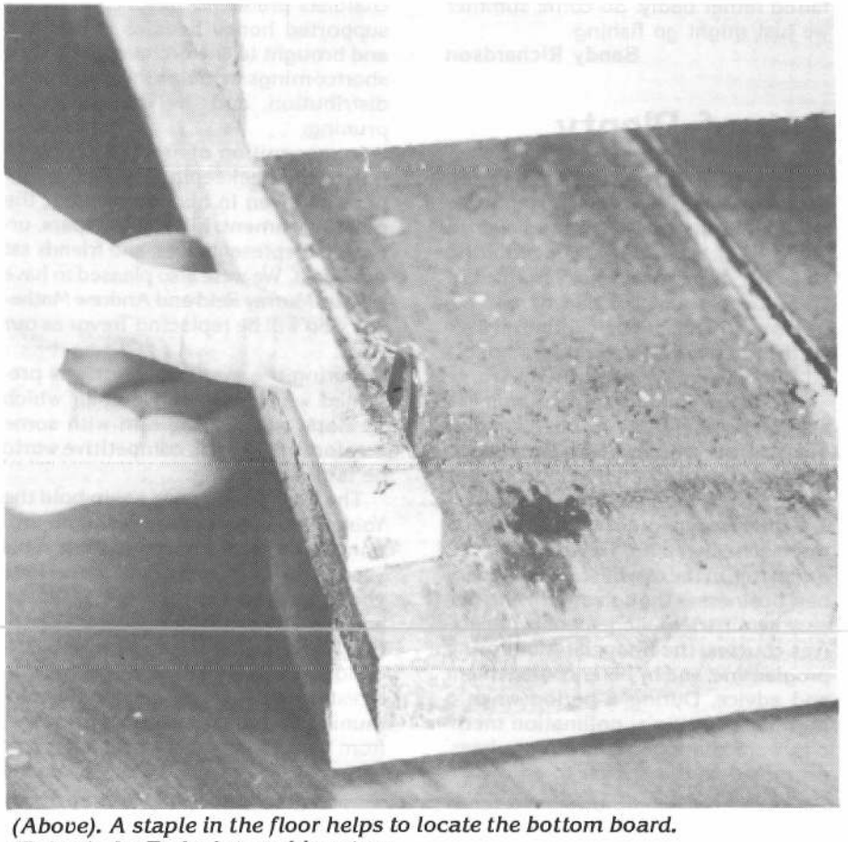
Hives are often secured on a truck or trailer in rather slipshod manner. Under the new loading regulations you must secure your load properly. For a real fright ask your Ministry of Transport office about the regulations; you'll be amazed at the size and strength of straps and ropes you must use. Probably the best thing for most beekeepers has been the widespread use of nylon strapping with ratchet type fasteners. Used properly, they will take the place of the rope skills that used to be such a part of fixing loads to trailers and trucks.

Assuming you think you can keep all of the equipment together and securely fixed to the truck or trailer, how will you keep the bees in? Talk to commercial beekeepers. Most will tell you they don't bother. If you're careful and experienced, that might be all right, but for you as a hobbyist, there's no real reason not to try.

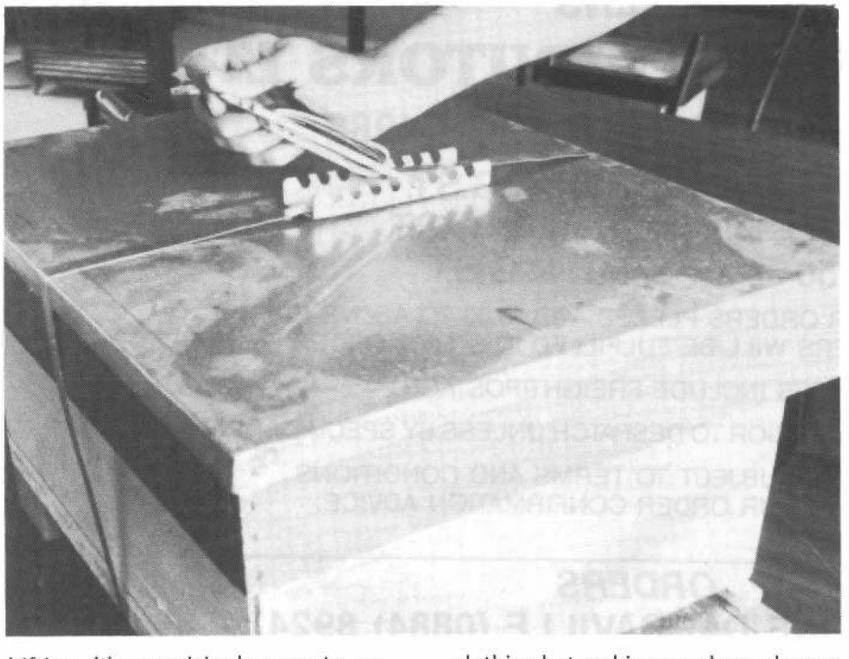
One of the first 'gadgets' I saw in beekeeping was a piece of galvanised fly screen gauze, about 75 mm wide and as long as a hive entrance. Fold the gauze in half across the 75 mm side, forming a wedge, jam it into the hive entrance, and voila! The bees are trapped inside but can still ventilate the hive.

Some beekeepers in my area use a piece of foam rubber, but I have serious doubts whether a strong hive can get enough air through that.

A potential danger with blocking hive entrances is if you forget to unblock them once you get the hive to its new location. Cultivate the habit of counting your gauzes before and after



(Above). A staple in the floor helps to locate the bottom board.
(Below). An Emlock-type hive strap.



shifting. It's surprisingly easy to accidently leave a hive locked in.

If you have to con a non-beekeeping friend into helping you shift hives as I do ('Thank you for all those nights, Marcus!') it's only fair that you prepare him or her adequately. That means not only having a full set of protective clothing but making sure he or she can wear it properly. You might not mind the occasional sting, or you may go without gloves, or wear your veil in slap dash manner, but make sure your helper is properly protected.

Prepare also for all eventualities. Make *sure* you have your smoker (seems obvious, doesn't it?). And matches. And a torch.

And if the hives are coming from — or going to — someone else's property, make sure they know you'll be moving around at night. I recently heard a horror story of beekeepers being shot at: the landowner thought they were intruders.

Much to think about, isn't there?

If you have to shift your hives once, only every few years, you'll probably never develop good routines, but many beekeepers need to move hives more often: to different areas for an extended honey flow, or in and out of a paid pollination service, or simply to find a new place for them.

For your own safety, even more for the safety of the general public which seems to jump at any reason to dislike bees, it is important that we all do our part. It not only makes that move safer (but still with the adrenalin surge . . .) but also helps with public relations for all beekeepers.

Now You Know

Most beekeepers know of Sherriff's Protective Clothing, but how many know who is behind it and how he fits into the scheme of things?

Brian Sherriff, the manufacturer of this clothing lives with his wife Pat in Cornwall, England, where they have their clothing factory. He also runs about 300 hives, mostly for pollination of berry and seed crops.

His specialised clothing is used throughout the British Isles and is exported widely round the world. In most countries, Brian operates through agents (in New Zealand through Happy Valley Apiaries), but spends a considerable time travelling outside the UK to demonstrate and promote his products. He has visited NZ on several occasions and may do so again later this year.

Brian's manufacturing background is in ladies' undergarments, which suggests he understands the importance of comfort and good fit.

During his visits to NZ he likes to meet as many beekeepers as possible, and usually holds open meetings where he presents an entertaining double-slide show on beekeeping in England and throughout the world. Details of his next visit will be sent to clubs.

FROM THE COLONIES

Westland

Spring is fast approaching. Our mild winter has already encouraged the early flowering of young pussy willows so a more gradual transition into spring is likely.

Early winter was somewhat wetter than usual, and later we had fine spells rather than the cold and frost we normally expect. The hives, judging from reports, have consumed more stores than usual: no doubt because of their increased activity during the warmer afternoons. One benefit from the warmer winter has been the abundance of gorse blossom evident everywhere. It's pleasing to see gorse pollen arriving in the hives so readily at this time of year.

With the depressed honey market affecting incomes this year most members have been marking time rather than marching forward. We are waiting for positive signs of improvement and, being beekeepers, (that most optimistic of breeds), we're still waiting. And, we're not in this alone! What with the Government restructuring its departments and the general state of the nation's economy, Westland as a whole has faired rather badly. So come summer we just might go fishing.

Sandy Richardson

Bay of Plenty

The annual golf tournament between the Bay of Plenty and Waikato branches resulted in the trophy coming over to our side of the hill this year. Golfing standards were somewhat variable but an enjoyable day was had by all.

Trevor Bryant, our apicultural advisor for the last five years, recently announced his resignation from the MAF.

Trevor has made a tremendous impact on Bay of Plenty beekeeping during his time with us. With the growth of the kiwifruit pollination industry has come a large increase in hive numbers and many new people have began commercial beekeeping. Trevor has played a vital role in the establishment of these new businesses though organising disease seminars, management by objectives courses, the financial monitoring programme, and by his encouragement and advice. During a period when a number of artificial pollination methods were marketed and 'funny bees' promoted as the answer to all the orchardists' problems, Trevor consistantly supported honey bees as pollinators and brought to the orchardists' notice shortcomings in male vine quality and distribution, and the importance of pruning.

In recognition of Trevor's contribution to the beekeeping industry a dinner was given in his honour after the golf tournament. Fifty beekeepers, orchardist representatives, and friends sat down to it. We were also pleased to have with us Murray Reid and Andrew Matheson who will be replacing Trevor as our AAO.

During the evening Trevor was presented with an executive chair which we hope will provide him with some comfort in the hard, competitive world he is now entering.

The Branch will once again hold the Young Beekeeper of the Year competition during the coming season. This year it will be extended to include young beekeepers from the Gisborne and Waikato branches. The competition has been held on two previous occasions and attracted a great deal of interest from the local beekeeping community and some worthwhile prizes from beekeeping equipment suppliers.

Peter Townsend

Auckland

The Auckland Branch held its annual field day on June 27 at the DSIR's Mt Albert Research Centre, Auckland. The main topic was the importation of Carniolan queens.

Chairman Graeme Cammell welcomed a hundred-odd beekeepers, and our man with the DSIR, Denis Anderson, told us that queens could be imported with very little risk of their bringing new diseases with them. Don Gibbons told us of the importance of good queens in any beekeeping programme. Russell Berry explained his efforts in exporting queen and package bees and showed his new export package. Several trade exhibitors displayed some most interesting equipment.

Later, an MOT officer showed us how to secure loads of beehives and drums of honey. His demonstration was both interesting and informative and drew many questions.

During lunch beekeepers broke into groups for demonstrations of the MAF disease-diagnostic service, and the DSIR showed us AFB and nosema through a microscope.

Derek Bettesworth, spokesman for the NZ Queen Bee Producers' Association, talked about importing Carniolan queens and the stock needed to breed Carniolan queens for export to North American beekeepers.

Some beekeepers thought that if bees were to be imported more good might come from importing Italian stock.

A panel consisting of queen breeders and bee exporters, honey producers and pollinators, Nick Wallingford, and Denis Anderson, was chaired by Chas Reade. It answered many questions.

To date (July 25) the winter has been very mild, but I guess when queen-rearing starts things will change. Some hives have several frames of brood queens already, having laid right through until now.

Dave Young

Hawkes Bay

The winter months have been interesting and active and members are now preparing for a busy spring pollination programme.

We were delighted to have Nick Wallingford, from Tauranga, and Brian Milnes, from Auckland, visit us for our June Branch meeting. Nick gave an interesting and informative lecture on his life and work at the Bay of Plenty Polytech, and told us of the trials and tribulations of kiwifruit pollination in the Bay. Brian told us about his work at the Diagnostic Research Laboratory. We were delighted to have an excellent attendance on both evenings.

Our President, John Dobson, has just returned from an extensive tour of the South Island, and members are looking forward to hearing about what he saw and learned from beekeepers on the "Mainland" and, of course, at Conference '87 in Christchurch.

Our committee is busy preparing for a spring field day: the first for many years in September. Hopefully, and if the weather is kind, we shall have another successful day.

Gordon Sutton

South-Western

Was that winter? Apart from a few days of frost and some rough weather our winter has been very pleasant. July, in particular, was a degree warmer than average and the driest on record.

That made the early feeding rounds of the apiaries much easier. No problems with wheeled vehicles across the paddocks.

Our recent Branch meeting dealt with Conference remits, and we are planning a field day in the Manawatu.

We are again discussing hive numbers with the kiwifruit orchardists. More hives will again be needed this year. I will need 15 percent more than last year to service the same orchards because new plantings are coming into production and older plantings are reaching their full capacity.

Only a few short months of busy field work before the honey season begins once again.

John Brandon

North Otago

Good rain in July followed by frosts kept the countryside in good order, although we possibly needed more frost in June and July because the bees are still very active. Maybe they will be getting through their winter stores faster?

Mark Schrader told our last Branch meeting that he was travelling overseas and that his advisory position was to be left vacant. Later, at Conference, our five branch members present were told that our district was being split between Southland and Canterbury, so the Southland area now stretches from the Waitaki River south to create the biggest region in New Zealand. The logic of that leaves us scratching our heads.

Mr Reid did explain to Conference his difficulties with the area's $200,000 budget, yet according to a report sourced to the Reserve Bank by our local paper, the Ministry's spending was under budget for the year! Further, the Timaru Herald reported that some sections of the MAF do not have to produce revenue from outside work!

Perhaps a sharp stick is needed to prod the value of beekeeping in this country through to some centrally-heated office in Wellington!

G.R. McCallum

Nelson

At the time of writing we're almost into August, yet apart from some overcast days, the winter has been much milder than usual. The most important events of the moment are that hordes of wasps have had their chips, so some honeydew is showing up and we hope the bees will get enough to see them through.

We've heard little of how honey yields have been this season, and it would be reasonable to believe that of the two the pollen harvested would be the greater.

With the milder weather the few hives we checked have large amounts of brood, so beware! Those colonies well off with stores may have turned into bees a bit too soon, when early nectar is not so readily available.

We read of proposals to import two different strains of bees, much darker than the Italian type common here. In all probability, with the numbers of feral bees around, it would not be easy to keep these new strains pure. However, they have been here before, so it might be an idea for those considering importing these new strains to remember their behaviour when they revert. They certainly will do so, unless kept under lock and key.

Spring is just round the corner. Nothing stands still! So buy, beg, borrow, or steal as many parasites as possible to combat the wasps and pray for a good season.

It is no longer a rumour that our AAO is soon off to Te Puke. By the time this goes to print our early-August meeting to farewell Andrew will be past. That leaves us to speculate whether or not we get another adviser. With the current Government policy of reducing or not replacing staff, anything could happen.

Ron Stratford

Northland

Pollination and queen-rearing have been very active but it was a disappointing season for honey. There was a good early flow from manuka but later in the season nothing much came in and towai was a near failure.

There was a working-bee, a disease "crawl", in Whangarei on 12 September.

Gavin's Apiaries at Titoki are 75 years old this year. The birthday party started at 11 am on August 1st.

Our A.O. Cliff Van Eaton has left MAF to manage Homestead Apiaries, Kerikeri. We shall be sorry to lose him but pleased to welcome his replacement Derek Bettesworth. I am hard at work getting my last free advice from Derek.

Brendan Nichols and Derek Bettesworth dealt with a huge wasp nest at Pakanae. It looked like a concrete water trough at the top of a tree and there were four smaller nests descending the trunk. They sprayed it with diesel and set it alight on a rainy day. Taui Alani from Tuvalu was with us and we swapped Maori and Tuvalu words while watching the others do the hard work. He has 40 hives on his island and with 60 hives the island will be full.

George Nichols

Waikato

The Waikato has experienced a rather mild winter which means hives are using up stores quickly.

Many Waikato Branch members are still holding a lot of honey and waiting for sales to pick up. Prices as low as $1 per kilo are being quoted. Ridiculous! However the coming season is unlikely to be as productive as the last so

stocks will eventually move.

Our Branch had its post-conference meeting last Friday August 7. Members who attended enjoyed Conference although they felt too much time was spent debating the proposed importation of Carniolan bees. Branch members are very concerned about this proposal, not because of disease but because of the possible effect on the whole industry. Those proposing the introduction of these bees are lucky the conference took a reasonable view and allowed the matter to lie upon the table for a year instead of throwing it out. They now have 12 months to do their homework and present their case again. From what I have read about the Carniolan bee, it would not improve our NZ bee strains and we would be better investigating the importing of Italian strains to improve our gene stock if that indeed needs improving.

Members are also very concerned about the funding of MAF. There are simply no funds available for advisory officers to inspect hives for disease. This is serious for the industry and I have mentioned it in previous Waikato notes.

Auckland and Bay of Plenty have a disease problem which borders on an epidemic. In fact, 800 hives have been destroyed in the Auckland area, we are told.

Too many people have come into the industry with no experience in beekeeping thinking they will get rich from pollination. Some are quite irresponsible. When pollination is over they simply truck their hives over the Kaimai range and dump them wherever they can and hope they will be alive when needed for pollination again next season. One member told the meeting of an area near Atiamuri where he drove four miles and counted 24 apiaries each containing 50-70 hives, many with lids off or tipped over. If one of those had BL and was robbed out, the spread of disease can well be imagined.

The Waikato is very stable as far as disease is concerned but it would take little to create a problem.

We have discussed the biological control of wasps and hope to get some boxes of the parasite to release in the Waikato.

We have learned of a cheaper beet sugar available for bees but one member thinks it may cause diarrhoea. Murray Reid is to investigate.

Here's hoping we have a kind spring.

Ray Robinson

Marlborough

The quiet of winter will soon be over, and the hives will be hungrier than usual after such a mild season. The blossoms are not far off so we are organising for pollination. Conference left us in a state of shocked disbelief. The world market bad and internal prospects poor! Seems we're heading for what the farmers have been through. However, those who attended Conference from here thoroughly enjoyed it and found it worthwhile and stimulating. It was also good to see so many beekeepers buzzing the ski slopes.

We applaud the example of mass hive inspections set by Hawkes Bay. Hopefully we shall manage a similar inspection in spring. Club news? Disease man Brian Milnes talked to some of us in June. Coming events include a St Bartholomew's Day, a queen-rearing day, and a disease-spring management day. Over the weekend Friday January 30 to Sunday February 1, we plan a bee weekend of speakers, films, panels, etc., at Lake Rotoiti. The last such weekend, two years ago and organised by Nelson, was most successful. Naturally visitors will be welcome.

James Jenkins

Calling not Dr Kildare, but all wasp questionnaires, please

Not only beekeepers hate wasps! This autumn over 3,200 people sent wasps to Drs Henrik Moller and Kay Clapperton (pictured) at the Ecology Division of the DSIR, Nelson. Letters accompanying the samples complained of wasps damaging fruit, stripping timber off houses, stinging people, pets (one person had an allergic poodle!), native insects and birds, and generally spoiling people's enjoyment of the outdoors.

The Ecology Division has been delighted by the response of the public, school pupils, conservation groups, tramping clubs, and beekeepers to its request for help. Some people even thought that live wasps were needed and went to great expense and trouble to courier specially-constructed cages container (somewhat disgruntled) wasps to Nelson!

However, the analysis of questionnaires on wasp nuisance to beekeepers by the Nelson DSIR/MAF "wasp team" is held up because not enough kits have been returned. So far only about 130 of the 600 beekeepers who received a questionnaire have returned kits to Wasp Freepost, DSIR, Private Bag, Nelson.

We realise that many beekeepers received the wasp sampling kit a bit too late to whack us some of these "yellow and black striped fellows with a prickle on their bums". However, we would rather you sent us the questionnaire now instead of waiting to catch some wasps next season. If a lot more questionnaires are not returned we shall not be able to fully interpret the results. We should also be open to the criticism that our small sample is biased because perhaps only beekeepers with a bad wasp problem answered.

We need to show that we have your support to get something done about wasps. So please, fill in the questionnaire and mail it now, even if wasps are not yet a problem for you. If you have lost your copy, please write to us for another.

The Fair Trading Act 1986

By John Smith, 440 Christchurch

BULLDUST QUEENS
from the home of "BEST" Queens Genetics Ltd.

* Our queens are guaranteed to produce 25% more honey.
* Will not swarm.
* Will live on less honey in the winter than any other bee.
* Guaranteed only mated to our own selected yellow drones.
* Allow you to work in any weather without a veil without fear of being stung.

If you read this advert would you believe it, buy some queens, disbelieve it and not buy, report "BEST" Queens Genetics Ltd to the Commerce Commission and hope to see them fined $4,000 for a misleading advertisement, or (the one I like) buy a few queens then, when they sting you, sue for damages?

An advert like this would immediately be jumped on by the Commerce Commission, but many trade journals carry adverts bordering on the false or unprovable.

For many years the New Zealand beekeeping industry has had a "buyer beware" policy. Buy 30 queens of which 10 are still virgins! Hard luck Jack! Buy some hives with "enough stores to winter" and 50% starve? The buyer's fault for not checking. But no longer.

You claim your queens are the best, or your hives are up to a standard for pollination and can't prove it then you could have the Commerce Commission on your back.

I'm no expert on law, but after a phone call concerning some recent adverts for queens, I obtained a copy of the Act. Much to my surprise I found an act which seemed to mean what it said and offered real protection to buyers. Speaking for myself, I hope I'm never called as an expert witness by a beekeeper to prove that his bees are the best, for I know the Commerce Commission would win hands down.

You are warned! Claim "the best" and you may have to back up that claim. "They" have no need to prove you wrong.

Now about that advert offering hives on white clover sites which every other year produce buttercup. Well!!!!!

The Commission has offices in the four main cities and would, I'm sure, help with any advert you plan to place.

Honeydew — a South Island beekeepers' Bounty

By Dr Henrik Moller

Dr Henrik Moller and Jocelyn Tilley are part of a DSIR Ecology Division team studying honeydew in beech forests near Nelson. In this article they describe what honeydew is and why it is important in the beech forest ecosystem. In future articles they will describe the effects of beekeeping on honeydew and the influence that wasps have on bees, honeydew, and native birds.

Honeydew — a South Island beech forest resource

One of the most important native insects in the South Island beech forests of New Zealand is the beech scale insect. This fascinating animal is never seen because it lives hidden within a wax capsule deep in the bark of beech trees. Yet everyone who enters a beech forest will have seen its tell-tale sign: thousands of glistening beads of honeydew. Each one hangs from a hollow white thread, which is a waxy extension of the intestine of the scale insect. This anal tube is part of the insect's plumbing system, which begins with the piercing mouth-parts plugged into the sugar vessels of the tree. Most of the sugary sap is not absorbed by the scale insect and so passes through to accumulate as drops on the tip of the anal tube (Fig. 1). They came to be called the "honeydew" because they taste sweet and shimmer like dew on the tree.

Honeydew is the main substance in beech forests which bees use to make honey. There are wild (feral) bees living in the forest which build their combs in hollow tree trunks, and managed bees living in hives placed in honeydew forests by beekeepers. These days beekeepers put in more hives because the dark, strongly-flavoured honeydew honey fetches a good price in Europe.

Life cycle

Like all insects, the beech scale insect grows by bursting out of successive skins. Only the first and second growth stages (Fig. 2) in the life cycle produce honeydew drops. The second stage changes into a non-feeding adult which lays pink eggs in a waxy capsule (Figure. 3). In time, these eggs hatch into crawlers which leave the capsule in search of a new place to settle. They may also be blown about by the wind, although they cannot fly. When they have settled, crawlers insert their mouth-parts into a beech tree like a hypodermic needle and secrete a waxy capsule around themselves — and so the cycle begins again.

Life in the splash zone

Honeydew-infested trees are black because a sooty mould lives on the sugar of honeydew drops that have been blown or washed on to tree trunks. The sooty mould in turn provides a moist and energy-rich substrate for the many insects which live within it.

Sooty mould also grows on the exposed roots of trees, on the soil surface, and on understorey shrubs growing within the "splash zone" beneath infested trees. Overseas research has shown that honeydew may nourish the soil bacteria, some of which fix nitrogen from the air. More nitrogen compounds are therefore formed amongst the roots of infested trees, which absorb them for their own growth. Honeydew sugars might also accelerate nutrient cycling by speeding up the decomposition of fallen leaves and by encouraging microbial activity in the soil. Research is still needed to check if this occurs in New Zealand's honeydew forests.

Friend or foe of the tree?

Many people believe that beech scale insects kill their host trees because they bleed them of their sugar reserves. Certainly, you can find dead trees which are black and knobbled from previous infestations of the scale insect. However, the growth and seeding of trees may not always be limited by energy, and some botanists believe that the tree benefits from having its excess energy drawn off. Any acceleration of nitrogen fixation or nutrient cycling in the splash zone under the tree would give the tree back more nitrogen. If tree growth and seeding is limited by the amount of nitrogen available, scale insects might indirectly give a net benefit to their host. It is likely that the balance between the costs and benefits of infestation will be different for different trees, so some will die or produce less seed and others will survive longer and produce more seed.

Honeydew as food

The drops of honeydew have a high sugar content, and are an important energy source for a variety of animals living in the forest. Nectar-feeding birds, such as the tui, bellbird, kaka, and silvereye, take honeydew drops in the same way as they harvest nectar from flowers (Fig. 4). The drops are taken to a lesser extent by a variety of other birds — even by seed eaters such as chaffinches. Lizards have also been seen feeding on honeydew.

That honeydew is important to nectar-feeding birds is shown by the many tuis and bellbirds that flock to patches of beech forest from nearby pine plantations (where honeydew does not occur) in the winter months. More birds can be found in forests with more honeydew. Because the drops are rich in energy, the birds can fuel-up quickly in the short days of winter to survive the long, cold nights.

Kaka, magnificent native parrots, lap up honeydew drops. They also eat the insects that piggyback on the honeydew system by living in the bark and in the sooty mould on trees. These insects, together with the sooty mould and its associated sugar, are eaten by keas, possums, rats, and even sheep.

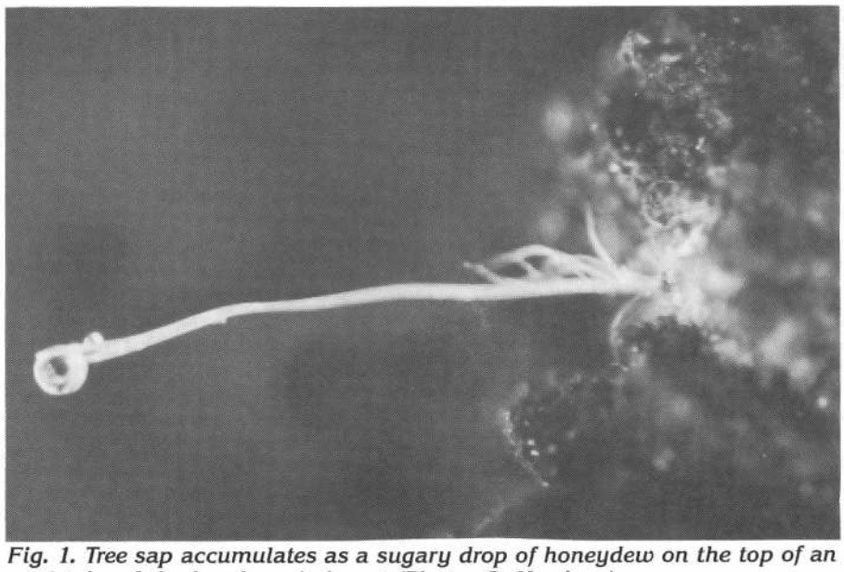


Fig. 1. Tree sap accumulates as a sugary drop of honeydew on the top of an anal tube of the beech scale insect (Photo: G. Harrison).

There are many more insects on honeydew-infested trees than on nearby uninfested trees. Ants are particularly common, but small beetles, flies, bumble-bees, and particularly honey bees and wasps abound. On hot sunny days you not only smell the sweet heady scent as you approach a tree heavily infested with honeydew — you can also hear it buzzing with bees and wasps.

Wasps, the new invaders

An important newcomer in the New Zealand forest is the wasp. The queens of German wasps hibernated in crates of aircraft parts imported to New Zealand towards the end of WWII. They escaped and spread to reach the South Island honeydew forests by the mid-1950s. In the late 1970s a second wasp species, the common wasp, was found to be spreading rapidly (Fig. 5).

Wasps are by far the greatest harvesters of honeydew drops in summer and autumn in Nelson forests. Because

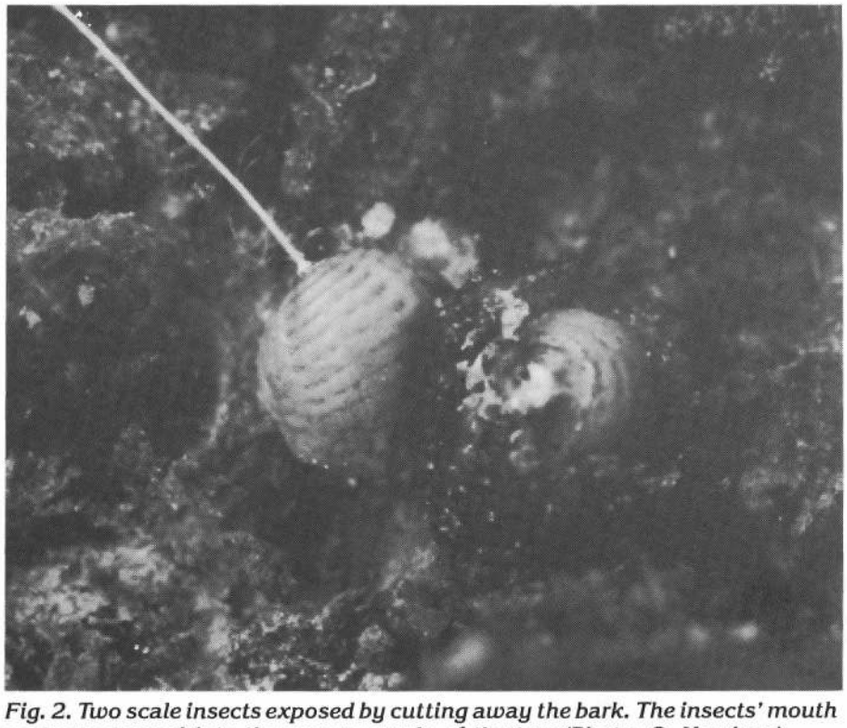


Fig. 2. Two scale insects exposed by cutting away the bark. The insects' mouth parts are tapped into the sugar vessels of the tree (Photo: G. Harrison).

wasps remove the drops soon after they begin to reform, the drops remain small and have a low sugar concentration. This means bees and birds must lap up many more drops to get enough energy.

Wasps kill solitary bees, and also attack their hives to steal honey. More bees then must stay home to guard the hive instead of harvesting honeydew. Yet the fewer foraging bees must gather more drops to make an equivalent amount of honey because the wasps have reduced the amount of honeydew left on the trees. Consequently, less honeydew is gathered where wasps are abundant. The DSIR's study at Nelson showed that feral bees gave up gathering honeydew altogether in late summer and autumn because the wasps had beaten them to it.

The web of life

Everything in an ecological community is potentially interconnected, and no plant or animal lives in isolation from other organisms sharing its community. The honeydew is a crucial link in a complex web of life within South Island beech forests (Fig. 6). The beech scale insect takes its food from the tree. The tree loses some energy, but probably gains nitrogen from the nitrogen-fixing bacteria living in the soil where honeydew falls under the tree; the sooty mould is nourished from honeydew drops spread on the tree trunk by rain and wind; the wasps, the bees, the birds, and other animals lap up honeydew for food; the beech scale insect may benefit from the increased flow of sap through it when the drops are harvested by these animals.

Clearly there is a complex series of relationships which demands much study to understand. These relationships have long-range implications for the health of the forest, its inhabitants, and for the honey industry. Unfortunately cuts in Government funding and the "User-pays" policy are forcing the DSIR Ecology Division to stop the study of honeydew despite its economic importance and its value for conservation.

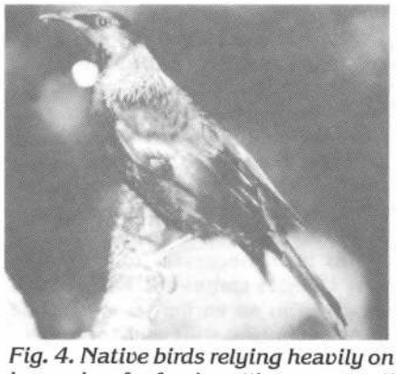


Fig. 4. Native birds relying heavily on honeydew for food are "honeyeaters" such as tuis (Photo: R. Hay) and bellbirds (Photo: G. Harrison), and the kaka, a parrot.

Fig. 3. Pink eggs exposed by cutting open the scale insect's capsule (Photo: G. Harrison).

The native species of our forests have co-evolved over millions of years and have adapted to depend on each other. Recently, humans have cut down much of the honeydew forest, and have introduced new species which may compete with native species for honeydew. This has altered the balance of nature. As yet we do not know how dramatically, and studies are still urgently needed to find out.

Further information:

A 24-minute VHS video on the study of honeydew and its use by birds and insects, by the Ecology Division, DSIR, is available from the Publications Officer, Science Information Publishing Centre, PO Box 9741, Wellington (cost $50 incl. GST).

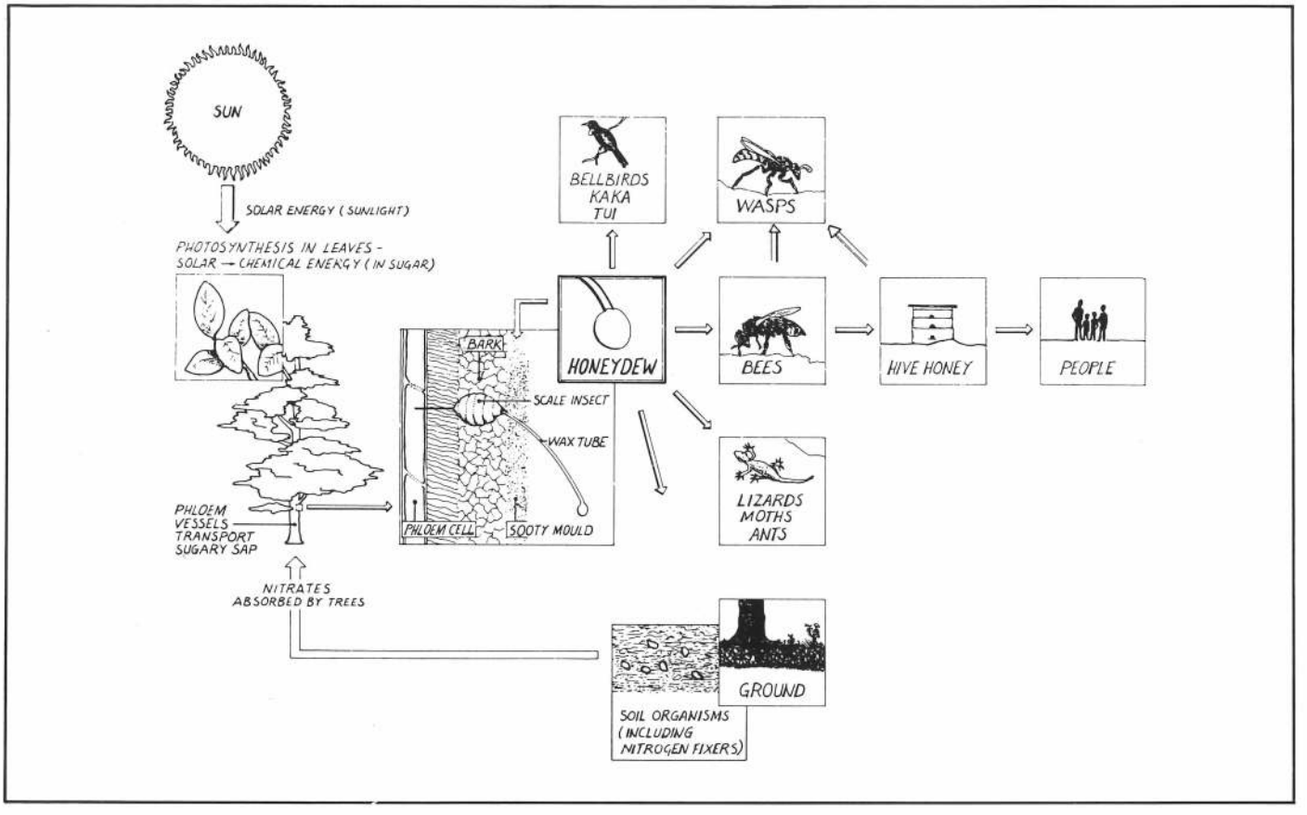


Fig. 6. Simplified scheme of the ecological interrelationships surrounding honeydew in South Island beech forests (Drawing: Hubert Klasscens).

Fig. 5. Common wasps are the greatest harvesters of honeydew drops in summer and autumn in Nelson forests (Photo: G. Harrison).

Librarian's Report to Conference '87

Our collection has expanded markedly this past year. Mr Chris Dawson, our founder-librarian, passed on his private collection: two large drawers of material he must have gathered over many years. Much fairly ancient and now probably difficult or impossible to find, more of recent date.

Listing and storing it all has kept me occupied for many hours. However, this work is now completed.

Consequently the catalogue needed upgrading and as there were too many entries for the NZ Beekeeper to list a supplement has been compiled. An interim measure until the supply of 1984 catalogues runs out. Included in the supplement are other additions the library gained between August 1984 and present. The growth of the library from 1984 to date shows in the number of entries in the supplement: 600 odd of which more than 500 come from Mr Dawson's collection.

The donation of up to $60 made by the Otago Branch last year is still waiting to be spent on something really worthwhile.

We received a note recently from Mr Ernest New, Invercargill, offering a donation of some books. The library has already benefitted previously from Mr New's generosity.

While your library is growing in size its use over the past 12 months has declined. It really is regrettable that this source of information and education is not utilised to a greater extent by the beekeepers of New Zealand.

We are still struggling with some very overdue borrowers who seem to ignore friendly notes and reminders.

One book was either lost or badly damaged. The borrower did the right thing by sending a cheque by way of compensation, but we are still trying to replace the book. Two video tapes also went missing between Milton and Oamaru. The NZP has been approached and we hope to receive compensation and so replace the tapes.

It has been necessary to increase library charges somewhat. Particulars were given in an earlier issue of The Beekeeper. But it is still cheap to borrow from the library. Beekeeping cannot be learned from books, but books help to increase our knowledge and widen our horizons.

John Heineman
Honorary Librarian

Pollination — a Nelson way

By Mike Boskett

As with many beekeeping businesses throughout the country, pollination is now the mainstay of my livelihood. For 10 years I have moved hives in and out of orchards around Nelson. In the early days pollination was mainly for apples and pears with some plums, almonds, and peaches and the odd black currant and boysenberry job. The hives were out pollinating from the beginning of September — starting with plums and peaches and then into apples towards the end of that month and through October. When the hives came from the orchards they were ready for the boysenberries.

The Nelson honey flow usually begins around mid-November and lasts until the New Year when everything dries up. Honey production is therefore a hit-and-miss affair and, if you handle pollination, there is little time to prepare the hives after they leave the fruit growers. Consequently Nelson beekeepers tend to specialise. They either concentrate on honey production or, like me, pollination.

I always found hive moving a bugbear: a censored awful job, as it still is for many beekeepers during pollination. Up all night, suffer a multitude of stings, lug the hives by hand over what must be the most difficult and complicated orchard adventure courses. And many growers were so set in their ways! Even today some do not realise that bees can fly much farther than a few metres from their hives.

Consequently I have spent years planning streamlining, simplifying, and improving hive-moving in an attempt to ease the job for myself and my workers. It has been a slow, exacting, expensive, and time-consuming business to modify my hives from a full-depth to a threequarter system and to change my lids and bottom boards.

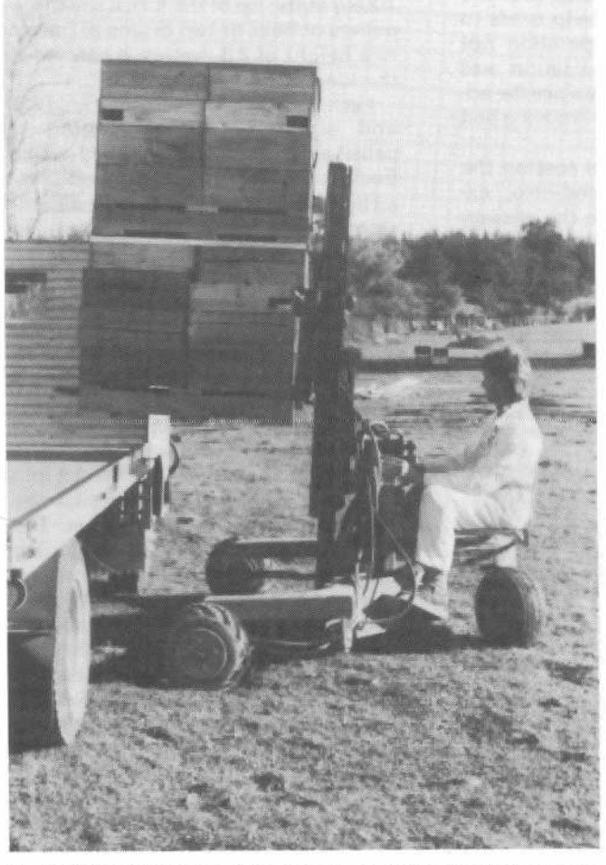
Finally I struck what I consider the ideal pollination unit: a three by threequarter-depth box hive with two threequarter brood chambers, an excluder, and a third threequarter depth for stores, plus a migratory lid, a bottom board, and an easily-operated nylon strap which holds the lot together during pollination as well as the rest of the year.

Bees don't need long runways on bottom boards. These combined with bulky old-fashioned, telescopic lids make it difficult to achieve a tight load which will stay together on a truck over rough terrain.

Over the years I looked long and hard at mechanising the operation, but despite all the systems I examined none could beat two strong bodies for speed, efficiency, and convenience. All the mechanised systems I saw had some disadvantage.

Hives on pallets needed a forklift or a Hiab, but both had their limitations. Forklifts must be towed and are heavy and slow. A beekeeper must usually convert a tractor into a forklift to provide a unit that can operate without bogging. A big truck is needed to tow the tractor-cum-forklift around and that makes driving a nightmare after dark, especially in tight or hazardous spots.

Hiabs I similarly eschewed because of their limitations. Again a big truck



The Hitch-hiker loads two pallets on to the tray of a truck.

is needed and big trucks don't function well off the road and frequently not at all on anything but the flatest paddocks.

Until last year I contented myself with the system I had: a small, low-deck J2 Bedford, a Land Rover, and two large trailers. That system at least guaranteed me peace of mind. I could pick up or deliver a hive to the most difficult site in the worst conditions, and without having to hump it more than a few feet. Two men could handle 140 hives at a time: the truck and trailer carrying 100, and the Land Rover and trailer 40. With careful planning we could deliver without double handling, AND, in the 18 years I've been involved in the game I needed outside assistance only once to haul me from a swamp!

All in all not too bad, although still hard and unpleasant work. Beyond the odd sting perhaps no worse than haymaking. however, I still saw room for improvement because beekeepers' backs have taken a beating over the years and today's hired help tends to look sideways at any operation not mechanised. So mechanisation was clearly a must, particularly since the advent of kiwifruit meant hive moving had tripled.

However, after years of tossing the problem about, of trial and error, experiment, I believe I have the answer: a machine that has solved my problems and, I hope, of many beekeepers.

The hitch-hiker with two pallets raised high.

The hitch-hiker moving a pallet.

I call this machine THE HITCH-HIKER. It is a lightweight forklift which can lift 700kgs. It loads itself under the rear of a truck deck in 30 seconds and can be similarly unloaded. It is carried easily by most vehicles — small runabouts, trucks, trailers — by fitting an inexpensive bracket.

The illustrated machine is the prototype of a production model. Even so we are already improving it. The fully-hydraulic controls are so simple to operate that my four-year-old son picked up a pallet and manoeuvred it around the yard after no more than five minutes' practise.

The HITCH-HIKER is more manoeuvrable than a standard forklift because it has independent hydraulically-driven wheels that enable it to turn on a point. It can also negotiate any terrain a wheeled tractor can and, should it get stuck, it is light enough for the operator to hop off and give it a push: all that is usually needed. If it bogs down completely then the operator can use the lift control in reverse, which lifts the HITCH-HIKER off the ground. He puts a couple of planks under the wheels, lowers again, and drives off.

The forklift operation works the same as with any forklift. The lifting capacity of the Beekeepers's Model is 700kg at the tip of the forks, say three pallets of bees or two drums of honey to a height of 2.3 metres. It can move the load 500mm either way.

I am currently converting my hives and equipment so everything is palletised. Hive pallets are called cubes. Each cube consists of four hives placed tightly together. The outside dimensions of the cubes are 1010mm by 810mm. One lid covers all four hives and is flush with the outside dimensions. Each hive consists of three, threequarter-depth boxes, an entrance-a pollen trap-feeder combination, a queen excluder, a hive mat, and a ventilated bottom board. The bottom board entrance has been discarded in favour of a top entrance through the pollen trap. The bottom boards slot into the pallet structure. The hives can be used as singles if the need arises. The bees enter the hive through the pollen trap which can be located any where. During pollination I prefer it at the top, above the two brood chambers and the third, or stores', box. The advantage of the top position is that the pollen trap can be turned on or off as desired. Behind the pollen trap there is room for a four-gallon liquid feeder, or a dry sugar can.

A ventilated closure on the pollen trap allows the bees air when completely shut in, therefore removing the urgency when they are moved at night.

This system also allows the bees to be confined if spraying should take place in the vicinity.

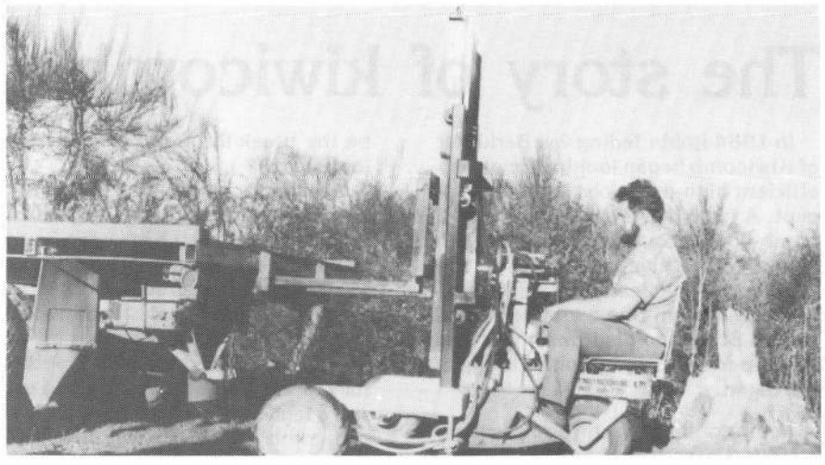
The HITCH-HIKER can safely handle two cubes at a time and can deliver them anywhere in an orchard. There is no reason why the two cubes should not stay one on top of the other. The only problem may be in convincing the orchardist that the hives need not be spread out. A truck can safely be loaded three cubes high, thus increasing its capacity by one third. A great saving in transport costs. Remember, however, to keep to height and weight restrictions.

As I carry my hives over a radius of 120kms, bigger loads are a time and cost saving. With the HITCH-HIKER I am now able to economically hire a large orchardist's truck for big moves. It takes on average two minutes to load or unload two cubes on or from a truck. That is, 15 seconds for each hive. A 400-hive load should not take longer than an hour and 40 minutes to handle.

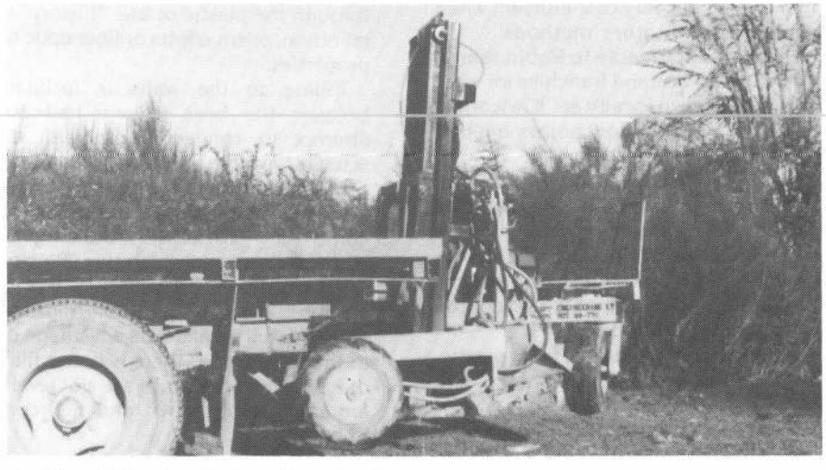
Cubes also make a tight, secure load so the bees travel better and, when back on the honey sites, the cubes have other advantages over individual hives. For example, they are less likely to be damaged by stock and they are easier to level. With two sides only exposed to the weather the hives also tend to winter better.

LIFE MEMBERS

Jasper Bray and Kevin Eckroyd were both elected life Members at Conference '87.



The hitch-hiker being loaded behind a truck.



The hitch-hiker loaded on to a truck.

MAF Diagnostic Service

The MAF now provides a nationwide service to diagnose pests and diseases of adult bees and bee brood. Based at MAF's modern, well-equipped laboratory at the Plant Protection Centre, Lynfield, Auckland, (P.O. Box 41, Auckland 1) this fast and efficient service is a major step towards improving the health of honey bees.

The following pests and diseases can be positively identified:

ADULT BEE DISEASES:

- Protozoa — Nosema, Amoeba
- Internal mites — Acarine
- External mites — Varroa, Mellitiphis
- Viruses ++
- Parasitic insects — Apimyiasis

BROOD DISEASES:

- Bacteria — American and European Brood diseases
- Fungi — Chalkbrood
- Viruses — which include Sac brood virus, Kashmir bee virus, Black queen cell virus, Acute bee paralysis virus, Slow bee paralysis virus, Chronic bee paralysis virus, Bee virus X, and Cloudy wing virus.

Kits containing an official specimen jar, instructions for collecting and despatching samples, a price list, an address label, and a special mailing envelope are available for $3.50 (GST inclusive) from MAF Apicultural Advisory Officers, or the MAF Plant Protection Centre, or most stockists of beekeeping supplies.

Beekeepers will be advised by mail immediately positive tests have been completed. Beekeepers outside the Auckland toll-free area, and who request a prompt response, may be telephoned collect.

Copies of a VHS video tape describing the diagnostic service are available from all MAF offices staffed by Apicultural Advisory Officers.

NB. The MAF cannot be responsible for broken samples that damage other mail.

Cartons containing many samples may be delivered by courier to the reception counter at Lynfield Agricultural Centre, 131 Boundary Road, Blockhouse Bay, Auckland.

Each sample must have the owners NAME AND LOT MARK clearly labelled on the tin (NOT ON THE LID).

Results may be telephoned in advance of the written report provided collect calls are authorised.

Each sample must be accompanied by a submission form and payment in advance.

The story of kiwicomb

From Robin van Berkhout

In 1984 Robin Teding van Berkhout of Kiwicomb began looking for a cost-efficient high-profit comb-honey concept. A local beekeeper told him of a comb-honey container which, when placed in the hive, was filled by the bees. From this lead Robin eventually tracked down this container in the United States, to discover it was still being perfected by a John Hogg, of Michigan.

Robin contacted John and eventually visited him. John was most helpful. Robin says:

"He convinced me that it was not only time-saving but very cost-efficient when compared with other methods".

John was agreeable to Robin taking over the New Zealand franchise for what was to be known locally as "Kiwicomb" but first a few design points needed attention.

Robin brought the design of the container to New Zealand and began tests with his own hives. Eventually he designed his own mould and, in the process, hit upon a way of frosting some surfaces of the container to prevent the bees building wax on them.

This container, made of clear plastic, packs 40 to the half-depth box, and gives by reflection the impression of sheets of foundation running across the box. That tricks the bees because the containers have a cell pattern moulded into their bases. However, the containers are slightly waxed inside because bees do not like to build directly on to plastic.

During the 1986-87 season, Robin put some of these containers into his hives and obtained remarkable results. Consequently he began to seek an overseas market for his product.

Crown International showed a keen interest. As the bees seal the containers with wax, so preventing the honey from running, the concept was ideal for the Japanese market which demanded just such a product for mail order and gift packs. Consequently a trial order of 26 dozen went to Japan.

After a long and anxious wait Robin heard with relief that the Japanese were impressed and were beginning to place firm orders for the coming season.

With a positive reaction now from both the overseas and the local market Robin now aims to market the containers in New Zealand. "The reaction to our display at Conference '87 was most encouraging", he says. "With the down-turn in the bulk honey market, but with comb-honey in demand both at home and overseas, this might well be the break-through beekeepers are looking for."

Kiwicomb will begin distributing empty containers this spring.

The half-comb has been under development continuously since the later 1970's. When construction was altered from wood to clear plastic in 1983 an entirely unexpected result was obtained, the bees now filled the plastic sections fully to the walls whereas in wood there was a tendency to shun the walls. In the half comb with its crystal clear F.D.A. approved polystyrene construction with diamond polish surfaces, it appears that such cues are transmitted directly through the plastic or are "illusory" via reflection, prism effects or fiber-optic like properties.

Filling to the walls is facilitated because the bees in one half-comb attempt to connect comb with that actually "seen" in the next half comb, just as though the wall were absent. The bees "see" a reflected or mirror image of the comb they are actively building and attempt connection with this "illusion". Half comb honey contains 50% less wax because it lacks the wax midrib of conventional combs. The advantage due to the "visual cue" there is better filling of half-comb sections to the slot level all around yielding 350 gms net comb honey.

Assembling: The tedium of assembling sections or frames and placing wax foundation in cut comb is completely eliminated. Super packing is extremely simple. Spray-waxed halfcomb sections are issued in taped columnar units of 10 each (masking tape is used). Four such columns are slipped into the super and secured with springs — a simplification constituting a further service with purchase. The cover is slipped in place after harvest and labelled, no special packaging labour is required. Covers are also included with purchase.

Another unexpected finding with the halfcomb during cool weather and cold nights, is that there is resistance to finishing and capping cells near the outside super wall even *when a ventilation space between plastic and super wall is provided.* This tendency is corrected by inserting an opaque follower next to the plastic with ventilation space between it and the super wall. Whether this is due largely to the additional insulation provided remains to be proven. It is entirely possible that, in the absence of opaque followers, the bees are sensing the cooler outside wall temperature e.g. via infrared radiation through the clear plastic.

The importance of maintaining hive air temperature by ventilation around the entire block of comb honey sections is well documented and widely practiced. The same applies to half comb honey sections, but requires this additional provision of some sort of opaque follower inside the bee space on each of the four sides of a super. More uniform filling of sections throughout the super may be expected due to improved ventilation and temperature control measures. Another advantage is the *white capping* because of shorter filling time on the hive can be achieved.

For more information contact: Kiwicomb, Omahu Rd, R.D. 5, Hastings. Telephone (070) 798-488.

Obituary

STEVEN BOZI

With a feeling of personal loss I have to report the recent death of Steven Bozi from Rangiora.

Steven was known to many beekeepers throughout the world as an ideas man, a great engineer, and above all a good beekeeper. Any overseas beekeeper or beekeeping group had a visit to his honeyhouse on top of their "must do" list, and no matter how busy he was, Steven always found the time to show off his latest invention or improvement.

I once told Steven that he had a head start over most people when he began beekeeping in New Zealand. First, he was a good engineer, and second his lack of English in the early days meant that people like me were unable to tell him the correct way to do something. The result was he always came up with a novel way of solving a problem, the list of his successes is impressive while the heap of failures behind the honeyhouse was very small.

I never learnt how Steven came to leave Hungary, all he ever told me was that while in a refugee camp he was offered a chance either going to Canada or New Zealand and he chose this country as the farthest from his homeland.

Thank you, Steven, for your friendship, support, and the many ideas you freely gave to me, the beekeeping industry of New Zealand, and the world.

John Smith
Apicultural Advisory Officer
Christchurch

Classified Advertisements

Available only to registered beekeepers selling used hives, used plant, and other apiary equipment, and those seeking work in the industry. $16.50 for 20 words (inclusive of GST) payable in advance. No discounts apply. No production charges. Maximum size: 1/6 page.

FOR SALE

Large modern honey-producing business. Large warehouses and extracting facility. Forklift operations. 4-yr. per hive average 280 lbs. Large modern home. Serious inquiries only. Contact Mike Thomas, M & P HOney Ltd., Box 116, Clyde, Alberta, Canada, TOG OPO. PH: (403) 348-5343.

Extracting Equipment, S.S., excellent condition, 150 half-depth section comb supers, new; assembly jigs, drums, barrows, etc. Many extras. Write B. Rae, R.D.3, Rotorua.

Four-frame extractor, 10 in., reversing baskets, power driven. Hot-water temperature-controlled uncapping tank. Variety of bee gear. Telephone Auckland 595-209 collect.

Twenty-frame radial extractor and a four-frame basket extractor for sale. Both in excellent condition. Contact G.Π. Tweeddale, Telephone 50-589, Wanganui.

Hives, 300, 4 boxes high, $130.00 each. Excellent condition. Also 50 6-frame nucs in boxes. $50.00 each. Sergeants Hill Apiaries, R.D. 2, Westport.

Cool room sliding doors, one pair for sale. Each 865mm wide by 2 metres high. New, unused condition. $500.00. Apply John Brandon, Canaan Apiaries. Telephone 55-350, Wanganui.

Nucleus colonies for sale. Five frames each with new mated queens, available in October from John Brandon, Canaan Apiaries. Telephone 55-350, Wanganui.

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Assistant Manager/Beekeeper. We require an experienced apiarist or someone experienced in agriculture for our Dargaville operation. This person must have the ability to organise a small staff, also undertake fieldwork and management organisation. Our Company's principal objective is the breeding of Queens for export. Remuneration will be based on experience. Reply in writing to: Kiwi Bee Distributors Ltd, P.O. Box 12-040, Penrose, AUCKLAND.

Wanted. Community-minded person to manage up to 200 hives of bees. Will have the help of an experienced beekeeper in getting established. Reply to Dan Hansen, Wilderland, Whitianga.

SITUATIONS WANTED

German Beekeeper, 25 years old, single, skilled (10 years' experience, Master since 1985), able to re-locate readily, available for employment for a season or longer. Please write to: Michael Mehler, Neue Str.3, 5531 Wallenborn, West Germany.

SITUATIONS WANTED

Young male seeks full time or seasonal beekeeping work in the South Island. Has experience and one years training. Has references. Write to D. Milne, Tawaho, P.B. Blenheim.

Young 17-year-old, looking for a full-time position or seasonal work, preferably in the Canterbury region. Has done one year's training and has references. Write to: Robert Light, Princes St, Waikari, North Canterbury.

Eighteen-year-old male, looking for full time employment in the beekeeping industry. I have one-year's experience and training. Also I have references from beekeepers. Write to: A. Hamilton, Blue Duck Valley, R.D.1, Kaikoura.

OTHER PUBLICATIONS

INTERNATIONAL BEE RESEARCH ASSOCIATION

What do you know about the INTERNATIONAL BEE RESEARCH ASSOCIATION? The many books and other publications available from IBRA will deepen your understanding of bees and beekeeping: an IBRA membership subscription — inclusive of *Bee World,* a truly international magazine published quarterly in the English language — will broaden your beekeeping horizons. Details from IBRA voluntary representative for New Zealand, Trevor Bryant, Ministry of Agriculture and Fisheries, Private Bag, Tauranga, New Zealand; or from International Bee Research Association, 18 North Road, Cardiff CF1 3DY, UK.

SOUTH AFRICAN BEE JOURNAL

The leading bee journal in Africa for over 75 years. Official organ of the Federation of Beekeepers' Associations, published bi-monthly in English and Afrikaans. Primarily devoted to the African and Cape bee races. Subscription, including postage: R24,00 per annum, payable in advance in South African Rands. Apply: The Federation Secretary, P.O. Box 4488, 0001 Pretoria, South Africa.

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OTHER PUBLICATIONS

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Do you have questions or problems about beekeeping in different areas? Learn how to solve them by reading "Gleanings in Bee Culture", the largest circulation English language bee journal, and made up of articles by well-known professors and beekeepers, like yourself, who tell how they have succeeded in beekeeping. For Subscription rates write to: Gleanings in Bee Culture, P.O. Box 706, Medina, Ohio 44258, USA.

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A New Zealand Beekeeping Journal. Published every two months. Contains informative and interesting articles on beekeeping in New Zealand and overseas. Subscriptions: Free to all registered beekeepers in New Zealand with six hives or more. $5.00 per annum, if less than six hives. Write to: The Editor, "The Apiarist", P.O. Box 34, Orari, N.Z.

AUSTRALASIAN BEEKEEPER

Senior Beekeeping Journal of the Southern Hemisphere. Complete coverage of all beekeeping topics in one of the world's largest beekeeping countries. Published monthly by Pender Beekeeping Supplies P/L, P.M.B. 19, Gardiner St., Rutherford. N.S.W. 2320 Australia. Subscription by Bank Draft. In Australia or New Zealand — $A9.60 per annum (in advance), postpaid.

THE SCOTTISH BEEKEEPER

Magazine of the Scottish Beekeepers' Association, International in appeal, Scottish in character. Memberships terms from: D. B. N. Blair, 44 Dalhousie Road, Kilbarchan, Renfrewshire PA10 2AT, Scotland. Sample copy on request. Cost 30p or equivalent.

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A DIVISION OF TWYFORD HONEY
Omahu Road, R.D.5, Hastings, New Zealand
Telephone (070) 798-488

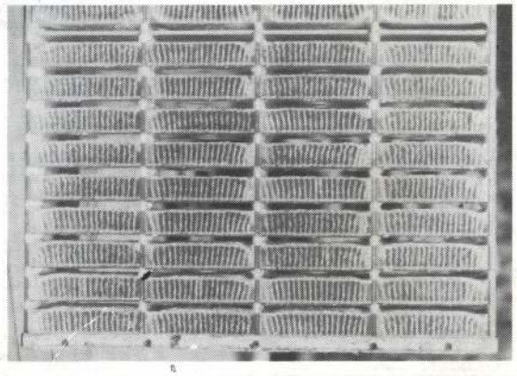
kiwicomb

SUPPLIERS OF HALF COMB HONEY PRODUCTS

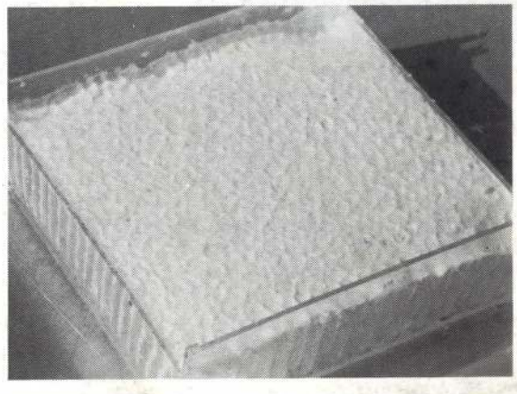
Increased world honey production now jeopardises our exports of honey products. This glut means that producers must look to value-added products to maintain sales. Recent evidence shows that from total honey sales those from retail packs and comb honey have risen while those from bulk honey have dropped.
Our half-comb box offers you a way into this more lucrative market. Remember, comb honey is supreme in the market. We aim to make our half-comb the supreme comb honey commanding a premium price.

THE CONCEPT

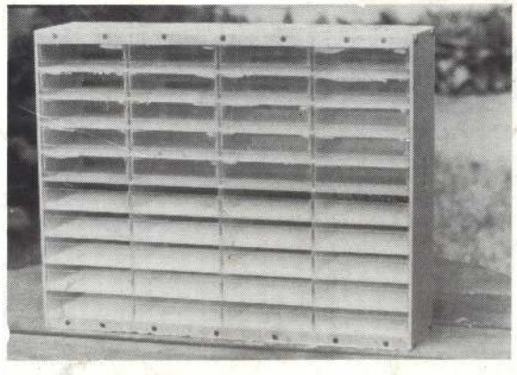
WHAT IS HALF-COMB?
It is an inch-deep clear polystyrene box with lid placed in units of 40 half-combs per hive super for bees to build comb in.



HOW/WHY DOES IT WORK?
- Bees fill the half comb boxes fully to the walls.
- Bees fill from the floor of the box. There is no wax midrib as present in conventional combs.
- The bees' behaviour is dictated by the clear nature of boxes. Bees try to build on to the image of combs in adjoining boxes and the patterned shape of the floor of the box which presents the midraft base to begin from.



OPERATIONAL PROCEDURE
- Half-comb boxes come pre-waxed in columns of 10 ready to be placed in hives.
- 40 half-comb boxes are placed with the aid of an outer board and 4 screws/hooks in each super.
- When the half-comb boxes are filled, remove them individually, wipe clean, put on the lids and pack in the cartons provided ready for shipping.



ADVANTAGES

For You
- No processing/heating of bulk honey.
- No cutting, waste, mess of conventional comb.
- Reduced physical handling and labour costs. More effective and uniform filling of the comb.

Market/Consumer
- No movement of comb during transportation.
- 50% less wax.
- Visual appeal due to deep comb and lack of wax.
- No human contact. Health/natural appeal.
- Convenience of package. The consumer uses it directly from the half-comb.