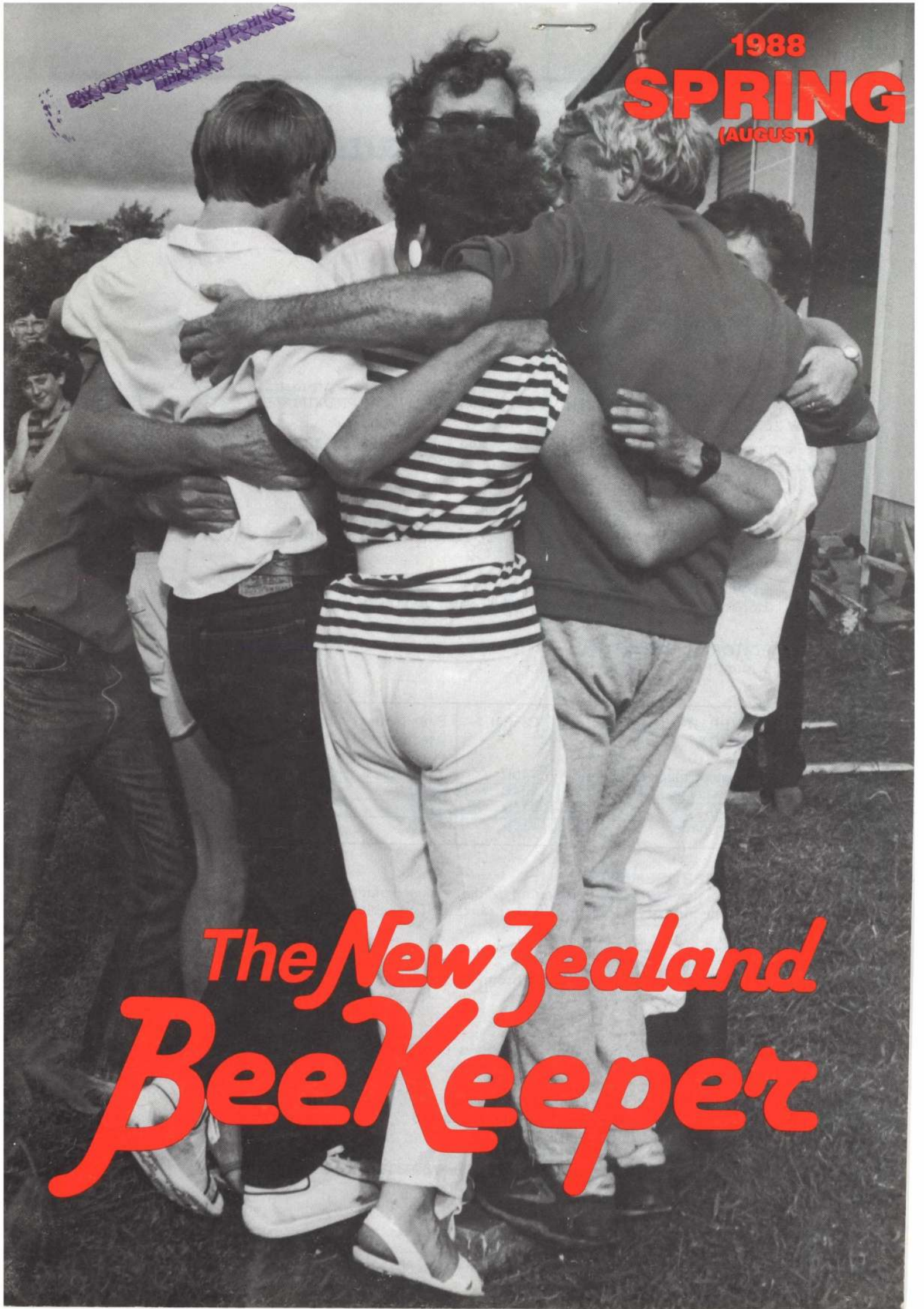


1988
SPRING
(AUGUST)

*The New Zealand
Bee Keeper*

BY GUY WILSON FOR THE NEW ZEALAND BEEKEEPING SOCIETY



The New Zealand Beekeeper

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

CIRCULATION, 1,550 . . .

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.

PUBLISHED

Four times a year: **Autumn** (February 14), **Winter** (May 14)
Spring (August 14), **Summer** (November 14)

ADVERTISING DEADLINES

(Booking & Copy) **January 20th, April 20th, July 20th, October 20th**

EDITORIAL DEADLINES

1 month prior to publication.

ADVERTISING RATES Plus 10% GST.	Casual	Four Issues per insertion	Image Area
Full page black and white	\$450	\$400	27cm deep x 18cm wide
Half page (Horizontal only)	\$240	\$200	13cm deep x 18cm wide
Quarter page	\$150	\$125	13cm deep x 9cm wide
Eighth page	\$105	\$ 95	6.5cm deep x 8.5cm wide

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 incl. GST payable in advance. No discounts apply. No production charges.

PRODUCTION CHARGES

Advertising copy: Bromides. Copy for which bromides are required, will be charged to the advertiser at net cost. Minimum charge \$20.00 (incl. GST).

BEEKEEPER RATES

Registered beekeepers selling queen bees, used hives, used plant, and other used apiary equipment are eligible for an advertising discount of 20%. Where the rate is in doubt the publishers' decision will be final.

ADVERTISING MANAGER: Mrs Elisabeth Burgess
Burgess Media Services Ltd
P.O. Box 2131
WELLINGTON
Telephone: 783-062 or 789-316, Fax 783-062



The New Zealand BeeKeeper

Contents

	PAGE		PAGE
Letters.....	6	People.....	7,29
Research.....	31	From the Colonies.....	23
Comment.....	5	Beginners' Notes.....	26
Conference.....	9	Library Notes.....	5

Footrot Flats.

Diogenes Designs Ltd



FRONT COVER: 'Ullo, 'ullo, wot's going on here then? (See photo page 22).

NATIONAL BEEKEEPERS' ASSOCIATION OF N.Z. INCORPORATED

President:

Allen McCaw, Milburn Apiaries,
No. 2 R.D. Milton. Tel.
02997/4614.

Vice-President:

Gavin White, Hamama Rd,
Takaka, R.D.1. Tel. 0524/58088.

Executive:

Stan Young, Wairau, R.D. 4,
New Plymouth. Tel. 067/27414.

Executive cont. . .

Keith M. Herron, Greenvale
Apiaries, No. 5 R.D., Gore. Tel.
02022/738.

Gerard J. Martin, Galatea. Tel.
07364/804.

Dudley Ward, Kintail Honey Ltd,
97 Guy St, Dannevirke. Tel.
0653/48301.

Executive Secretary:

Steuart Goodman, Dalmuir
House, The Terrace, P.O. Box
4048, Wellington. Tel. 04/728102.
Fax (04) 712882

Hon. Librarian:

John Heineman, Box 112, Milton,
Tel. 02997/4614 (business),
02997/4613 (home).

NORTH ISLAND

NORTHLAND

President: Mr Maurice McNabb,
P.O. Box 3070, Onerahi,
Whangarei. Tel. 08922/797.
Secretary: Mr Cliff Van Eaton,
Homestead Apiaries, P.O. Box
70, Kerikeri. Tel. 0887/487179

AUCKLAND

President: Mr G. Cammell, 133
Walmsley Rd, Mangere. Tel.
09/2756457. Secretary: Mr C.
Reade, Box 74-078, Auckland.
Tel. 09/655-723.

WAIKATO

President: Mr R.A. Berry,
Waiotapu, R.D.3, Rotorua. Tel.
073/38092. Secretary: Mr Tony
Lorimer, "Kahurangi-o-Papa",
R.D.3, Hamilton. Tel. 071/69-625.

BAY OF PLENTY

President: Mr S. Weenink, Lower
Kaimai, R.D. 1, Tauranga.
Secretary: Mr P.M.I. Townsend,
Old Coach Road, R.D. 6, Te
Puke. Tel. 075/33-658.

HAWKES BAY

President: Mr John Dobson, Bee
Farm, R.D.1, Hastings. Tel.
(070)60962. Secretary: Mr Gor-
don Sutton, 909 Maraekakaho
Rd, Hastings.

BRANCHES

POVERTY BAY

President: Mr Greg Colebourne,
Bushmere Road, Gisborne. Tel:
079/89887 Gisborne. Secretary:
Mr Peter Lamb, 297 Stout Street,
Gisborne. Tel. 079/83145.

SOUTH WESTERN DISTRICTS

President: Mr V. Gledstone-
Brown, R.D. Mangaweka.
Secretary: Mr M. Farrington, P.O.
Box 100, Longburn. Tel. 296839

SOUTH ISLAND

MARLBOROUGH

President: Mr Rod McKenzie, 13
March St, Spring Creek, Blenheim.
Tel. 057/25537. Secretary: Mrs Sue
Jenkins, Old Renwick Rd, R.D.2,
Blenheim. Tel. 057/89325.

NELSON

President: John Moffitt, R.D. 2,
Wakefield Secretary: Mr Philip
Cropp, Main Road, Motupiko,
R.D. 2, Nelson.

WEST COAST

President: Jack Wilkes,
Kongahu, R.D. 1, Westport. Tel.
028926/790. Secretary: Graeme
Roxburgh, Oparara Apiaries, R.D.
3, Karamea. Tel. 028926/822.

CANTERBURY

President: W.L. Hanty, High St,
Daylestone. Secretary: Mr R.D.
Bensemman, Greenpark Rd, R.D.
4, Christchurch. Tel. 03292/831.

SOUTH CANTERBURY

President: Mr J.W. Van Hoof,
Gapes Valley, R.D.21, Geraldine.
Tel. 05634/857. Secretary: Mr N.
Trezise, 11 Trafalgar St, Timaru.
Tel. 056/83806.

NORTH OTAGO

President: Mr R.B. Rawson, 23
Aln St, Oamaru. Tel.
0297/45242. Secretary: Mr G.R.
McCallum, 7 O.R.D., Oamaru. Tel.
029728/676.

OTAGO

President: Mr Paul Marshall,
Telford Farm Institute, Pte Bag,
Balclutha. Tel. 0299/81550.
Secretary: Mr Neil Walker,
Milburn Apiaries, No. 2 R.D.,
Milton. Tel. 02997/4015.

SOUTHLAND

President: Mr I.K. Spence,
Wendonside, R.D.7, Gore. Tel.
02027/804. Secretary: Mr
Russell Rhodes, R.D.5, Gore. Tel.
02022/585.

The New Zealand Beekeeper is published by the National Beekeepers' Association of NZ Inc., Dalmuir House, The Terrace, P.O. Box 4048, Wellington. Telephone (04) 728-102.

Annual subscriptions available from the above address are: New Zealand \$22.00 (incl. GST). Overseas airmail: Australia & S. Pacific \$US15.00; N. America & Asia \$US18.00; S. America, Europe, & Middle East \$US20.00. All overseas surface \$US13.00. Payment by bank draft or cheque only.

Editor: Michael Burgess. Advertising Manager: Elisabeth Burgess. Burgess Media Services Ltd., P.O. Box 2131, Wellington. Telephone (04) 783-061, (04) 789-316, Fax (04) 783-062. Letters, photographs, articles should be sent to the editor. Payment for articles and photographs published is at the editor's discretion. For advertising rates see page two.

OH DEAR, OH DEAR!

From Bill Keir

It was predictable that your editorial "Let's Keep Our Doorstep Clean" (Feb 1988) would draw flak. It's what you get for writing in simplistic overstatements.

Your statement that Nature has "eradicated natural imperfections" is patently absurd. I'm sure you meant that Nature tends to maintain itself and improve on itself.

But, as George Nichols points out (May 1988), that's not the whole story. Nature's processes are not without cost.

However, George is also guilty of simplistic generalisation. When he says that science has helped to "produce enough good food to feed every man, woman, and child" he has certainly not told the whole story. To make only one point: the green revolution brought an increase in pest-prone strains of grain forcing an increase in the use of pesticides and a decline in disease-resistant seed stocks.

George is reminding you that science has brought benefits in many areas (which is true). Your point, of course,

was that some of these benefits have been short-term for which there are costs (which is also true).

Whether science knows best or Nature knows best is a futile debate because both have benefits and costs which must be carefully weighed.

It is also quite misleading for you to say that New Zealand is a "pollution-free environment". You meant "relatively pollution-free" and you should have said it.

You also said, in your footnote to George Nichols' comment, that scientists were never mentioned in your editorial. It is true you didn't use the word "scientist". But you certainly implied it with words like "laboratory", "microscopes", "researchers", "surveys". Such semantic sleight of hand to duck out of a challenge is not good enough.

Sadly, all this is peripheral to the main point of your editorial - that we must maintain and make the most of our relatively pollution-free environment. I'm sure George Nichols would agree with you, as I do.

You and George misinterpreted each other because you were both guilty of the sloppy use of language. This is inexcusable in a scientist, but especially inexcusable in a magazine editor. You'll both have to do better.

I declare a stalemate.

LIBRARY NOTES

No new items have come to hand. May we once again ask borrowers to PLEASE RETURN THOSE OVERDUE BOOKS which are sitting in a corner doing nothing while other people want them?

Long-term loan by arrangement only is one of the library's rules.

"Let honey add that flavor rare
To sandwiches that you prepare."

CERACELL PRODUCTS LTD.

BEEKEEPING SUPPLIES AND BEE PRODUCT SPECIALISTS

24 Andromeda Crescent, P.O. Box 58-114
EAST TAMAKI, AUCKLAND
Tel. (09) 2747236 Fax (09) 2740368 Telex 63345

FOR A COMPLETE RANGE OF BEEKEEPING SUPPLIES
AND BEE PRODUCT MARKETING

Dear Sir,

On June 18 I received one copy of the NW Zealand Beekeeper instead of eight copies. The Post Office insist that the wrapping used is unsuitable for overseas travel and do not accept claims from receiving person.

Will you please replace these seven copies of the Winter Magazine as soon as possible.

The NZBK is a very popular magazine — the only magazine some of our members read, so any holdup is unpopular and the Magazine Secretary suffers.

Miss I. Jaques
Magazine Secretary
Bee Farmers' Association
Dancaster
England

Dear Sir,

A friend of mine, who has been receiving your magazine, was kind to give me your address. Namely, I have been a beekeeper for ten years now and have pretty experience in beekeeping. I shall be glad to improve my knowledge of beekeeping in your country, because the beekeeping technology in Yugoslavia does not give me a chance of improvement.

Would you be so kind to suggest or recommend me a beekeeping organisation, an institution, or professional beekeeper in your country to whom I could refer to for further advise. I am looking forward to hearing from you and I thank you in advance for the courtesy.

Sincerely,
Boris Ilakovac
Jaksica 1
57000 Zadar
Yugoslavia

Anyone wish to write to Mr Ilakovac?
Ed.

WHAT ABOUT HONEY?

A nutritious yogurt bar, available in four flavours, has been developed by a British health food company.

Called Yogurt Break, it contains no artificial additives, only 17% raw cane sugar and is sold in 60g bars.

Available in plain, lime, strawberry and cherry flavours, it is a convenient alternative to yogurt in a pot and can be eaten as a healthy supplement to main meals or as an in-between snack.

ELECTION RESULTS

The results of the 1988 election for the North Island representative on the Executive are:

Tony Lorimer	442 votes
Gerard Martin	526 votes
Nick Wallingford	452 votes

Gerard Martin is declared to be the duly elected representative for the North Island.

For the South Island only two nominations were received and therefore the following are duly elected to represent the South Island on the Executive Committee:

Keith Herron and Gavin White.

S.C. Goodman
Returning Officer

IMPORTANT NOTICE: TRUST FUNDS

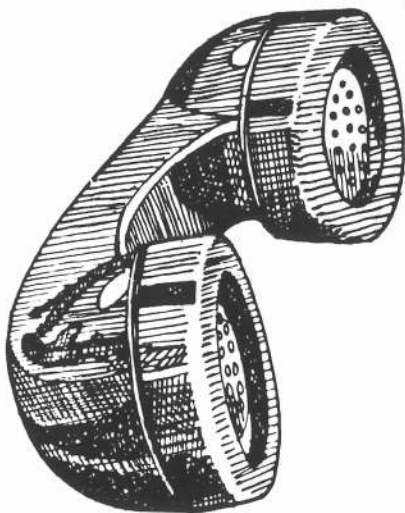
Applications for Trust Funds close with the National Beekeepers Association Inc., PO Box 4048, Wellington, on 30 September 1988.

Do you need Quality Queens Call-A-Queen and Bee Service

Telephone 1228 Kaitaia

PLEASE NOTE: Our telephone number changes December 1988 sometime!
To (STD CODE 0889) 82200

FOUNDATION MEMBER NZQBPA



HERE'S WHY:

You will get high quality Italian queens bred under natural conditions for a fast build up, honey production, temperament and good over-wintering.

A continual breeding improvement programme over 30 years ensures the best quality queens your money can buy. Our queens are sold to nine countries around the world.

HERE'S HOW:

Decide how many queens you need — whether 1 or 1000 and

call us. Our phone is usually unattended from 8.30 a.m. till 5.30 p.m. but then our answer phone will take your message. Don't forget your name and full address and phone number along with your order or enquiry.

Try us first as quality always pays

HAINES BEE BREEDERS LTD

R.D. 2, KAITAIA
Telephone — 1228 — Kaitaia

PRICES 1988 31st MARCH 1989

QUEENS

1-5.....\$10.50 6-49.....\$9.50

50 or more \$8.50
All plus GST

Discounts for bulk orders by arrangement. Price includes postage. September fully booked.

PACKAGE BEES

1-8.....\$32.00 9 +\$30.00

Plus freight at cost, plus G.S.T.
Delivery from October 1st

TERMS OF TRADE

All Queens, Packages, Nucs and Cells deliveries are subject to terms and conditions set out on our confirmation of order.

ADVISE NOTE. Payment is due 7 days prior to despatch date. Credit terms by arrangement only.

Obituary — Vince Cook

Vince Cook's interest in beekeeping began at 12 years old. He kept a few hives at the bottom of the garden until a neighbour was stung on the ear and a stern voice from over the fenced warned:

"You will have to move those bees from there, lad."

Vince complied and moved his bees out into the country.

After leaving school Vince worked for a firm making beekeeping woodware. He also spent some time in the RAF. Later he worked at Buckfast Abbey with Brother Adam whom he held in the highest esteem.

In 1958 he came to New Zealand and joined a beekeeper in Southland for a year. He then moved to Timaru and worked with Harry Cloake until he joined the MAF, Oamaru, as an apiary instructor: a post he held for 19 years covering South Canterbury and Central and North Otago.

He was well liked not only for his expert knowledge but for his pleasant personality.

In 1980 he returned to England to

one of the top jobs in the beekeeping industry. In 1987 he became Director, Bee Research Institution, Cardiff. Vince's book "Beekeeping Simplified" holds a prominent place in any beekeeping library.

His death at his home in Stratford-on-Avon, was a terrible shock. It left a gap which will be difficult to fill.

He is survived by his wife, Sue, and four sons. Simon and Richard are still in New Zealand; Peter and David are in Australia.

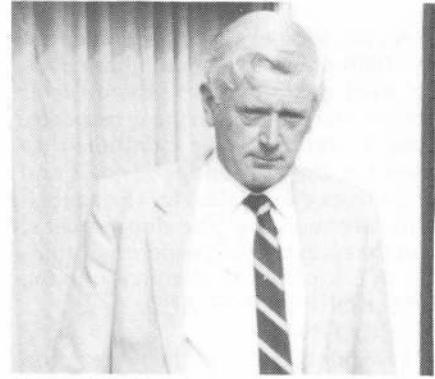
We express our sincere sympathy to Sue and family at the untimely death of a good husband and father.

Bob Mackie

CANDIED SWEET POTATOES

• Boil 6 medium-sized sweet potatoes without paring them. When tender drain and remove the skins. Cut in half lengthwise and arrange in a buttered baking dish. Season with salt, heat $\frac{1}{4}$ cup butter, $\frac{1}{2}$ cup honey, $\frac{1}{2}$ cup orange juice, add to potatoes. Bake in quick oven (400°F.) until potatoes are brown.

NEW EXECUTIVE MEMBER



Gerard J. Martin, recently elected to the Executive, commenced beekeeping in 1953. In the early days he lived in Auckland but moved to Galatea in 1962. However, he kept a foot on both camps for 10 years. He is a member of the Wakatane District Council and Chairman of its Works Committee. He is also Deputy Member of the Roads Council. A one-time Chairman of the Comb Honey Association he exports comb honey.

FOR SALE

TASMANIAN COMMERCIAL HONEY PRODUCTION AND EXPORT BUSINESS

Export Registered Premises
Producer of World recognised
Leatherwood Honey

An opportunity for a beekeeper to sell his own honey on the world market at attractive prices.

Sale includes business and related capital assets on walk in walk out basis on 1.83 ha of land.

Major Assets

- Equipment for 800 two queen hives, palletised
- Mating neuks for 500 nucleus colonies
- Modern extracting plant
- Large storage shed, forklift, workroom, etc.
- Separate wood working workshop
- All necessary plant and equipment
- Leases and permits for apiary sites in forests
- Located in bush setting in walking distance of High School, State School, Sports Centre, Golf etc.
- Five minutes from shopping and beach areas.

For further enquiries:—

L. van der Woude,
PO Box 114
PENGUIN 7316
TASMANIA
AUSTRALIA

HITCH-HIKER FORKLIFT

(Name of design protected)

AN AMAZING MACHINE THAT CAN
HITCH-HIKE ON ANY VEHICLE.
IT TAKES UP NO PAYLOAD SPACE.

- It can load or unload itself in 30 seconds
- It can lift 500 kg 2.3 metres high
- It can travel loaded over most terrains
- It can turn on a point and is highly manoeuvrable
- Other models available, or can be customised to your requirements
- Delivered anywhere in New Zealand

For further information please contact:

Knapp Engineering Ltd

32 King Edward St.
Motueka.

Telephone (0524) 88776

After hours:

Mike Boskett, Motueka (0524) 77765

PLEASE REFER TO NZ BEEKEEPER, SPRING 1987
PAGES 35-37

PRESIDENT'S REPORT

As my second year as President of the NBA draws to an end, I look back on what has proved to be a difficult year for our industry in many respects. Your Executive have continued to work towards achieving the goals and objectives established for the association through the planning process, and to represent beekeepers in a number of critical areas of concern to us.

THE HONEY CROP AND MARKETING

Indications are that the honey crop for New Zealand this year was average or slightly below in most areas, resulting in an excess of production over expected domestic consumption. Along with some carry-over from last year's crop, this has again meant a proportion having to be committed to export sale.

I believe that we must come to terms with the annual production of a surplus of honey, and not allow this relatively minor portion of our crop to cause unnecessary difficulties for the marketing of the remaining majority, as it seems to at present.

On the domestic market, the fears I expressed last year of a possible price-war have unfortunately been realised in many cases. Some retail honey prices are now consistently at levels well below production costs, and appear to be dictated more by the demands of supermarket buyers than the requirements to maintain producer viability.

The NZ Consumer Price Index increased 6.3% over the year to April 30th 1988, whereas the surveyed price of honey to the consumer declined by 7% for the same period. This equates to a net loss of over 13% in the retail value of honey in New Zealand.

While bulk honey is presently selling at low prices in world markets, export statistics indicate better returns for specific floral source honeys, and specialty products such as comb and packed honey. An increase in the volume of these products sold to export has also been noted providing encouraging evidence of diversification in production to meet the demands of the market.

I believe the best opportunity for our industry lies in these speciality markets, and in the adoption of a co-ordinated approach to both export and domestic marketing. Our industry is too small to be competing with each other in our markets, and we certainly cannot begin to compete with the larger bulk honey producers on the world markets.

MARKET RESEARCH

With the completion of the four market studies undertaken over the past two years through universities, the development of a marketing strategy for our industry has now reached a critical decision point. The marketing committee has issued a report to Confer-

ence seeking a commitment towards further research into the effectiveness of a campaign to promote honey in New Zealand.

Part of this commitment would be to provide funding support for a promotional campaign, and a clear direction from Conference debate is sought. This may be the most vital question we have to consider, as the depressed situation many of us are facing presently can only be relieved by increasing returns to a level where future development and confidence is restored.

POLLINATION

The provision of hives for orchard pollination continues to play a major role in the economy of our industry, providing income for many beekeepers at a time when honey sales have declined. However, returns for kiwifruit have also fallen dramatically over the past season, and beekeepers should be mindful of the possible detrimental effects this may have upon the demand for pollination hives in the coming season.

The continued maintenance of high standards of quality control, professional service and co-operation will be the most effective counter against any threat of reducing pollination hive numbers. In this regard, I perceive that the activities of the pollination associations will continue to be vitally important to this industry sector.

V. L. SMITH & SONS LTD.

MANUFACTURERS OF ALLIANCE QUALITY BEEKEEPERS WOODWARE

- Top Quality Woodware
- A Full Range of Woodware available
- N.Z. Largest Manufacturers of Beekeepers Woodware
- Lock Corner Supers a Specialty
- No Order Too Big or Too Small
- Export Inquiries Welcome

BUY ALLIANCE — BUY QUALITY

For further information please contact:

V.L. Smith & Sons Ltd

222 Beach Road, KAIKOURA
Telephone (0513) 5447

After Hours Danny Smith 5869 or Mark Smith 5726

Stuart Ecroyd Bee Supplies

7/10 Sheffield Crescent, CHRISTCHURCH
Telephone (03) 587498

After Hours Stuart Ecroyd (03) 587137

We will BEE KEEPING the Industry Housed

FUNDING FOR BEE DISEASE CONTROL

Negotiations towards resolving this most difficult question have occupied more of the Executive's time than any other over the past year. Unfortunately we cannot yet claim to have reached a satisfactory solution, although some positive progress has been made. The situation was again studied in depth at the industry planning meeting in March, and a recommendation for a Government contribution, coupled with a hive levy increase was submitted to the Minister of Agriculture in May.

We received a clear indication that Government would not be committed to long-term funding for our industry, and a number of hive levy payers also voiced concern at the projected 50 cent increase in their levy. The Minister expressed an opinion that all beekeepers should make a contribution towards disease control, despite having rejected a similar proposal last year.

On this basis, we now intend to seek changes to the Hive Levy Act to effect a fee or levy for all beekeepers, irrespective of hives owned, and probably on a graduated scale. This is expected to take some time to implement, and in the meantime we have sought direct Government financial support for the inspection and registration costs for this year. The MAFQual Management Board have indicated they will meet the cost of maintaining the Apiary Registers, estimated at around \$100,000, until legislation can be enacted to provide funding from the industry.

There is no doubt that such legislation will be controversial, especially amongst the 6,000 or so beekeepers who do not presently pay a levy; nor are they members of the NBA. A great deal of liaison and education on the importance of disease control will be necessary to counter this controversy.

The unanimous agreement of this

Conference for Executive to pursue this action is also required if a successful case is to be established. It is the firm policy of Executive that we must maintain a disease inspection system in New Zealand, involving all beekeepers, and that the MAF should be contracted to provide that service.

INDUSTRY PLANNING

As mentioned, the annual Industry Planning meeting was held in March this year, and Executive are again grateful for the valuable contribution from invited NBA members. The preparation of an "Industry Profile" document for public relations purposes has been proceeding, and the development of a monthly newsletter for beekeepers is also well underway. An outline of these proposals will be presented to this Conference, and financial support has been provided from the Trust funds.

It is my opinion that the provision of up-to-date information on critical topics such as production, honey prices, local and export markets, and industry developments, is an important responsibility of the NBA. Many of our former information sources have been diminished due to Government restructuring, and we must now plan to provide more for our own needs. Reliable information input from all sectors of beekeeping will be essential to ensure this venture succeeds.

I am of the opinion that in the near future, this industry must give careful consideration to the structure of its administration. As we are compelled to take greater responsibility for our own affairs, the reliance upon voluntary input increases the workload for those who are willing to be involved. Consideration should be given now to planning for a more professional structure, possibly including a full-time Executive Officer to ensure we are adequately represented in the future.

THE FUTURE

While the immediate future contains

many uncertainties for us all in the face of a difficult economic situation, I firmly believe there are positive signs ahead. There is sure to be some rationalisation within the industry, and some of us may be unable to continue in beekeeping. There is no doubt that the climate in which those who remain are expected to operate will be very different from the past. We are now obliged to manage our own affairs, and to solve our own problems with whatever resources we can muster.

In this respect, I would contend that our industry, through the existence of the NBA, is better placed than some others to face the challenges ahead with confidence. Much will depend upon the willingness of beekeepers to cooperate with each other, and to support their national organisation.

In conclusion, I would like to acknowledge the support of the many people who have assisted in the affairs of the association through the year. My thanks in particular to Steuart Goodman and Olive Hebron in Wellington; to the other five Executive members; to Murray Reid and his team for their important contributions; to Michael Burgess as magazine editor and to John Heineman as our national librarian. Thank you also to those who have provided me with hospitality on the occasions when I have attended meetings away from home.

Allen McCaw

HONEY CONTAINS MINERALS

Among the mineral elements found in honey are iron, copper, sodium, potassium, manganese, calcium, magnesium and phosphorus. These minerals are all essential to good nutrition of animals. They are all present in honey, although in some cases only in trace quantities.

**WANTED
ROYAL JELLY**
\$25 PER 100g
FRESH/FROZEN

CONTACT:
COMVITA LABORATORIES LTD.
BOX 444
TE PUKE
TELEPHONE (075) 31-167

ENCO QUEENS

Up to 10.....\$12 each
10 to 49.....\$11 each
50 to 99.....\$10 each
100 and over.....\$9 each

All Prices Include G.S.T.

Terms: Cash with Order
OR by Arrangement

WRITE TO: **ENCO QUEENS**

Pokororo, R.D. 1., Motueka
or telephone (052468) 735 NGI

A WORD OF WARNING

From Professor Guilia Giovani ~ University of Bologna, Italy

First let me say that I am very happy to be in your beautiful country, so far from my own, and to be among you. Then I must thank my friend Dudley Ward — and, of course Heather — for making it possible. I remember my old professor of zoology, a scientist well-known throughout the world, saying: "Guilia, the most beautiful country I have ever seen, after Italy, is New Zealand. I must say I agree with him.

Now to business. I should point out that I am not a bee geneticist, nor am I particularly experienced in the field. I am simply a research worker who has been involved for many years with honey bees and beekeeping and I have some general knowledge of animal genetics. So let me express some thoughts on the problems that interest you.

As far as I can see there are two main but different facets:

(1) An economic-commercial facet related to the proposal of the New Zealand Queen Bee Breeders' Associ-

ation to introduce quarantined strains of Carniolan bees in order to enter the rich and attractive Canadian market; a market that seems to prefer this kind of bee to the Italian. I am not sure whether this is technically right or whether Carniolans are simply fashionable at the moment. However, that is not a matter to deal with now.

(2) A biological facet aimed at genetically improving the domestic race (*A. linguistica*) in order to prevent some sanitary and reproductive problems tied perhaps to factors like inbreeding, genetic make-up, etc.

My thoughts are as follows:

(a) As a group of islands New Zealand enjoys an ideal geographical situation to maintain and improve a pure race of honey bees and you should take advantage of that.

(b) Colonies of pure stock present morphological, biological, behavioral, and productual traits fluctuating within fixed values. By introducing bees of a different race and creating inter-racial

hybrids one may obtain at first cross a possibly genetically-improved stock whose characteristics are not fixed. These benefits are soon lost as the genetic "distance" between the parent stocks prevents the sometimes outstanding merits of the F1 cross being maintained and so improving the following generations. In other words, a controlled cross-breeding programme, utilising only F1 worker bees, may be profitable but if cross-breeding is left to chance the results are quite different.

I do not believe New Zealand beekeepers, or beekeepers in any other country, are prepared for a controlled breeding programme as, for example, are poultry breeders, who have created male and female lines which are first crossed and only then commercially exploited.

There are many examples in both the animal and vegetable kingdoms illustrating this simple genetic law on hybrids and reproductive ability. As far as bees and New Zealand are con-

AT CONFERENCE '88



cerned, I can quote the Hastings strain of Caucasian bees brought into Australia some 20 years ago from Birch Hills, Canada. They were introduced into a bee population of nearly pure *A. Ligustica*. The resulting first cross was most successful for honey production but the later crosses were failures because they were inferior to both the pure Caucasian and the original *A. Ligustica*.

In the other hand it is well known that a hybrid colony, even if a good producer by itself, lacks genetic value as a "mother" for breeding queens. The necessary "repeatability" of a selected trait may be expected only by exploiting a pure race. Practical and economic reasons are also involved, such as the necessity of raising bees pure enough to allow a standardisation of management techniques. The suitability of Italian bees to the New Zealand climate and nectar flows in known and proven but the behavior of Carnica bees is not. No one knows how Carniolans will perform in New Zealand or whether Carniolan queens raised in New Zealand will perform well in Canada, Sweden, Germany, or other countries with severe winters.

Both facets of the problem are illustrated in point 1: that is, the proposal of raising and exporting Carniolan queens. And at point 2: that is, the im-

provement of the domestic stock of *Ligustica* bees. It seems to me that you would need to establish one or more stations for breeding Carniolans in perfectly isolated areas, where drones are not allowed to fly freely; by controlling matings through artificial insemination; and by strictly preventing any Carnica queen mixing with local bees.

Unfortunately the story of world beekeeping is full of disastrous failures showing how all precautions and sanitary measures have proved useless with bees. They fly, they are tiny, they cannot be controlled like cows, pigs, or chickens. For example, *Varroa jacobsoni*, let into Western Europe with *A. cerana* imported for research into West Germany and which escaped its native host to invade colony after colony, bee yard after bee yard, country after country. And *A. adonsonii* imported into South America for research turned into the "killer bee" after hybridisation with domestic Italian bees.

I agree that the introduction of Carniolan stock into New Zealand is unlikely to include risk or produce damage as those experienced with both Varroa and Africanised bees, but I strongly stress that you must be careful. The risk of fouling the purity of domestic Italian stock cannot and must not be overlooked, particularly in the light of the fundamentally satisfying performance

of *Ligustica* bees in New Zealand. They are gentle and adequate for commercial honey production, even if genetically uniform. The penalty could be to find yourselves with a mixed, poor bee population lacking the merits of both *Ligustica* and *Carnica* parents.

To sum up it may be that the quarantined introduction of Carniolan queens is favourable to New Zealand queen breeders provided that the complicated precautions are not too costly and difficult, and that Carniolan queens raised here are suitable for countries with a very different climate, and that the traffic of living bees from Europe is so well controlled that it leaves no chance of a possible introduction of varroa and other bee diseases.

I doubt, however that the operation would benefit the New Zealand beekeeping industry generally, because I believe that in the long run it would be difficult to prevent contact between the imported Carniolans and the domestic Italians. However, should you decide to import, I suggest that you make preliminary tests on a very small scale and take the most stringent precautions.

As far as the genetic improvement of New Zealand domestic stock is concerned, I think it advisable that you import fresh Italian "blood" to obviate reduced brood viability, etc, probably due to inbreeding after 35 years without imports. This fresh blood would firstly diversify the gene pool, so increasing the genetic variability of the current population and hence its fitness. Secondly it would emphasize the heterotic effect and the deriving hybrid vigour. Heterotic effect, by the way, does not always occur and may never be foreseen with interracial crossings (lack of combined ability) while it easily manifests itself when crossing two strains of the same race or even two different lines of the same strain.

Since for health reasons the importation of living bees is out of this discussion you can rely on selected drone semen, sent in conveniently prepared and sealed capillary tubes. If suitably collected, properly handled and transported, and properly innoculated into queens, this semen is viable and maintains its fertilising powers for seven days. However, even if you should adopt this option small-scale preliminary tests are still advisable.

GRAPE JUICE

Mix 2 tablespoons honey with ¼ cup of boiling water. Stir until dissolved. Add enough hot grape juice to fill glass. 2 tablespoons of lemon juice may be added for variety. This makes a delicious cold weather drink.

LIBRARIAN'S REPORT

A modest but steady use has been made of the library during the past 12 months. An indication of this: out on loan to date books 41, papers 32, magazines two volumes and seven single issues, two sets of course notes and one set of study prints. Borrowers besides NBA members include the Principal of Southland Girls College, a student in Dunedin, and one in Auckland.

A small number of books to the value of approx. \$85 has been purchased. The Otago Branch allocated \$60 towards this previously. \$60 was spent on a further supply of catalogue supplements. These are nearly all sold again.

Some other items have been donated to the library. Special mention must be made of a series of 68 wonderful slides dedicated to our late beekeeper friend Herman van Puffelin of Waitahuna. Further photos have been added by Messrs van Toor, Squires, and Schrader while Mr van Toor compiled the collection including a clear description. The slides are now stored in magazines and

small boxes for safe postage ready to go out to would-be users.

But for the Insurance premium paid by this Executive, the library has not become a financial burden to the Association. But this is only thanks to donations received and interest generated by our small investment account with Post Bank.

I have been able to satisfy nearly all requests during the past year except those for videos. We have only two covering disease and Kiwi fruit pollination. It is difficult to get value for money when buying beekeeping videos. Suggestions from members will be most welcome.

The smooth operation of the library is still hampered from time to time by those overdue borrowers who hold material for long periods without making long-term loan arrangements. I mean those people who keep books for six months and longer and need several reminders.

John Heineman
Hon. Librarian

PATHOLOGIST'S REPORT

From Dr Denis L. Anderson ~ Entomologist

Introduction

The occurrence and relative importance of honey bee diseases in New Zealand was poorly understood when I was appointed bee pathologist at the DSIR in 1985, a position jointly funded by the beekeeping Industry and DSIR. There was also much speculation at the time as to the cause of a honey bee brood abnormality referred to as 'half-moon' disorder. Hence my main objectives for the past three years have been to determine what honey bee diseases are present in New Zealand and to determine the cause of half-moon disorder. Several short-term research projects have also been undertaken.

The major findings of the studies on 'half-moon' disorder were presented to delegates at Conference. I will now summarize findings of a short term study, and then describe in a little more detail some results of a nation-wide survey of bee diseases. Mrs Helen Murray provided excellent technical assistance during the work I will describe.

Effects of *Nosema apis* and Sacbrood Virus on Pollen Collecting by Honey Bee Colonies.

The objective of this short-term study was to determine whether sacbrood and nosema diseases affect the ability of honey bee colonies to collect pollen. The work was supported by a generous grant from the New Zealand Kiwifruit Authority.

The experiments were conducted during November/December 1987 in two kiwifruit orchards, one located at Riverhead and the other at Hobsonville. Both orchards contained approximately one hectare of kiwifruit. Twenty-eight honey bee colonies each hived in two super full-depth Langstroth hives were used. At 8.5 weeks before the colonies were moved into the orchards they were thoroughly tested for known bee diseases and requeened with mated queens obtained from a commercial queen producer. These queens had been raised from the same queen mother and open mated in the same yard the previous autumn. Four days later the colonies were divided into three groups. Colonies in two groups were each fed Fumidil - B in 1 litre of 60% sucrose solution while those in the remaining group were only fed sucrose solution. Four weeks later the feeding treatments were repeated and each colony was also requeened with an open-mated queen that had been raised from a queen artificially inseminated with sperm from a single drone.

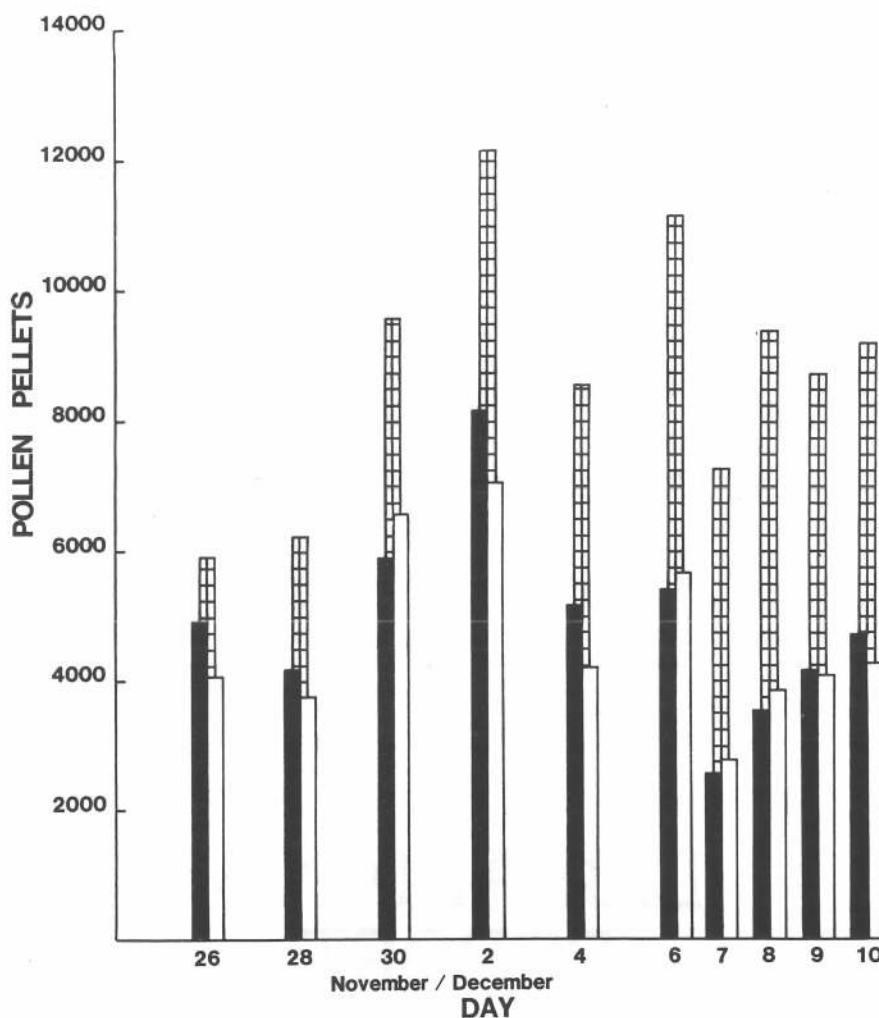


Figure 1. Average numbers of pollen pellets collected during 24 hour periods by honey bee colonies fed 60% sucrose solution (hatched bars), *Nosema apis* in 60% sucrose solution (black bars), and sacbrood virus particles in 60% sucrose solution (white bars).

Two days before the hives were moved into the orchards their population sizes were standardized by a contracted MAF apicultural advisory officer. At the same time the colonies were also tested for diseases. Then, colonies in one of the two groups previously fed Fumidil - B were fed a litre of sucrose solution containing a known concentration of sacbrood virus particles, while colonies in the other Fumidil - B treated group were only fed a litre of sucrose solution ('controls'). Colonies in the remaining group, previously fed only sucrose solution, were fed a litre of sucrose solution containing a known concentration of *Nosema apis* spores. The hives were placed in the kiwifruit orchards and fitted with pollen traps with a determined pollen trapping efficiency of 70-75%. The traps were initially removed from colonies every se-

cond day but were permanently fitted toward the completion of the experiment. The level of sacbrood virus and *Nosema apis* spores in each colony was assessed half-way through, and at the completion of pollen trapping. The strength of the colonies was also assessed at the completion of pollen trapping.

Pollen pellets collected from each colony were kept at 37°C for three days, and stored at -30°C. The numbers of kiwifruit and other pollen pellets were then determined. The average numbers of pollen pellets collected each 24 hour period by the three groups of colonies are shown in Figure 1. Statistical analysis showed that colonies fed sacbrood virus and *Nosema apis* collected significantly less pollen than colonies fed only sucrose solution. Further statistical analyses are currently being done but

the results obtained have implications for the use of colonies for pollination of kiwifruit and other commercial crops. They should also be a major consideration when optimum colony stocking rates for particular crops are being determined.

A Survey of Honey Bee Diseases in New Zealand

The objective of the survey was to determine the occurrence, distribution and relative importance of honey bee diseases in New Zealand.

The survey commenced in 1985 when the Beekeeping Industry was serviced by nine MAF apicultural advisory officers (AAO's) in nine districts: five in the North Island and four in the South Island. A total of 71 commercial beekeepers participated. They were chosen by the AAO's as representing unique geographical areas within each of the districts. The sampling localities are shown in Figure 2.

The surveying times (and approximate seasonal times) were as follows: 15 November-15 December 1985 (Late

Spring-Early Summer); 15 February-15 March 1986 (Late Summer-Early Autumn); 15 May-15 June 1986 (Late Autumn-Early Winter); 15 August-15 September 1986 (Late Winter-Early Spring); 15 November-15 December 1986 (Late Spring-Early Summer) and; 15 October-15 November 1987 (Spring).

Prior to the sampling dates each participating beekeeper received a stamped self-addressed padded envelope, and several specimen vials. These were used by the beekeepers to collect and send samples which consisted of two groups of 30 live adult worker bees, a comb of brood, and dead adult worker bees. Samples were always collected from the same colonies and were accompanied with completed questionnaires giving details of the colonies sampled, such as whether they died, became infected with AFB, were relocated, or requeened. Samples received outside the sampling dates were not included in the survey.

The samples were kept at -20°C and tested for bee diseases as follows

SAMPLE	TESTING PROCEDURES
• 30 LIVE BEES •	Count <i>Nosema apis</i> spores in each of 25 individual bees — Store remaining 5 bees at -20°C.
• 30 LIVE BEES •	1. Rinse 30 bees in alcohol — Check the rinse for external mites. 2. Section thoraxes of 25 bees for <i>Acarapis woodi</i> . 3. Dissect Malpighian tubules, check for <i>Malpighamoeba mellificae</i> (Amoeba). Store remaining 5 bees at -20°C.
• DEAD BEES FROM BOTTOM BOARDS AND ENTRANCES •	1. Make estimate of <i>N. apis</i> spores in each of 10 bees. 2. Make an extract using 10 bees (ether extract), test extract for viruses using gel diffusion, inject extract into 10 white-eyed pupae, number the injected pupae and incubate at 35°C, note their symptoms, make 10 individual extracts of each injected pupae, test each extract for viruses by gel diffusion. 3. Check for external mites.
• COMB OF BROOD •	1. Make extract of larvae and pupae (ether extract). Test extract for viruses by gel diffusion. 2. Note the presence of chalkbrood, AFB, half-moon and waxmoth infections. Test half-moon-like larvae (on artificial media) for <i>Melissococcus pluton</i> . Test AFB-like larvae (on artificial media) for <i>Bacillus larvae</i> .

Only a few of the more interesting results will be given here.

Test for *Nosema apis* infections in samples of 25 live adult worker bees showed that approx. 80% of colonies were infected during spring and summer (Figure 3). About 30% of the samples from colonies during these times yielded more than 5 million spores, 20% more than 10 million spores, 10% more than 20 million spores, and about 5% more than 30 million spores (Figure 3). The average number of colonies infected and the level of spores in

colonies dropped sharply during late summer. The numbers of individual bees infected with *N. apis* was greatest during spring and summer, and lowest in late summer, following the same patterns the level of spores in colonies, and the numbers of infected colonies. For example more than 20% of individual live bees tested yielded spores in about 30% of colonies, more than 50% of the individual bees yielded spores in about 10% of colonies and in an alarming 5% of colonies, more than 80% of the live bees yielded spores (Figure 4). In-



Figure 2. The localities of colonies surveyed in the 9 MAF districts.

dividual bees were most severely infected with *N. apis* spores during spring and summer (Figure 5). It was interesting to note that even though colonies yielded less *N. apis* spores and contained fewer infected bees in late autumn/early winter than in the other seasons, the average highest infections in the few individual infected bees present was about 20 million spores. These highly infected bees probably play an important role in the maintenance and spread of *N. apis* in colonies by acting as a reservoir of spores, which can be spread to other non-infected bees when colonies are confined to the hives by inclement weather.

Further tests of the live bee samples failed to detect the internal mite, *Acarapis woodi*, and the external mites *Varroa jacobsoni* and *Tropilaelaps clareae*. However, four other species of harmless mites were detected as was Amoeba disease. This testing is continuing.

Tests of dead bees showed that *N. apis* infections followed the same seasonal occurrence as that in live bees. Hence the results of tests for viruses in dead bees are also likely to reflect the occurrence of viruses in live bees, which were not tested for viruses. The numbers of colonies yielding dead bees in-

ected with *N. apis*, sacbrood virus, Kashmir bee virus, black queen cell virus and chronic bee paralysis virus are shown in Figure 6. As reported in England, infections of black queen cell virus were found to be closely associated with infections of *N. apis*, and of great interest was the detection of three serologically distinct strains of black queen cell virus. This is the first report of strains of this virus in honey bees. It was also interesting to find that Kashmir bee virus in honey bees. It was also interesting to find that Kashmir bee virus infections were also closely associated with *N. apis* infections. Many serologically distinct strains of this virus were also detected. Hence, the only virus strains so far detected in honey bees are strains of two viruses that are closely associated with *N. apis* infections. This is worthy of further study. Work on characterising the strains of KBV and BQCV is likely to continue for several months. Furthermore, when injecting dead bee extracts into healthy pupae some extracts from pupae that died after injection failed to react to known bee virus antisera. Thus it is likely that virus strains or even new viruses will be isolated after further testing. Another interesting result from the injection work was that acute bee paralysis virus was detected. Other viruses detected in the dead bee extracts were cloudy wing virus, bee virus X, bee virus Y and Filamentous virus. Thus most of the known bee viruses are present in New Zealand.

Analysis of brood combs showed that severe virus infections of bee brood were most common during spring to summer with sacbrood virus infections being most prevalent with black queen cell virus, chronic bee paralysis virus and Kashmir bee virus infections also being detected. The levels of sacbrood infections in larvae were much less than are commonly detected in Australia where up to 95% of spring colonies may yield some larvae infected with sacbrood virus. The analysis supported experimental evidence that half-moon disorder is most common during spring. Waxmoth infestations were completely absent from colonies during late autumn to late winter but light infestations were present in about 20% of colonies during spring and summer. Chalkbrood infections were present in bee brood all year round but were more common from spring to early summer. The results suggest that chalkbrood has spread from the north of the North Island to the South Island. It was surprising to find a number of brood samples infected with American foulbrood and that the beekeepers responsible were unaware of the infections in their colonies.

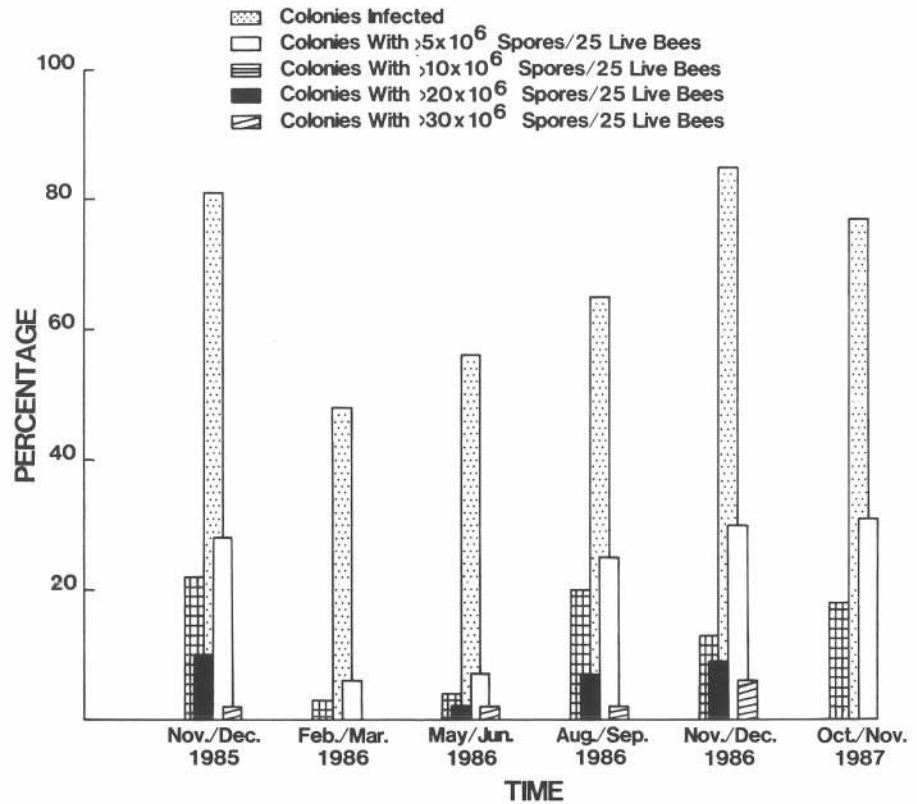


Figure 3. Colonies infected with *Nosema apis* and percentage colonies with different levels of infection.

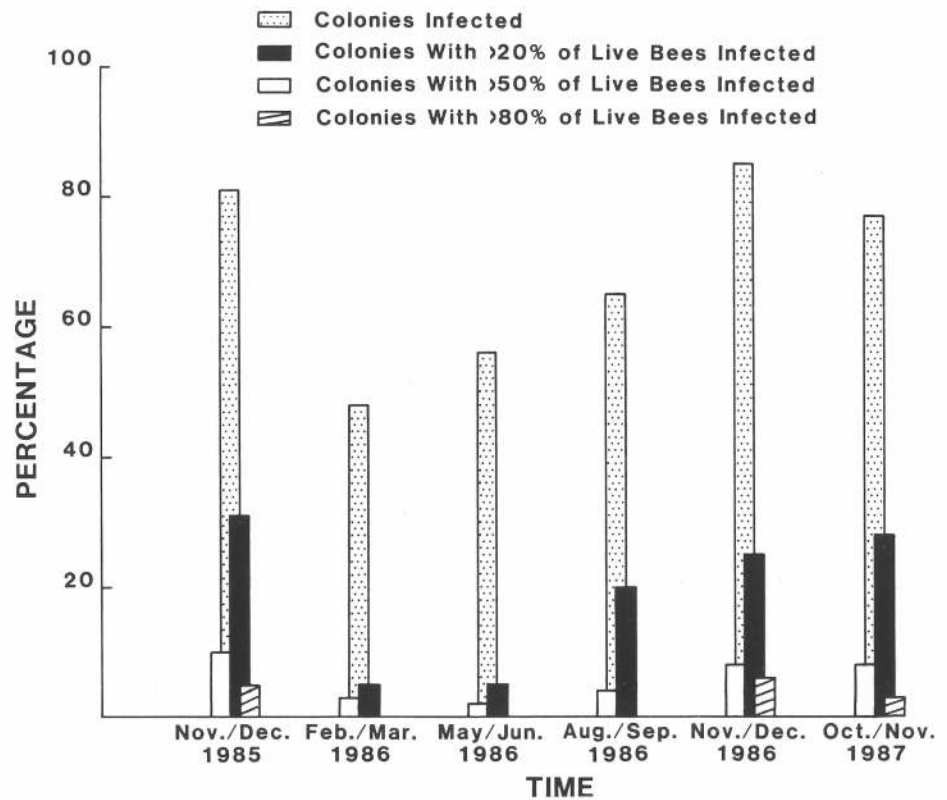


Figure 4. Colonies infected with *Nosema apis* and colonies with percentages of individual bees infected.

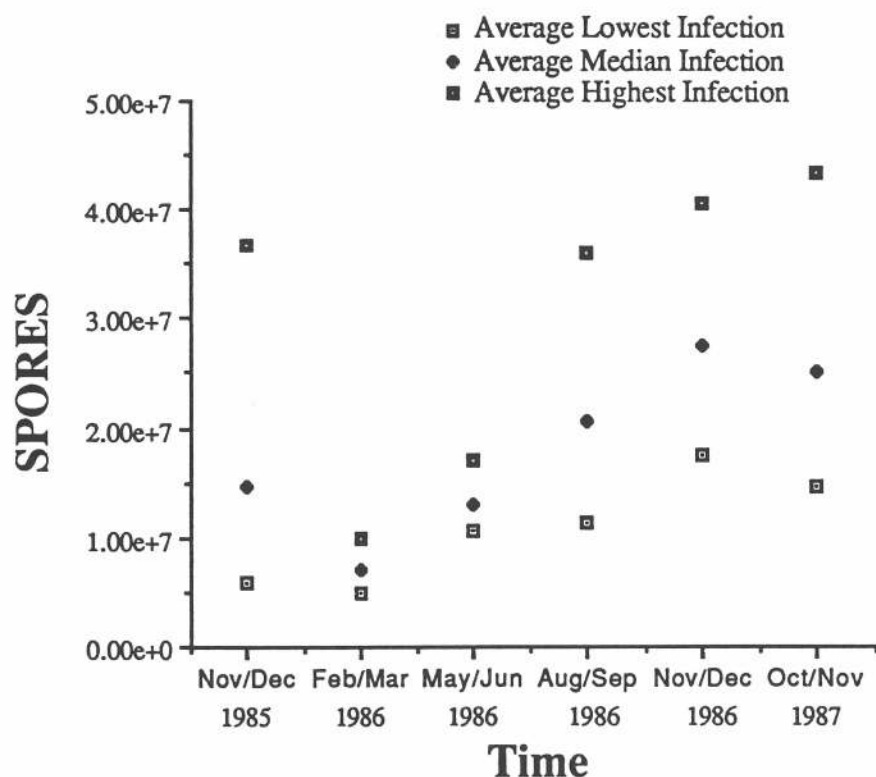


Figure 5. The average lowest, highest, and median number of *Nosema apis* spores detected in individual bees.

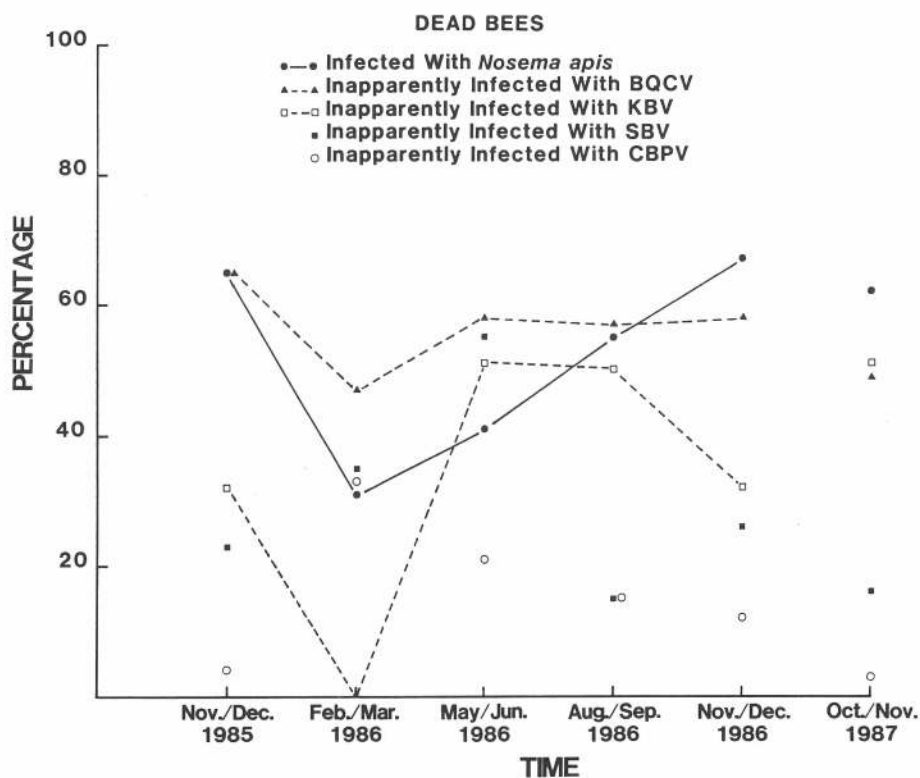


Figure 6. The numbers of colonies yielding dead bees infected with *N. apis*, sacbrood virus, Kashmir bee virus, black queen cell virus and chronic bee paralysis virus.

The bacterium *Melissococcus pluton* which causes European foulbrood was not detected.

Conclusions

The survey has shown what diseases are present in bee colonies in New Zealand. Nosema is the most serious disease of adult worker bees and its close association with black queen cell virus and Kashmir bee virus should be investigated further. Much is already known about the detrimental effects of nosema disease on bee colonies but little is known about the physical structure of the causative agent, *N. apis*. Research directed at the molecular biology of *N. apis* would be worthwhile not only in perhaps developing new methods for controlling of the disease but also for making DNA probes which would be useful in diagnostic systems.

American foulbrood is the most serious disease of adult worker bees and its presence in brood samples sent in by beekeepers suggest many beekeepers are still unfamiliar with the symptoms. Perhaps more education is needed.

It is important that the cause of half-moon disorder be pursued because of its implications to beekeepers and queen producers.

Unfortunately, due to the sheer volume of work involved in processing the survey samples, and the complications that have arisen from that work with the detection of strains and unknown viruses, a comprehensive report on the survey could not be completed in time. When completed that report will be circulated to branches.

WORTH NOTING?

From the Wellington giveaway CONTACT

My friend on the road now informs me, from Rome no less, that there too the New Zealand Kiwifruit has been supplanted by Chilean exports. After reading last week about the now depressed Te Puke economy I am forced to ask: were we not a little too generous in giving away cuttings? Now we're as good as giving away the Kiwifruit itself — if anyone still wants it!

HONEY IS A GOOD FOOD FOR GROWING CHILDREN

Honey is a pleasant source of readily available energy for growing children. Since bacteria which cause diseases in human beings cannot live in honey, it is considered a safe and wholesome food.

MAF REPORT

Organisation and Staffing

MAF continued to negotiate with the beekeeping industry, and with government, in an effort to secure funding for regulatory activities undertaken by MAFQual staff. These include maintaining the eight apiary registers (which contain over 41,000 names and addresses), coordinating and participating in control of endemic bee diseases, surveying and inspecting for exotic bee diseases and pests, maintaining systems ready to respond to an introduction of an exotic pest or disease or the Africanized honey bee, controlling the placement and management of hives in the toxic honey areas, and issuing export certificates for honey and bees.

Andrew Matheson, formerly AAO Nelson, transferred to Tauranga, to fill a vacancy left by Trevor Bryant's resignation while Derek Bettsworth was appointed to the vacant AAO position in Whangarei. John Smith, AAO Christchurch, applied for retraining as an Agricultural Quarantine Officer and took up this new appointment during the year. Negotiations with MAFTech and MAFQual failed to secure a replacement for the Nelson vacancy.

The South Island continued to be served by only one AAO in Gore, with assistance from a field officer in Ashburton and a livestock officer in Blenheim. (Until funds are available, this situation is likely to remain. It also seems certain that if any other AAO's leave then they will not be replaced.

Mr Colin Rope, formerly Apicultural Advisory Officer Auckland, accepted an early retirement option offered by MAF. Mr Rope and John Smith have both given many years service to the beekeeping industry during which time they have held the offices of instructor, honey grader (and deputy grader) and

advisory officer. Their contributions to the industry and to MAF are gratefully acknowledged.

Mr Vince Cook, former AAO Oamaru and acting Chief Advisory Officer (Apiculture), passed away during the year. Vince had recently taken up a position with the International Bee Research Association in Cardiff, Wales. His death is a big loss to the beekeeping industry in NZ and in the UK.

A number of field officers and livestock officers, as well as beekeepers, were engaged as part-time inspectors with a majority of beekeepers volunteering their time and vehicles without charge. This situation is unique in the agricultural scene and is appreciated by MAF.

Beekeeping Statistics

(a) Beekeepers, Apiaries and Hives

There were 7,191 beekeepers owning 335,702 hives of bees at 31 May 1988 (fig I.) Both beekeeper and hive numbers were down on last year and this trend is likely to continue as economic conditions become less favourable and the industry attempts to levy itself to fund MAF's activities.

The former Oamaru apiary district was amalgamated with Gore and Christchurch districts, while the Nelson and Christchurch registers were maintained in Blenheim and Ashburton respectively.

(b) Honey Production

The total crop was assessed at 7,748 tonnes (23.1 kg/hive) compared to last year's crop of 10,091 tonnes (Fig II). Many North Island areas produced low crops and the crop of honeydew was also poor in the South Island. The low prices offered to beekeepers for the majority of the 1986/87 crop saw a large carry over of stocks into the current season. Weak prices on the world

market meant beekeepers were again offered reduced prices for their new season's honey. Prices ranged from 70c kg to \$1.40 kg with some speciality lines such as thyme, low moisture honeys, ling heather, honeydew, and vipers bugloss returning higher prices. Ten years ago the base price offered by the HMA was 81c kg.

The combination of large carry over, poor world prices and, severe competition amongst packers for local sales forced many beekeepers' to consider their future in the industry. A number of outfits have been offered for sale, and many more are available for purchase if a willing buyer could be found. Many beekeepers found alternative work for the winter or hired out their vehicles for cartage work, especially kiwifruit and apples.

Interest in comb honey was strong as a result of weak prices for bulk honeys and export sales were steady. However, the strength of the NZ dollar has lowered returns to beekeepers.

For the year July 1987 NZ exported 604.6 tonnes of bulk honey (\$2.52 kg), 238.3 tonnes of retail packs (\$3.74 kg), 272.6 tonnes of comb honey (\$5.47 kg), 405.8 tonnes of honeydew (\$2.12 kg) and 62.6 tonnes of wax (\$6.08 kg).

Since then average prices for export bulk honey have dropped to \$1.76 kg while comb honey has held at an average of \$5.78 kg.

(c) American Foulbrood Disease and Diagnostic Services

The level of American foulbrood disease (AFB) infected hives reported by beekeepers, or found by MAF, increased by more than 10% over the previous year (Fig III). The most significant increases occurred in Auckland and South Canterbury but other localised outbreaks also caused concern. The most worrying of these involve kiwifruit orchardists who own hives, stolen hives, and some outfits that are financially marginal.

The MAF inspected 8.2% of apiaries compared to 8.6% last year. This was less than the target of 10% and was due to re-organisation of MAFQual staff and to uncertainty over MAF funding this work. Beekeepers in the Whangarei and Auckland apiary districts made cash grants to the MAF to assist with hive inspections and this is gratefully acknowledged.

Brian Milnes, Diagnostician, Lynfield, continued to operate a diagnostic facility for pests and disease of honey bees on a cost-recovery basis. Lynfield can now offer a bacterial cul-

Fig I: Beekeeper, apiary and hive statistics for NZ as at May 31 1988

Beekeepers	Apiaries		Hives			
	1988	1987	1988	1987	1988	1987
Whangarei	670	690	1837	1927	18335	19656
Auckland	1301	1492	2307	2848	20285	23509
Hamilton	820	753	3113	3041	43678	45705
Tauranga	724	790	3800	3788	61451	58423
Palmerston North	1503	1537	4162	4082	41719	40969
Nelson	587	592	2268	2260	26921	26341
Christchurch	965	835	5181	3782	64233	47869
Oamaru	*	390		3661		47710
Gore	621	373	4509	2231	59080	30251
NZ Total	7191	7452	27177	27620	335702	340433

* The Oamaru district is now amalgamated with Christchurch and Gore.

ture test for European foulbrood. Other scientists at Lynfield provided a full range of analytical services for other bee products such as honey and royal jelly.

(d) Queen and package bee production

The queen bee producing season was a difficult one with inclement weather during the spring cycle and Cyclone Bola during the Autumn. The political and marketing climate in our main Canadian market was very volatile and many orders were placed too late for producers to accept or fill.

However, 27,250 queen bees, worth NZ\$267,050 C & F were exported, along with 10,262 kg packages worth NZ\$513,100.

Fig II: Honey Production in Tonnes by Apiary District as at 31 May 1988.

Year	Whangarei	Auckland	Hamilton	Tauranga	Palmerston North
1986	402	1096	1492	1150	887
1987	412	705	1506	1450	1012
1988	255	225	1298	976	834

Year	Nelson	*Christchurch	Oamaru	Gore	NZ Total	kg/hive
1986	871	950	1473	1150	9471	29.0
1987	966	1070	1954	1011	10091	29.7
1988	807	1503	**	1850	7748	23.1

* Includes honeydew

** The former Oamaru district has been amalgamated with Christchurch and Gore.

Fig III: American Foulbrood disease levels in apiary districts to 31 May 1988 (86/87 figures in brackets)

Apiary District	Diseased apiaries		Diseased Colonies		Apiaries inspected by MAF or MAF agents
	No.	%	No.	%	%
Whangarei	39(40)	2.2(2.1)	185(94)	1.0(0.48)	3.0(6.3)
Auckland	291(240)	11.7(8.4)	1278(867)	5.6(3.7)	18.4(4.0)
Hamilton	84(87)	2.7(2.9)	180(175)	0.4(0.4)	7.8(8.9)
Tauranga	249(267)	6.6(7.1)	514(595)	0.8(1.0)	5.4(6.7)
Palmerston North	121(143)	2.9(3.5)	322(340)	0.8(0.8)	10.9(7.9)
Nelson	125(130)	5.5(5.8)	235(266)	0.9(1.0)	3.5(7.6)
Christchurch	302(81)	5.8(2.2)	429(432)	0.7(0.9)	4.6(14.7)
*Oamaru	(103)	(2.8)	(193)	(0.4)	(9.7)
Gore	287(107)	6.4(4.8)	662(447)	1.1(1.5)	12.0(11.5)
TOTAL	1498(1198)	5.5(4.4)	3805(3409)	1.4(1.1)	8.2(8.6)

* Oamaru district now amalgamated with Christchurch and Gore.

Fig IV: Number of apiaries and hives with American foulbrood disease found by MAF or reported by beekeepers to 31 May 1988 (1986/87 figures in brackets)

	No. apiaries	No. hives
Found by MAF or MAF agents	654 (252)	1786 (709)
Reported by beekeepers	844 (946)	2019 (2700)
Total	1498 (1198)	3805 (3409)

MAF Funding

MAF believes it is appropriate and desirable for the industry to generate the required money in any way it can, and then contract to MAF to deliver negotiated services. The performance of MAF will be subject to audit and regular review by the NBA executive.

The MAFQual Board agreed to continue to fund the operation of the eight apiary registers (annual cost \$104,800) until such time as the beekeeping industry can recover these costs from its

members. However, the Boards expectations are that cost-recovery will be in place during the 1990/91 financial year. The MAF asked for \$120,000 to fund the apiary inspection programme. Much of this money would come back to the industry as wages paid to part-time inspectors.

AAO's continued to generate revenue or recover costs in a number of ways:

- * overseas consultancy to W. Samoa
- * auditing pollination hives in kiwi-

fruit and summer fruit orchards.

* subscription clients and discussion groups

* quality-assurance audits and end-point inspection

* general consultancies.

However, these are not big revenue earners and the National Apicultural Business Unit is still far from meeting revenue targets set by MAFQual management.

Murray Reid

National Apiculture Advisory Officer

Cost effective theft deterrent system

A simple, yet effective, theft deterrent system for office, institutional or factory equipment, which can also assist in inventory control, has been developed by a British company.

Marketwise Idee comprises a self adhesive label which is printed with a company motif or message, and has an integral stencil so that a permanent security mark can be applied. Even if a thief removes the label the security mark remains visible.

To complement the stencil labels a set of markers for any surface can be supplied.

CORN BREAD

- ¾ cup cornmeal
- 1 cup flour
- 3 teaspoons baking powder
- ½ teaspoon salt
- 1 cup milk
- ¼ cup honey
- 1 egg
- 2 tablespoons melted butter

• Mix dry ingredients. Add milk, honey, and beaten egg. Add melted butter last. Bake 25 minutes in a buttered shallow pan in hot oven (400°F). Serve with honey.

Report by NBA Representative on Pesticides Board

During the past year I attended the six meetings of the Board which were all held in Wellington. The following are the main matters of interest which arose relating to pesticides and beekeeping.

PUBLICITY A full-page advertisement using the "Dead Bees Don't Pollinate" theme was published in the October 1987 issue of the Orchardist of New Zealand. It was jointly funded by the Pesticides' Board and the NBA. A list of the "Toxic to Bees" warnings and the pesticides on which these appear was published in the same issue. The Orchardist also published in September 1987 an article which I wrote on preventing spray damage to bees. During the past year the main publicity project of the Board was a checklist for safety with pesticides. Some 90,000 of these checklists were distributed and they included a paragraph on the pesticide dangers to bees.

BEE POISONING There were no reports to the Board of damage to bees during the past year. Unfortunately this doesn't mean there were no bees poisoned. There was in fact some quite bad poisoning in Hawkes Bay during late October last year although on a more limited scale than in 1986. It appears beekeepers are reluctant to spend the time and money to collect and have tested bees killed by pesticides unless the damage becomes really serious.

DIRECT IMPORTS OF PESTICIDES The Pesticides' Amendment Act 1987 allows farmers who want to import pesticides for their own use to do so provided they obtain authority from the Board. This meant pesticides which are toxic to bees could be imported without any provision for "Toxic to Bees" warnings on the labels. I am pleased to report there were no pesticides which were toxic to bees imported during the past year under these

provisions.

CHANGES TO THE PESTICIDES BOARD As part of the government's policy of reducing quangos it appears probable the Pesticides' Board and the Animal Remedies' Board will be combined to form the Pesticides' and Animal Remedies' Board. One of the likely effects of this change is beekeepers will no longer have a member on the combined board. While I have agreed to represent the NBA for a third three-year term it is possible next conference will hear my last report.

In conclusion I would like to assure members of this association that I will do my best to see beekeepers' needs are not forgotten while these changes are being made.

Ian Berry

*"A drink that tastes of honey sweet
Will always make a gracious treat."*

SPRING 1988 — AUTUMN 1989
PREVIOUS PRICE LISTS CANCELLED

ITALIAN QUEENS

- OUR QUEENS PRODUCE
- LARGE NUMBERS
- HARD WORKING HONEY HUNTERS
- GENTLE TO MAN

Available October through to March
**September fully booked up*

1-9 \$12.00 ea	10-49 \$11.00 ea
50-149 \$9.50 ea	150 plus \$8.50 ea
Plus 10% GST	

Terms: Cash before despatch unless otherwise arranged.

- September delivery \$1.00 extra per Queen, + 10% GST
- December-January delivery \$1.00 less per Queen, + 10% GST

TO:
WHITELINE QUEENS,
P.O. BOX 1582,
WHANGAREI.
TEL. (089) 31-893

I require No.
Italian Queens for delivery in
the month of
(choose October through to
March).

I enclose \$
payment in full

NAME:

POSTAL ADDRESS:

.....

TELEPHONE:

Whiteline Queens

TELEPHONE (089) 31-893
PAT and TERRY GAVIN

Report by Certificate of Beekeeping Tutor

This year marks the fourth intake of students to the course. In the last four years, 151 students have enrolled in the course and have completed 1139 modules. Twenty-nine people have completed the requirements of the Certificate.

A set of the compiled reports for 1987 as provided to the Course Committee at their meeting late last year were available at Conference. This report has a fairly comprehensive analysis of the types of students taking the course, including hive numbers, NBA membership, geographic distribution and so forth.

The report shows that there is a reducing number of new entrants to the course. I feel this is worth commenting on.

I do not feel that this indicates a decreasing value to, or interest from, the beekeeping industry in this form of

education. From its beginnings it was recognised that the course would deal with a somewhat limited 'target audience'. With only about 150 full-time beekeeping operations and another 450-odd sideline beekeepers, it is not surprising that we have to an extent fulfilled the identified educational need.

I feel that the 151 students who have received at least some value from the course, and particularly the 29 who have completed the course, will provide valuable input to the industry for many years to come.

I also comment on the certificate course and other activities carried out from the point of view of future planning. The National Beekeepers' Association has, through a lot of effort on the part of its National Executive, secured the current course, materials, and tutor in a funding climate that could not be characterised as particularly

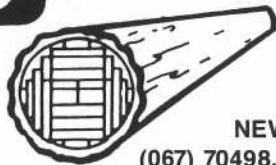
forthcoming.

With that in mind I would like to remind the industry that educational and training needs are never fixed in concrete. There is an on-going need to reassess the past and future of any programme. The WHO, WHAT and WHY for education must be constantly considered. Only through such a process of evaluation of effectiveness can any programme survive. Again, I would offer a degree of congratulations to your National Executive for the orderly strategic planning process, summarised each year with an industry plan.

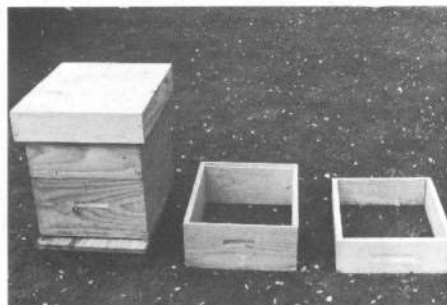
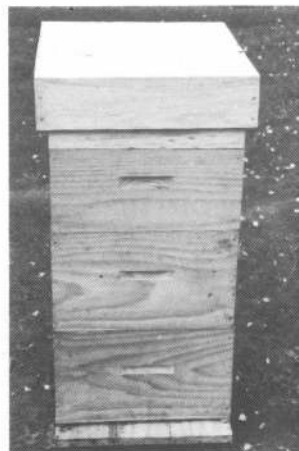
Nick Wallingford

*"If I had all of Croesus' money
I'd still subsist on bread and honey."*

**Taranaki
Sawmills
Ltd**
P.O. Box 49
NEW PLYMOUTH
(067) 70498, 71630, 71631



- SAWMILLING
- WHOLESALE & RETAIL YARDS
- DE-HUMIDIFIER & HIGH TEMPERATURE DRYING
- PLANING
- FINGERJOINTING
- MOULDING
- TREATMENT
- PALLETS & PACKAGING



COMMERCIAL GRADE HIVES

With Half Checked Corners

Full Size Super
3/4 Size Super
1/2 Size Super
Hive Lids
Hive Foundations
Ckd or Assembled
Freight Throughout
New Zealand
N.Z. or Export

**Call us for
Competitive Prices**

IAN SMITH
After Hours (067) 36403
BRYAN BENTON
After Hours (067) 512138

BUZZING AT CONFERENCE '88



PHOTO ONE: Nancy McAuslan and Lin McKenzie, neighbours from Central Otago.



PHOTO FOUR: Thumb and friend.



PHOTO THREE: Graeme Cammell masterminds the taking of the Conference photo.



PHOTO TWO: Dr Barry Donovan's eagle eye constantly searches for wasps.



BUZZING AT CONFERENCE '88



PHOTO FOUR: Jon Dumble, Queenstown, seems to be pining for his mountains.



PHOTO ONE: Derrice and Peter Cox, North Otago, join Noel and Valerie Trezise and Tom Jeffery from South Canterbury.



PHOTO TWO: Bruce Stevenson, Dargaville, and Ross Abernethy, Auckland, seem concerned.



PHOTO THREE: Pat Berry knows her literature. She knits while the tumbrils role.

Agriculture Quarantine Service Report

MAFQual

Since Conference '87 in Rotorua our organisation has undergone considerable change and restructuring under our new MAFQual business label. Apiary officers, other field staff, and ourselves have become more closely knit, allowing for better communication and interaction between the various groups. The new business policy has also allowed us to come out of our strictly set roles and cross-skill with other MAFQual work areas.

Passenger processing:

Our passenger-processing at international airports has resolved itself into a satisfactory system whereby MAF can screen all passengers, including those who choose the Green Freeway lane. Passenger processing times have improved markedly. During the year at Auckland Airport alone we have intercepted approximately 2,400 consignments of honey and bee products from inward passengers: 65 percent were from Australia, 20 percent from North America and six percent from Europe. The remainder was from Asia and the Pacific.

The "Bee" leaflet continues to be an important tool in educating the public about the risks associated with overseas honeys and bee products. As well as being used at International Airports they were recently available at our stand at the Ruakura Open Day and Agricultural Field Day at Hamilton. The Agriculture Quarantine Service stand was to publicise the need for Agriculture Quarantine in New Zealand. On the apiary side we had a display of empty overseas honey jars as well as a display hive, kindly supplied by Murray Reid. This created a lot of interest, not only about quarantine but from public who wanted to know about hive registration. I hope the display helped to ensure that more home beekeepers have their hives registered.

Staff Training:

Among our training modules we include one on beekeeping and bee diseases. Our staff give regular talks at Air New Zealand cabin crew courses on quarantine. The importance of bee products is stressed and we hope that this information is passed on the public.

Yacht arrivals:

Our staff in Whangarei advise that overseas yachts arriving in New Zealand regularly carry honey. Over the last year in Northland they have intercepted 192 consignments from twentyfive countries.

Cargoes:

A consignment of Australian grapes was found to contain dead field bees inside a large proportion of the cartons. The importer declined to re-package the grapes and remove the bees under our supervision, so the consignment was not allowed into New Zealand.

Dennis Anderson reported that while no European Brood Disease was detected in the bees several minor viruses were.

Bees were also found in an empty sea container at an Auckland wharf during a routine inspection.

The Agricultural Quarantine Service continues to cover fully all overseas ports and airports throughout New Zealand. Our officers cover a vast range of different tasks. All our staff are fully aware of the consequences of imported pests and diseases of honey bees. We hope to continue to ensure that the border protection of your industry is fully covered.

N.F. Emery
Supervising Agriculture Quarantine Officer
MAFQual, Auckland

How many on a beehive lid competition at Waikato's Field Day, 12 March 1988.

THE ORIGINAL SHERRIFF BEEKEEPERS CLOTHING

- * Self Supporting Hood. Clear vision through net veil
- * Metal Zipper at neck to push hood back when not in use
- * Removeable hood for easy washing
- * Strong, quick drying polyester fibre
- * 3 sizes




SEND FOR OUR FREE BROCHURE



S36 The Apiarist & The Pollinator
\$101.50

S37 Countryman Deluxe \$68.50

All prices include tax & postage

B. Rawnsley, Dept. B.J. Sherriff
Happy Valley Honey, Box 319, Manurewa



Marlborough

Recently we held a honey promotion day in a local shopping mall foyer. We think it was a success. Our remit meeting received a good turn out of voters. It is disappointing that four beekeepers have not paid their hive levies. We have offered our services again this year to MAF for a disease inspection day — September 11.

Possibly as a result of the dumping of the beekeeping equipment at the local borough dump (NZ Beekeeper Winter 1988), three beekeepers in the surrounding area have lost hives with AFB.

It is almost spring time again. What a thought! Better go and do some back exercises.

James Jenkins

Branch Meeting to discuss conference remits.

The AGM was satisfactorily attended, and saw the election of a new President and Secretary, both from the Karamea area. At the meeting we heard of members who appear to be giving beekeeping away, or at least have packed equipment away in the hope that things may one day improve.

The meeting to discuss conference remits was held in Greymouth. Considerable discussion took place, and concern was expressed over the proposals to support an inspection programme and further burden the beekeeper financially. We await with interest the conference debate on this subject.

This may be short but it's not so sweet.

Sandy Richardson

ber for anyone who sees kiwifruit pollination as some kind of saviour from poor returns on the honey market.

Last year was difficult enough and some beekeepers are still waiting for accounts to be settled. I employed three orchardists to move hives at pollination time to help them cover the cost.

Price cutting is not the answer though. Placing hives for pollination at uneconomic rates only serves to transfer the problem to the beekeeper. Preparing hives for pollination requires a heavy investment in time and labour which must be recouped to stay in business.

The Kiwifruit Pollination Association continues to progress in its aim of ensuring a high standard of hives for pollination coupled with good returns for the beekeeper. Most hives used for pollination in this area are now supplied by members of the KPA.

The KPA will be holding a field day in August to act as a refresher for its members and to bring out any new ideas that beekeepers may have to make the job easier or more efficient.

The Young Beekeeper of the Year competition took place in Tauranga on June 24. It was a successful and most enjoyable evening with 45 people attending the dinner and the competition

Westland

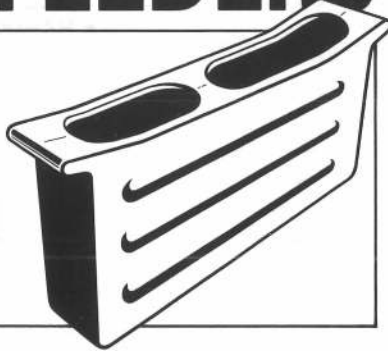
Understandably, given the state of the industry at present, members have taken a low profile this winter with little activity outside the shed door. The exceptions were the Annual General Meeting held this year in Westport, for the sake of members in the northern reaches of this apiary district, plus the

Bay of Plenty

The depressed state of the kiwifruit industry continues to concern pollinating beekeepers who are in some doubt about the future of the business. It's very likely that a number of orchardists will be unable to pay their pollination accounts next year, a point to remem-

BEE FEEDERS

FOR
SUGAR
SYRUP
FEEDING



This super Tough Polyethelene Feeder is moulded in one piece — NO ALUMINIUM LUGS OR RIVETS.

Comes ready to use — just lightly stuff with bracken for bee ladder. Holds 8 litres of syrup.

Soon to be available in half-depth version and full-depth small size, holding 3.5 litres of syrup

Price **\$7.50** Freight Paid (plus GST)
Orders over 50 — Price on application

Contact

MICHAEL FLETCHER

869 Main Street, Palmerston North
Telephone (063) 87270 Evenings

DON GIBBONS Crown Queens Ltd.

ARE THEY THE BEST?
WE THINK SO,
IF YOU DON'T, TELL US WHY.

NZ prices:

\$11.30 each reducing by 2 cents per queen
for each queen ordered.

Minimum price of \$8.50 from 140 queens
e.g. 15 queens would be less 30 cents per queen.
50 queens would be less \$1.00 queen.

September deliveries plus 50 cents
Dispatch advice \$8.00

Plus GST on all orders

Order early and avoid disappointment. Prices subject
to change without notice. Terms: Cash with order,
except by arrangement from:

Don Gibbons
P.O. Box 54
Waipu
NORTH AUCKLAND

(Please include phone number with order).

final.

The four finalists each had to speak on a beekeeping topic for five minutes and answer 15 questions to test their beekeeping knowledge. In the earlier part of the competition they had been visited in their apiaries and assessed on their practical ability, management and business acumen, as well as their involvement in the industry.

After a very close contest Paul Steens of Te Puke was declared the winner with Colin Eggleton of Opotiki the runner up. Congratulations to all the contestants and thanks to the companies who provided prizes for the competition.

Peter Townsend

Canterbury

The winter so far has been surprisingly dry, but a cold snap early on hit the wasps in the bush areas hard. They don't like snow.

Except for negotiations with Timberlands for a fairer hive-site rental and a strong interest in wasp parasite work, the Branch has been relatively quiet since Conference '87. Planning for our Spring Field Day has begun. We shall hold it at Pigeon Bay, Banks Peninsula,

on October 9.

With a somewhat poor honey season behind us, we are hoping for a good crop and an improvement in price so we can be gainfully employed in beekeeping again.

Richard Bensemam

Poverty Bay

The Poverty Bay district continues to shelter from the storm. A substantial amount of money has poured into the area after the deluge. There has been both a Government Relief package and a privately contributed Mayoral Relief Scheme. Most beekeepers who suffered losses will have been paid a percentage compensation from either package. Hives would be prohibitive to insure for such an event, so any amount of compensation is very much appreciated. Our largest single loss was of 329 hives.

Post Bola stock-taking was often messy. In one instance hives were plucked from an artificial lake into a dinghy, as the local store keeper delivered provisions in his jet boat. Others were trudging through up to eight feet of silt. Those buried by silt will either turn up in an archeological dig of the

future or at a river mouth via the next storm. Gisborne has adopted a new motto: "Get up and Grow." We hope they mean trees, and not just pines before we really disappear down the plug hole.

We can only await the state of the kiwifruit industry.

Noel Craft

Northland

The weather is warm. We have had one frost only and the bees are busily flying. They are bringing in grey and yellow pollen from manuka and some other source. If July and August are as wet as they are usually we shall be in trouble and feeding raw sugar while ankle deep in mud.

Mr Blood Sucker

Nicholbee Honey made a profit — once! We have never again been out of debt. That was the year when we were granted a suspensory loan from the DFC for \$5,600 to buy an uncapper. The loan went via our lawyer and came out looking a bit sick at \$5380. We felt rather sour but shrugged it off as a suspensory loan is really a gift. With our profit we put in a concrete floor to prevent the honey house from falling into

MOUNTAIN BEECH APIARIES

"Pedigree Queen Bees (NZ)"

Well, spring is here again. A nice time of the year when you can approach the new season with optimism and forget the problems of the past.

However, if you are going to make the best of this season, you must have a good young queen.

We take a lot of time selecting and breeding the best possible queens for you.

We are booked for early October, but your hives will still benefit from later requeening rather than not at all.

We can supply at \$9 each, including GST, with 50% deposit with order. The balance on delivery.

G.L. & E.J. Jeffery
Loburn 2 R.D.
Rangiora



Telephone Loburn (064-50228)-745

DON'T GET STUNG UP

Our PROTECTOR TOP and POLLINATION SUIT give total protection.

PROTECTOR TOP

Elasticised waist and wrists. Large pocket.



SIZES:

S 34"-36"
M 36"-38"
L 40"-42"
XL 42"-44"

FEATURES

- NO HAT REQUIRED.
- STRONG POLYMON MESH MASK.
- HARDWEARING FABRIC.
- MACHINE WASHABLE.



POLLINATION SUIT

For complete protection and comfort.

BEE ACCESSORIES

133 Walmsley Rd, Mangere, Auckland
Ph: (09) 275-6457 and local Beekeeping Stockists

the swamp. We then bought electronic controls for the extractor, wired up the uncapper (quite cheaply as I am an electrical engineer), and after much thought paid each other the princely sum of \$100 a week (trade unions please note).

All went well until the end of March when the accountant decided that his new offices had to be paid for and raised his fees from \$600 to \$2200. Mr Blood Sucker, the tax man, then got in on the act and by the time he decided that we owed him \$12,000 we were really in a mess. The trouble is that it is immoral to work if you are seventy years old. You are supposed to sit by the fire and drool. We managed to buy time by writing begging letters to the tax man on the lines of: "mother has promised to pay." For the benefit of the younger generation this is the second line of the song. The first line is rude!

Next thing to happen was that the DFC wrote to say that our loan was now cancelled, \$100 please! I was about to write to the lawyer to complain about the meanness of people who gave with one hand and took back with the other, but he beat me to the draw and upped the bill 125% to \$225. He has new offices as well. The bill included about \$8 for duplication, at 15c a copy this came to about 53 letters for a hundred dollars worth of business.

My last personal drawing of \$100 was in March 1987.

George Nichols

South Western Districts

(Southern North Island)

To avoid any confusion about who we are and where we are, we are adding a few extra words to our name as agreed to at our June branch meeting. Our district stretches from New Plymouth to Wellington and includes the Wairarapa. This region is diverse in soils, climate, topography, and farming systems.

It follows that the honey crop can also be as varied. This year the Taranaki yield was a box or less per hive, Wanganui a box and a half, Manawatu a box or less, the same for Levin to Wellington, and an average crop for the Wairarapa. Within each district however there were apiaries which did very well, when all conditions were favourable. I've never seen paddocks as white with clover as this year in the Wanganui district.

Cyclone Bola (in early March) was particularly severe in the New Plymouth area. It badly damaged kiwifruit orchards south of the city, a concern for the apiarists depending on

pollination income. Their application for disaster relief is expected to be favourably considered.

We are facing low shelf prices of honey from the larger packers. This is not an easy year to cover costs with yields not up to average, and prices low too.

However we flew our banner high at the Levin Horticulture Field Days in February. Our promotion tent had a display of honey from every part of our region. And crowds came to buy. We were judged best promotion tent for the section. A most successful two-day event which created a high profile for honey and pollination services. Special thanks to Norm Keane, his planning team, and our sponsors.

We honoured Stewart Tweedale with Life Membership at our May annual meeting. He has given great service to our branch having spent 40 years as a commercial beekeeper, nearly all those years in the Taihape district.

Chris Bromell is our new chairman and so we thank Vernon Gladstone-Brown for his past three years in that position.

Our remits to National Conference highlight our concerns about funding for disease inspection, honey pricing, and promotion.

How's this for an idea? A set of stamps in 1989 to commemorate 150 years since the arrival of the honey bee to our shores.

John Brandon

Otago

Winter set in early this year with severe frost and snow falls throughout the

province at the end of May. A number of beekeepers got caught with some honey still to be harvested and wintering down not completed. However, a few weeks with nice mild days followed the rough spell.

Some members entered the A & P Winter Show with their best honey and bees wax. A greater number of competitors would be much appreciated.

The Otago/Southland Convention was held at Dunedin the day after Queen's Birthday weekend. An interesting programme but a very modest attendance.

Several speakers filled the afternoon session. Topics: marketing, feed sugar supply, industry report. The last one by Allen McCaw, our National President. This did not raise our spirits many degrees. Let us say that it kept in tune with the season.

Clive Vardy, our Apiary Advisory Officer, announced that he will take leave and visit his land of origin, Canada. He has no certainty of his position with MAF upon his return. Anyway the South Island will be without a single Apiary Advisory Officer from 24th of June.

A friend from Czechoslovakia told us about his involvement with bees in that country. An eye opener to us to hear about the large number of colonies kept there, the restrictions with the political system, different strains, migratory systems, and pollution difficulties. Conclusion: we are not so badly off.

The most enjoyable poet of the day was the showing of the H.van Puffelin slide collection (68). Just beauty, we can recommend it to any branch or club.

John Heineman

Euro Study on Effects of Climate Change

The Atmospheric Impacts Research (AIR) group at Birmingham University in the English Midlands is to carry out a £96,000 contract study of the effects on European agriculture of possible long term changes in climate resulting from increases in carbon dioxide in the atmosphere. It aims to map the spatial shifts in Europe of critical boundaries of agricultural potential that are likely to occur as the climate adjusts to higher concentration of CO₂ and other trace gases in the atmosphere.

By around 2050 these concentrations may be double those of pre-industrial levels, leading to increases in global mean annual temperatures of between 1.5°C and 5.5°C. Over western Europe, temperatures are estimated to increase between 3°C and 7°C, with the greatest increase at high latitudes.

Rainfall may also increase, but perhaps not enough to compensate for higher rates of evaporation and transpiration that can be expected with higher temperatures.

An important overall effect may be a lengthening of the growing season for crops, many of which are limited by temperature, and a decrease in the amount of moisture available for crop growth. There may be increased frequency of moisture shortage similar to that which occurred in the spectacular drought of 1976. The higher temperature would be beneficial for warmth-loving crops such as sunflowers and vines, but would be disadvantageous for hardy crops such as traditional varieties of barley, pasture grasses and soft fruits.

BUILD WELL

By John Heineman

In the previous issue we began discussing hive equipment which can be made without difficulty by anyone with the inclination and time and using basic tools in a home workshop. As space ran out now first for unfinished business.

Roofs. The familiar telescopic cover, made of a wooden frame with checked corners, sarking on top, and covered with flat G.I. frame to be constructed preferably from dressed 75 mm x 20 mm. Sarking from 10 mm. upward. Instead of G.I. for covering, other material may be used. Aluminium sheeting, sometimes available from printers, and easy to work with, does not give the same wear. Same applies to tar-paper. The iron should be neatly folded over, best done laid flat on the floor with the lid on top. First fold up the sides, then fold in the corners as done with a parcel, then the ends. Instead of folding the corners parcel-wise a V shaped wedge may be cut out with tin snips before folding over. Use bloc of wood and wedge or old axe head to facilitate sharp folds. Remember to make the frame somewhat longer and wider than the outside dimensions of a super. Say an extra 5 mm. for too tight a roof is a terrible nuisance.

Why should we go to the trouble and extra expense of making this wooden telescopic roof if a snug fitting G.I. cover will do the trick? This is of course if a

hardboard inner cover is used. Folding the iron can be done in the same way but first make yourself a jig. Measurements close to those of a super (405 x 505 mm) perhaps allowing a couple mm extra. Cut the corners and pop rivet. Good lids when shifting hives; can be stacked close together. Also the wind does not easily get hold of this type lid.

Migratory lids are made without overhanging sides and used without an inner cover as we depend on the bees to stick them down with wax and propolis. Easy to make but perhaps not the best to use.

Bottom Boards. They suffer perhaps more than other hive equipment as they are nearest the ground and consequently more exposed to damp which causes rot. More frequent replacement will be needed.

Simply, two lengths of 8"x1". Make a groove and insert metal strip to avoid gap. (See photo 1). Two runners 50x75 or 50x100 mm tanalised pinus. The rims (or risers) are 20 x 12 mm but can be deeper if so desired. The board is extended in front of the entrance serving as a landing. Is this really needed? Look at hives without this, either wild or domesticated. Bees land just as easily on the front of the hive, tree, or building and walk into the entrance without difficulty or confusion. With the front runner set back there is also the

disadvantage of bees bunching underneath the overhang after shaking or dumping. At times we have found many dead bees the next day, apparently chilled.

Photo 1, right, and 2, left, show similar types of board made from three lengths of 150x20 mm with two of the boards checked on one side and the centre board on two sides so that the three boards fit together with overlaps and give a total width of a 405 mm super.

Photo 2, and photo 3 picture a board with a tunnel entrance. Rims are deep, checked at the entrance end to hold a thin board, leaving a 12-13 mm entrance under it. Claimed advantages are: easier defence against intruders, better build-out combs, and less gnawing away of combs in the bottom box. Note that the front runner is flush with front of board. It is more difficult to make as the rim has to be checked out.

Photos 4 and 5 show the mouse/wasp guard mentioned in the Autumn 1988 issue. It works fine in practice. We had a fair number of wasps around in April investigating and getting in and out of one hive in particular. As soon as the guard was fitted they hovered in front but did not enter while the bees had no trouble entering the front door.

There is nothing against using good used material such as t & g flooring for bottom boards. It will serve you for a long time. But of course it is advisable to use a non-toxic timber preserver such as Woodlife or Metalex. Give several coats with a brush or dip. Dipping in hot parafin wax is good but is a way available to everyone. Do not use tanalised timber for those parts which come into frequent contact with the bees. The chemical contains arsenic which may leach. It is OK for bottom board runners and roof rims.

Photo 6 shows an inner cover. In lieu of grooved rims, 12x20 mm slats are used nailed through the hardboard into each other (or perhaps ply from a tea chest). Watch the corners where the slats overlap. Entrance was cut for dual use as division (split) board.

Spring is here again but that is not to say we won't get a few nasty breaks in the weather. Keep that in mind when you start to manipulate the broodnest.

Now is the time to have a look at your colonies if you have not done so as yet. **FIRST SPRING CHECK SHOULD BE A QUICK ONE.** There are three main

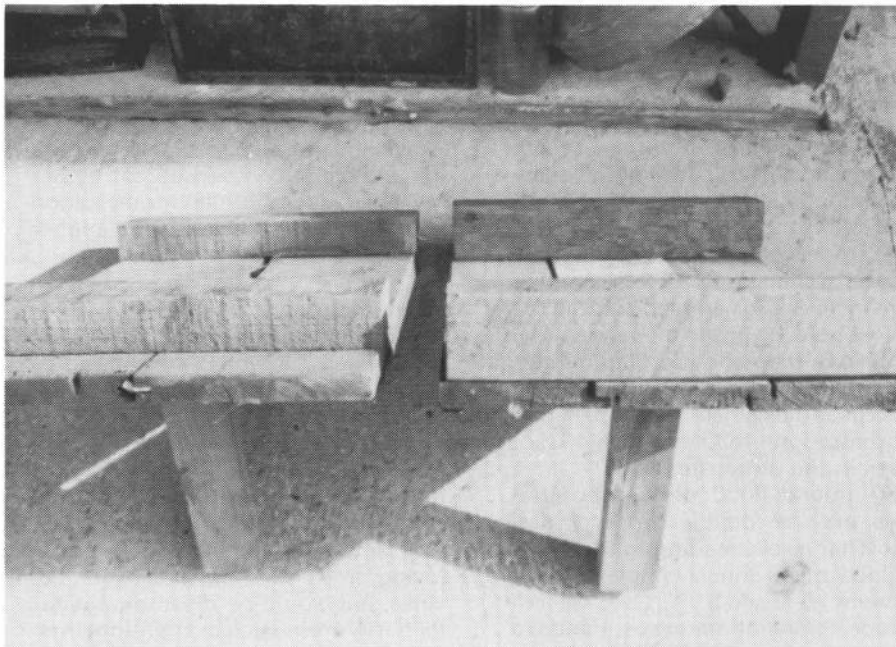


PHOTO ONE

points to observe:

A. Is the colony queen-right? You should not find brood. Is it OK? Good pattern of eggs, larvae, and sealed worker-brood? If a lot of drone brood shows or you see a very scattered pattern with bulbous cappings over worker cells your queen may have turned drone layer. She will still be there but is definitely on the way out.

When you open up a hive and hear the bees making an extraordinary lot of noise, sort of roaring, you can be pretty certain that the hive is queenless. Again you may see a very scattered brood pattern and often with more than one egg in the same cell, very much dropped erratically. No good at all, you have laying workers.

You may find no brood at all. Perhaps queenless but it could happen that a supercedure has taken place. A queen is present but she will not have mated as drones got short shift in the autumn. So she is still a virgin and likely will turn into a drone layer.

In these cases the only answer is RE-QUEEN as quickly as possible. Great if you wintered that spare nuc on top of a hive. Just unite it with the ailing hive. Preferably take the bottom super away. Use a double sheet of newspaper between colony and nuc.

In the case of a queenless hive this is the only secure way of saving it as such a colony is often reluctant to accept an introduced queen. The trouble is the absence of young bees. It sometimes helps to give such a colony a couple of combs sealed and hatching brood from a hive which can spare it a few days before introducing the new lady. Then place the cage between these combs.

If the queenless colony is weak you will be better to reduce it to one super and unite with another colony. Make up your loss again later on when the time is ripe for splitting.

Doctoring around with a weak queenless colony usually amounts to waste of time and effort.

Before trying to introduce a new queen to a colony with a drone layer of a supercedure (unmated) queen better rid of those no-gooders first.

B. Be on your guard all the time when working your hives for any signs of disease. In the very first place for B.L. and if you find it please do THE RIGHT THING IN THE CORRECT MANNER. Sorry your hive caught it but ERADICATION is the only way. For your own sake and your neighbour's. It is still our enemy No. 1.

And while you are looking for that dreaded sign of B.L. watch of course for any other irregularities. If doubtful about something ask somebody who knows or make use of the Diagnostic

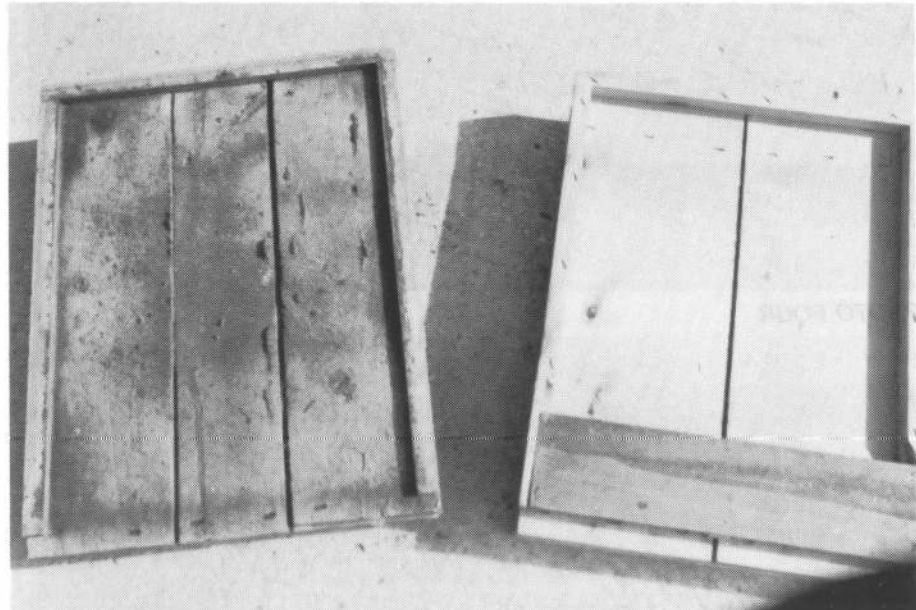


PHOTO TWO

Service in Auckland. Also you could press for a session on bee diseases at your Branch or Club. The NBA Library and MAF have good videos and slides on the subject. Also some good books with colour photos. It is all part of good bee-husbandry.

C. The stores. Don't let them run down. Your colonies will use their tucker in increasing quantities as the brood nests expand, the colony strength increases from perhaps 20,000 not to three or four times that towards November-December and little is to be gathered outside the hive in the mean time.

Feed if need by using that super (or supers) with well-filled combs you pru-

dently set aside last autumn. Borrow from a hive which has spare (but never before it has been inspected). Or feed sugar. Either dry or as syrup (50/50 mix).

The next three months are very important from a management point of view for obvious reasons.

There is no doubt that a vigorous young queen is the main factor in securing a crop of honey and in the avoidance of complications at the crucial time.

If you are in an area with an early flow such as willow you may find the colonies becoming too strong too early. Consequently swarming problems. There are ways to stop or at least

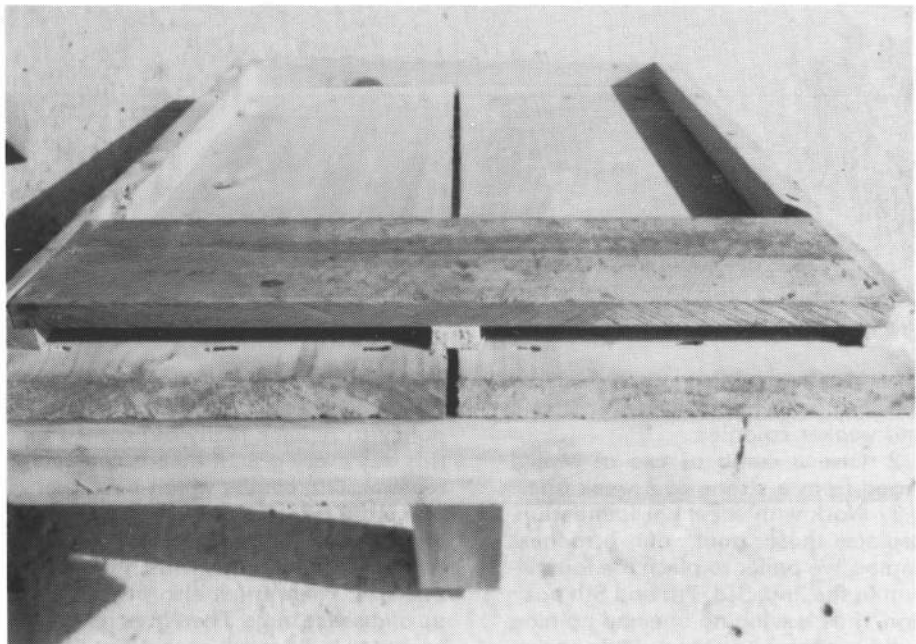


PHOTO THREE

BEGINNERS' NOTES

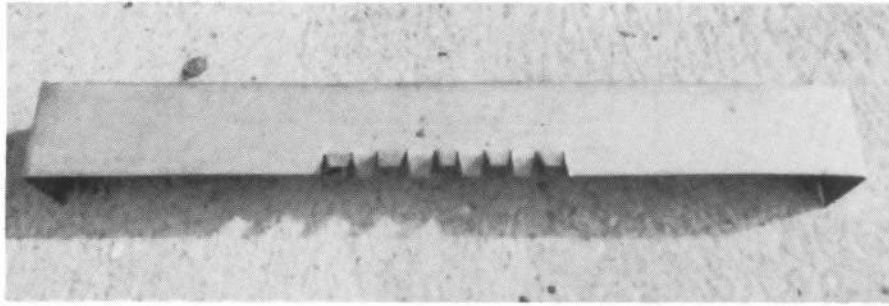


PHOTO FOUR

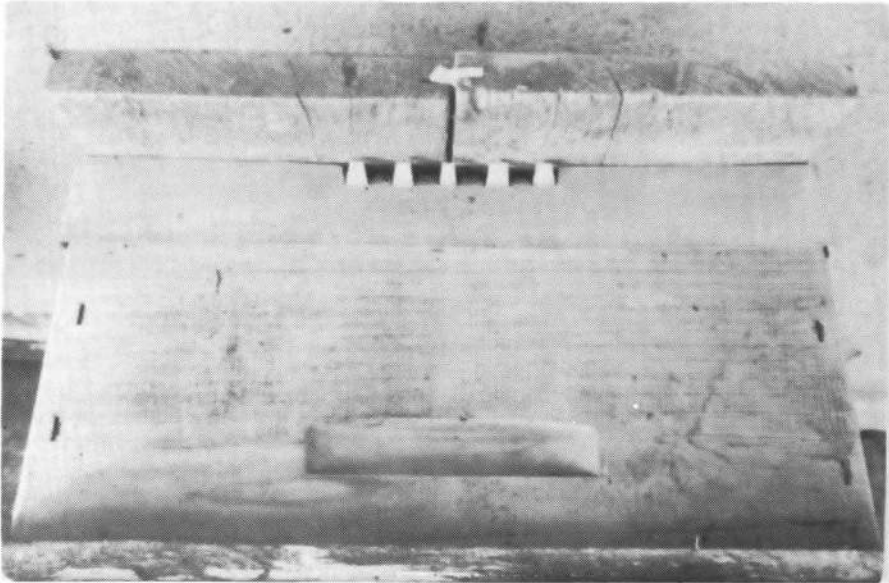


PHOTO FIVE

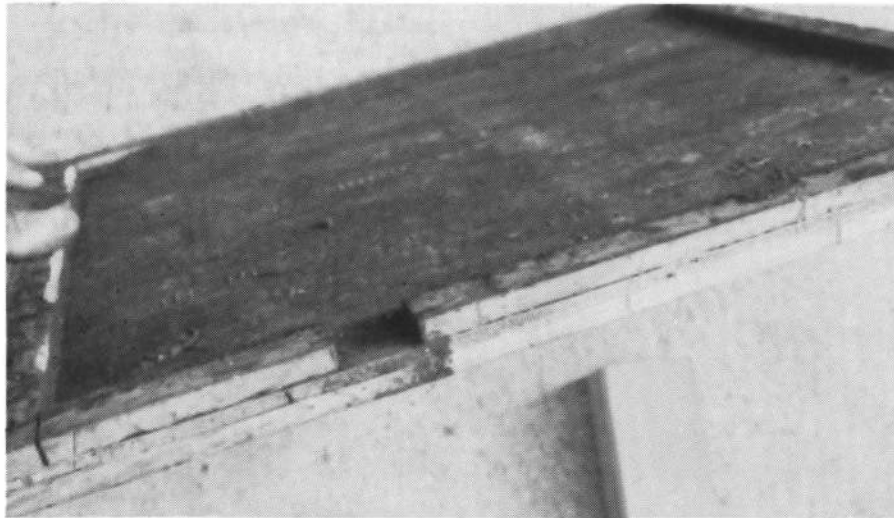


PHOTO SIX

minimise swarming.

1. Swap places between over-strong and weaker colonies.

2. Give a comb or two of sealed brood from a strong to a weak one.

3. Work with sheets of foundation. Replace those poor, old broodnest combs. We prefer to place the foundation in the 2nd, 3rd, 7th and 8th position, thus leaving no one and no nine build-out combs on the outside and an uninterrupted broodnest in the centre.

The number of sheets you insert depends on your judgement. It is good policy to replace really old combs in this way every year, it means constant renewal. Old combs which have seen numerous cycles of brood become very tough, the cells get smaller which, taken to the extreme, must influence bee size. There must also be a build-up of disease bugs. Then bees naturally want to build comb, so you give them something to work on.

4. Reversing. This means placing the top super on the bottom board with the bottom super on top. Poorest combs are often in the bottom so here is a good opportunity for replacement. But don't do this before the broodnest has expanded into both supers.

5. A very strong colony can spare a nuc. Simply make it on top in the manner as described before. Preferably introduce a well-bred queen but a nuc will raise its own queen if it has received young grubs or eggs together with sealed brood. Mating is in the hands of the gods and you won't know what such a queen will be like.

This nuc could be put into the place of the parent colony and so receive a lot of extra bees. If increase is not desired it can simply be re-united at the start of the flow so forming a very strong colony but with minimum risk of losing a swarm. This measure has to be done early enough to give you benefit. At least six weeks before the start of the honey flow.

6. Supering. An extra box to give the colony more living space. It avoids overcrowding. If you use excluders you can raise some combs with sealed brood above it and insert empty combs or sheets of foundation below. Keep the brood together.

Any one or a combination of the above mentioned manipulations will help you to arrive at the honey flow (Nov., Dec., Jan., depending on where you live) without the loss of half your bee strength. Always remember the tucker situation. A good rule is not to let it get below the equivalent of three good honey combs. Syrup 50/50 will stimulate, dry sugar (raw is taken up somewhat easier) keeps a hive alive, given it is strong enough to deal with dry sugar.

A pollen dearth can be a problem too. There is perhaps a colony with something to spare. Pollen may be trapped and stored in a freezer for a rainy day. We must talk about that in the future.

I have often found it profitable to place a decoy. That is, just a super with dry combs on a board and covered. This may attract a swarm, probably your own perhaps from outside. It will be yours, no questions asked. No ear marks you know; it's perfectly legal. But watch it, a swarm can carry B.L. so definitely a thorough inspection once a brood nest has developed. If nasty and cross re-queen at first opportunity.

Much has been said and written about different systems of management but at times I think that bees are so versatile and tough that they survive notwithstanding man's attempt to manipulate and manage.

A MAN FOR THE YEARS

From Brian Milnes

After 45 years involvement with the commercial beekeeping and honey industries in New Zealand, Colin Rope has left MAF.

Colin's father gave him his first hive on his twelfth birthday which led to his association with commercial beekeeper, the late Ivan Muncaster.

Colin spent all his spare time with Ivan after school, at weekends, and during school holidays. After attaining School Certificate at Auckland Grammar School, Colin and Ivan formed a business partnership manufacturing beehive woodware for sale and they expanded their apiaries to 500 hives, a large enterprise in those days. They built the most up-to-date honey house in New Zealand at the time and their plant gave them total control of every aspect of honey processing.

At the age of 16 Colin was first employed by the Dept. of Agriculture, as a part-time Apiary Inspector. At 18 he was raising all the queen bees for the partnership plus two other commercial beekeepers. During that time, Colin also studied music and he performed

in light classical and jazz orchestras in the City for four years.

Colin's father considered his son had set his sights too low in entering an unorthodox business such as beekeeping so when his son married he gave Colin as a wedding present a 135-acre farm in the Far North, to be viewed for the first time after the honeymoon. There was no grass — just gorse and tea tree — virgin gumland costing \$5.25 per acre — the poorest soil imaginable! But working seven days a week, Colin brought all the farm into grass and fenced it. He raised 400 fat lambs, wool and cattle, and kept 200 hives. He also made the cottage liveable in and extended it to accommodate two children.

That took four years. The loneliness, boredom and isolation of country life became too much to bear and after eating nothing but mutton three times a day for six months, farm life began losing its appeal. They were 'saved' when a flood washed away the Wairoa Bridge that his father was building and the farm had to be sold to enable the bridge contract to be completed.

The family moved to Tirau where Colin was employed by Albert Deadman for one season, operating 1500 hives on the two-queen system.

In 1959, Colin joined the Department of Agriculture in Auckland and served as an Apiary Instructor for four years. After work he spent 17 years in the Honey Grade Store at Parnell and graded solo all the honey exported from New Zealand, as well as all the Intake for the NZ Honey Marketing Authority. During this time New Zealand export honeys in all grades received the highest prices obtainable against world competition and all sales were based solely on government certificates as proof of quality. Buyers had confidence in the quality of the NZ honey. This was not so for honey sold by most other countries. Colin tells a story about a Japanese firm which bought 2,000 tons of New Zealand honey at top prices. It was the largest single sale made to that time.

"Why did you buy New Zealand when Mexican honey is available at half the price?" he asked. "The last time we bought Mexican there was a Mexican's boot in it," came the reply. A Japanese boot, ok, or *even* a New Zealander's boot, but have you ever seen a Mexican's feet?"

To be fair to both buyer and seller, grading had to be accurate and totally impartial. Colin says he is aware of making five errors only — later rectified — during those 17 years.

During his first years as Apiary Instructor, Northland, the export comb honey trade was developed from half a ton in 1959 to 200 tonnes some six years later.

This was an exciting time. his role was to develop and co-ordinate the ideas, skills and inventions of about 16 beekeepers into a unified effort. Each year he produced half a ton of export quality sections himself to make sure he knew what he was talking about before advising others. he set up a time and motions study in his own garage to streamline the preparation for market of a choice quality product. Sheep shearing had taught him the value of that.

Then came a traumatic experience for an adviser. Government scientists had reason to believe Northland honey may have become contaminated by toxic honeydews. Colin was directed to impound, and later to destroy, the honey crops of all beekeepers he had helped! His official application to be relieved

QUALITY QUEENS

All stock produced under a scientific breeding programme.

Selection for **Honey Production, Winter Hardiness, and Hygienic Behaviour.**

Queens guaranteed to arrive alive, healthy and well mated.

Prices:

Spring 1988 - Autumn 1989

1-9 \$11.00	10-99 \$10.00
100 plus \$9.00	Call for a quote on larger orders

All prices include G.S.T.

Terms: Payment before delivery.

DAYKEL APIARIES

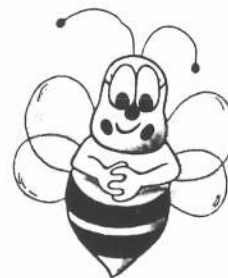
David Yanke and
Rachel Kearney

Member

PARANUI R.D. 3,
KAITAIA, NORTHLAND,
NEW ZEALAND.



PHONE — PERIA 895



of that unpleasant duty was declined. The government subsequently paid out a "generous" ex-gratia payment to each producer, based upon Collin's and Bob Walsh's estimates of each beekeeper's losses. Colin was directed to deliver each cheque by hand to each beekeeper. One old soldier exclaimed: "Good Heavens you can have all my hives, the honey house, everything for that price! I've never seen so much money in all my life!"

In 1964 a Wellington coffee-grinding merchant gave Colin a mixture of dates, honey, and nuts he was experimenting with: "Can you improve the colour?" he asked. "It tastes great but looks disgusting." After some homework in his kitchen, Colin made some apricot honey spread, tested its shelf-life for one year, then presented 24 one-pound jars to the Board of the NZ Honey Marketing Authority with instructions on how to make it by using superfluous plant at their disposal. What happened? He received a bill from the NZHMA for 24 pounds of honey said to have been destroyed in irresponsible experiments!

Ten years later Hansells Ltd became interested in uses for their dried fruit and Colin worked with their firm "re-inventing" the process. NZ Fruit and Honey Spreads are now firmly established throughout NZ and on export markets too.

At one time the NZHMA found itself in dire circumstances without either a general manager or a factory manager. It considered shutting-down the plant

for two months and dismissing the staff. Colin thought that would be a grave error especially since it involved dishonouring some irrevocable letters of credit. He offered to run the factory himself free for two months pending arrival of replacement managers. Based on the principles Colin introduced that: (I) nothing can come out of a pipe unless something is first put into the other end; and (II) that the workers often know how to do things better than management which has never done the job, the factory out-put jumped permanently from 40 tons a week to 50 tons a week. That cut the overhead price per unit considerably and increased payouts to suppliers accordingly. Because of Public Service rulings, Colin could not accept money for those two months, but a strange thing happened while he was away on his family vacation. He returned home to find that "elves" had painted the roof of his house in his absence! This was of significant help because Colin was a busy solo parent.

Two years before leaving MAFQual, Colin and John Seakins invented an electronic colour grader for honey or liquids. It is called the LYNFIELD COLOUR GRADER. It took two years of pounding on "bureaucratic brick walls" to get recognition for that invention. Ruakura MAFTECH engineers greatly improved on the prototype working model and there is no longer doubt that the machine not only works but can be fine-tuned for many pur-

poses. Hopefully the first production line unit will be installed by 1989. The machine will sort items into classes of colour and weight as fast as the liquid or comb honey packs can be fed into it.

Colin returned to advisory duties in 1980. However, after 1986, and "user-pays" there was little government funding for AFB control so he elected to leave the public service because the work no longer satisfied him.

Colin sees American foulbrood as the No 1 enemy of commercial beekeepers. During his final year with MAF-Qual he concentrated on trying to rid his district of this menace. He received full support from commercial beekeepers and together they have brought AFB within check.

When he left MAF on 30 April 1988, Colin was delighted to be elected a Life Member of the Auckland Branch of NBA. He joined this Branch about 1944, during wartime sugar-rationing days when honey was in demand as a sugar substitute. He was also a member of the Far North Branch for four years. Today he spends a lot of time with his six grandchildren, and is busy administrating the Auckland Concert Band Inc. He has always been interested in budgerigars, fish and dog breeding, and is a keen orchid grower. The Auckland Metropolitan Cage Bird Club Inc. made him a Life Member in 1974.

On the occasion of his surprise farewell, the Auckland Branch of the NBA presented him with a three-foot log cake engraved "Thanks Colin."

NEW BEEKEEPING BOOK

How long ago were New Zealanders writing about paraffin dippers? Where would you find 16 different articles on hive loaders? And did New Zealanders really know how to produce fine-grained honey before Dyce "invented" the process?

The Bibliography of New Zealand Apiculture answers these questions, and provides access to a wealth of information about beekeeping in this country.

This new publication from MAF lists every significant article, book or periodical that relates to bees, beekeeping or bee pollination in New Zealand. Over 1350 entries cover the period from 1842 to the end of 1986, and these are referenced by author and by subject.

The bibliography was researched over a number of years by MAF advisers Murray Reid, Andrew Matheson and Grahame Walton. The end result is a 140-page, attractively-bound book that will be a useful reference for anyone who wants access to information about beekeeping in New Zealand.

Copies are available for \$25 each, GST and postage included, from MAF, Private Bag, Tauranga.

Research Seeks Better Flood Predictions

Better use of weather radar to predict such problems as floods and droughts is the aim of a new three-year research programme being carried out by scientists from the UK Natural Environment Research Council (NERC).

Researchers from NERC's Institute of Hydrology, at Wallingford, near London, are leading the UK part of the project with collaboration from the Universities of Birmingham and Lancaster. Other research is being carried out by groups in France, Italy and Portugal. The work is being funded by a grant from the Commission of the European Communities, which is giving about £60,000 to each of four research groups.

Weather radar has been used for several years to improve assessments of how much rain has fallen in particular river basins, and, more recently, it has been used for rainfall forecasting. The radar can provide an assessment of rainfall over an area while using the traditional raingauge produces an assessment for just one point.

The aim of the new research will be to seek a better connection between

forecasts and assessments on the one hand and hydrological models used for forecasting and predicting river flows on the other. The models, in the past, have generally used raingauge measurements.

The ability of a radar beam to detect raindrops over large areas greatly improves the accuracy of the spatial coverage of rainfall information. This has great potential for improving the forecasting of such hazards as floods and droughts, and improving the design of drains and channels in urban and rural areas.

An additional impetus to the research is that increased carbon dioxide in the environment could cause greater variability in rainfall which will in turn call for better forecasting and prediction techniques to assess the consequences of the climatic change.

ROQUEFORT CHEESE DRESSING

- Crumble with a fork ¼ pound of Roquefort cheese into small pieces. Add to 1 cup of French Dressing.

A Chemical Approach to the Characterization of New Zealand Ling Heather Honey

By Seng To Tan, Alistair L. Wilkins, Chem. Dept. Waikato University;
Murray Reid, National AAO, MAF;
Peter C. Molan, Dept. Biological Sciences, Waikato University

In a previous issue of this Journal (Tan *et al.*, 1986) we described a chemical approach which could assist in the identification of the floral source of honeys. In particular we noted that while New Zealand clover (*Trifolium repens*) type and rewarewa (*Knightia excelsa*) honey samples possessed only low levels of extractable organic substances, substantially higher levels of extractable substances were present in ling heather (*Calluna vulgaris*) and manuka (*Leptospermum scoparium*) honeys. Examination of a greater number of ling heather honey samples, in the main additional samples collected during the 1986-87 season from hives kept in the National Park region of the North Island, has lead to the identification of a class of extractable organic substances which appear to occur only in ling heather honeys. Hitherto these substances have not been recognized as honey extractives. Our investigations of honeys described as ling heather

have now progressed to the extent that we are able to routinely identify contributing floral sources. Pollen analyses (Moar, 1985) have confirmed the accuracy of our chemical approach.

Figure 1 is the gas chromatographic (GC) profile of a ling heather honey sample of high purity (Figure 2 is the GC profile of clover honey for comparison). The majority of the numbered peaks have been identified. While peak 8 (benzoic acid) and peak 14 (phenylacetic acid) are well documented honey extractives and of only limited value in the identification of floral source, it has become apparent that an array of peaks, including peaks 10, 37, 41, 44, 45, and 46 occur only in ling heather honey. The more dominant of these substances were present at levels of the order 27-36 ug/g (peak 37) and 100-180 ug/g (peak 45). The structures of these substances are shown in Figure 4. We have established that these peaks arise from a class of substances, which be-

cause of their apparent relationship with carotenoids (a class of yellow/orange pigments found in plants) are usually described as degraded carotenoids.

Steeg and Montag (1987) have reported the levels of extractable organic substances in a variety of European honeys including heather. The levels of benzoic acid and phenylacetic acid found in their study were similar to those detected in New Zealand heather honey, however we find a much lower level of 2-hydroxy-3-phenylpropionic acid (Figure 1, peak 25) in 1986-87 season heather honey, which on the basis of pollen analysis are considered to be of high purity. We have observed levels of 2-hydroxy-3-phenylpropionic acid akin to those reported by Steeg and Montag in some honey samples which apiarists described as ling heather honey, however pollen analysis revealed that these samples exhibited low heather pollen counts (less than 5%).

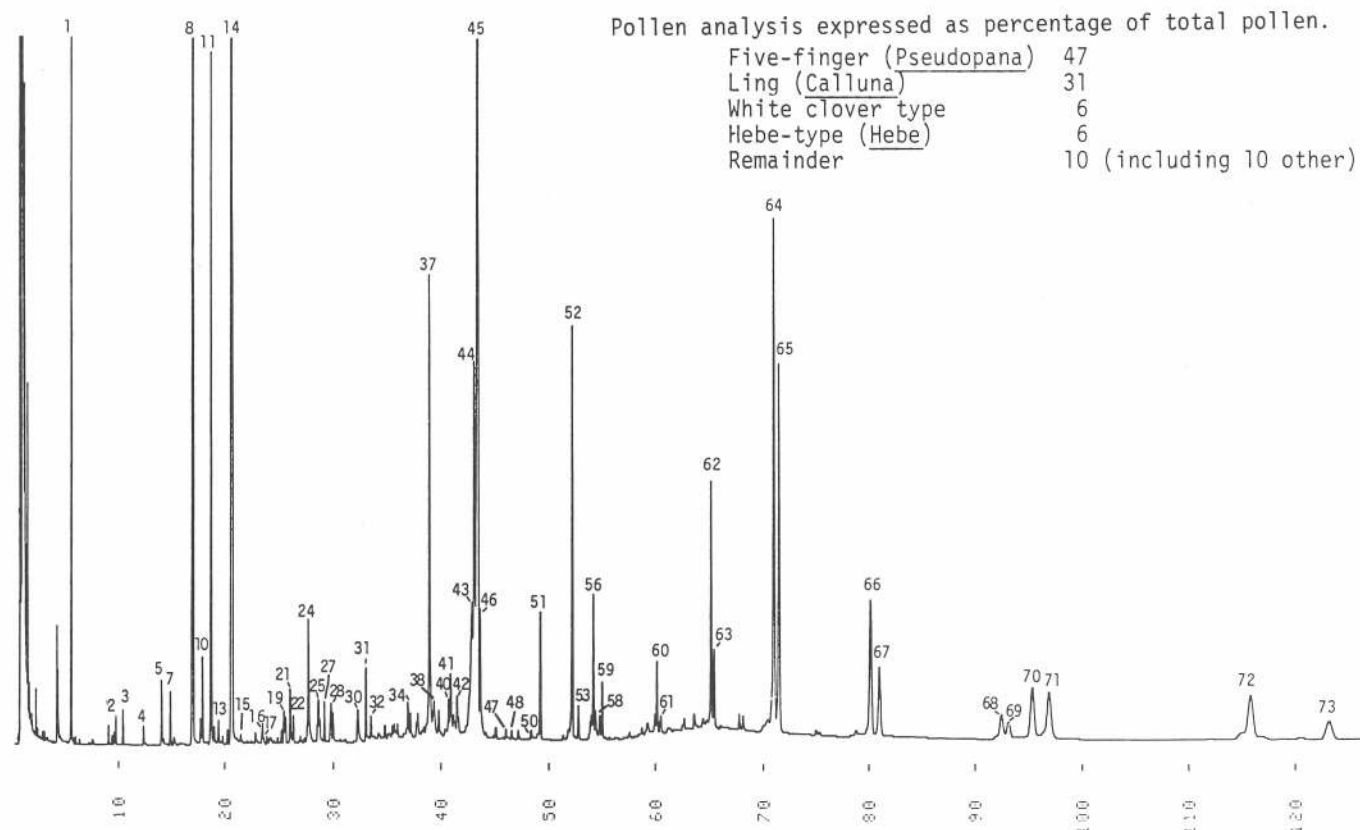


Figure 1 GC profile of 1986-87 ling heather honey.

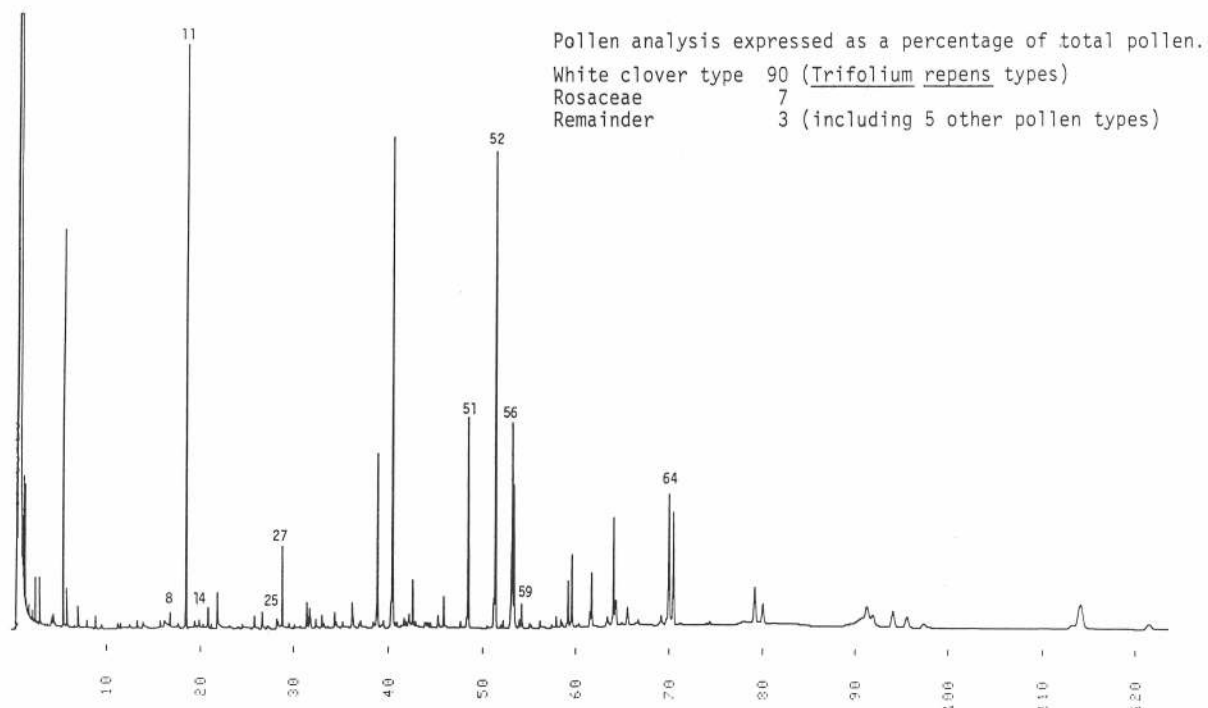


Figure 2 GC profile of 1986-87 white clover type honey.

Our findings indicate that high quality heather honey is essentially devoid of 2-hydroxy-3-phenylpropionic acid (peak 25); this substance is a major extractive of manuka honey (see Figure 3).

It is now clear that the heather honey samples utilized in our initial study (1983-85 seasons) were of lower purity than those collected during the 1986-87 season. A useful indicator of floral source integrity is the peak

45/peak 25 ratio. This ratio is ca 35:1 for 1986/87 samples (see Figure 1) compared to ca 0.5:1 for 1983-85 samples (compare peaks 72 and 134 of Figure 2 in our earlier article). We believe that this ratio will prove to be of importance in distinguishing heather honeys from other lower value honeys, and in assessing the quality of heather honey on a season-by-season basis. However, before the present method could be employed in a routine analy-

sis, more work will have to be done especially on honey produced by bees working on one floral source under controlled conditions.

Since the degraded carotenoids are absent from New Zealand white clover, manuka, kanuka and most other unifloral honeys, the implication of our investigation is that they originate specifically from the heather plant. Two commonly encountered plant substances of related structure are α - and

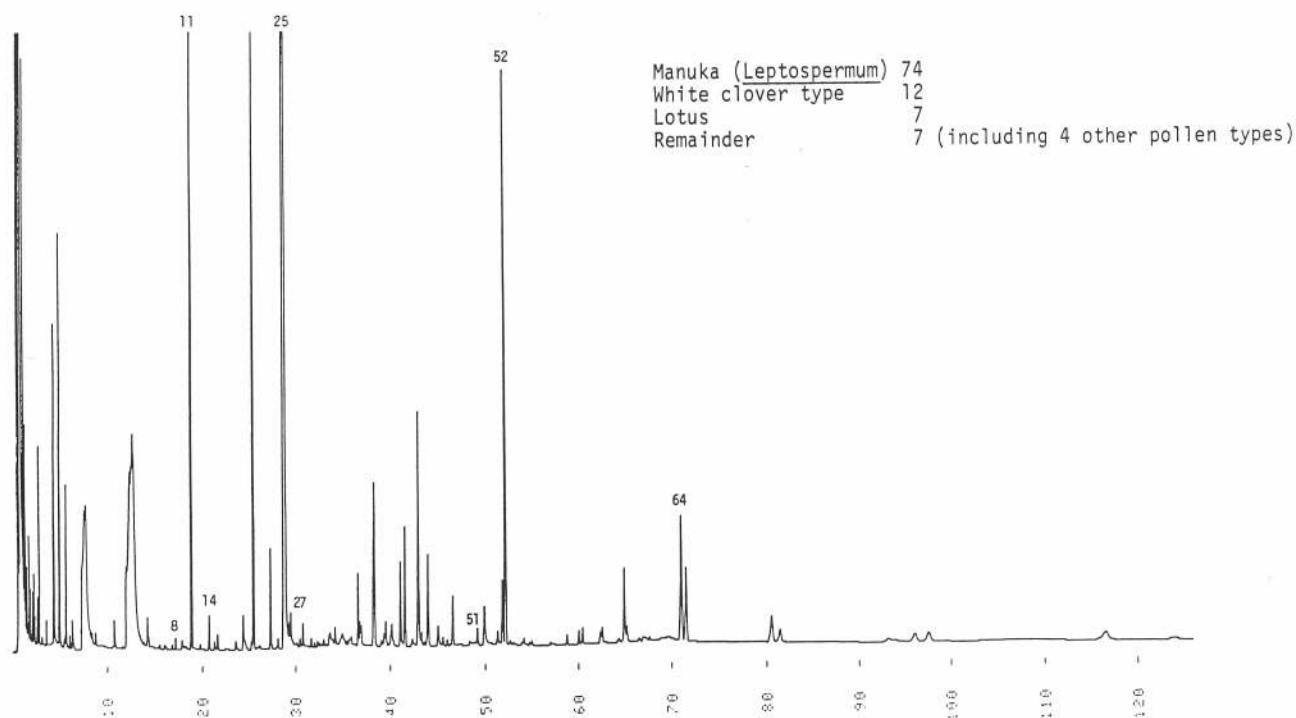


Figure 3 GC profile of 1986-87 manuka honey.

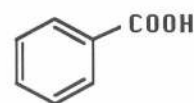
B-ionone (Figure 4); both are described as possessing sweet floral fragrances reminiscent of violets (Bauer and Garbe 1985). These compounds were not detected in the heather honey. New Zealand heather honey is described by Walsh (1967) as being "reddish in color and of mild but pronounced flavour". Possibly the degraded carotenoids detected in our investigations contribute to the heather honey flavour.

ACKNOWLEDGEMENTS

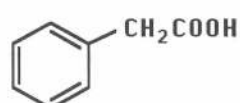
We wish to thank the National Beekeepers Association and Wilson and Neill-Hororata Honey Exports Ltd., Hororata for support throughout the course of the research, also the many apiarists and Apicultural Advisory Officers of the Ministry of Agriculture and Fisheries who co-operated in this work. The assistance of N.T. Moar, Botany Division, DSIR, Christchurch (for pollen analyses), and D. McNaughton and D.R. Lauren, Ministry of Agriculture and Fisheries, Hamilton (for carotenoid analysis) is also gratefully acknowledged.

REFERENCE

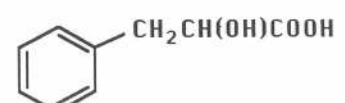
Moar, N.T. "Pollen Analysis of New Zealand Honey". *N.Z.J. Agric. Res.* **1985**, *28*, 39-70;
 Steeg, E.; Montag, A. "Aromatic Carbonic Acids of Honey". *Z. Lebensm. Unters. Forsch.* **1987**, *1984*, 17-19;
 Tan, S.T.; Holland, P.T.; Wilkins, A.L.; Molan, P.C. "Extrac-



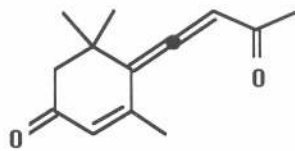
Benzoic acid



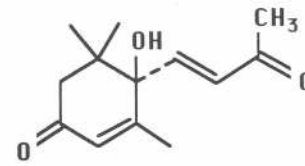
Phenylacetic acid



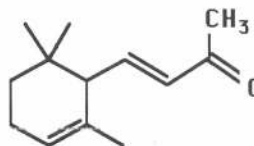
2-hydroxy-3-phenylpropionic acid



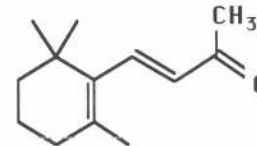
Peak 37



Peak 45



α -ionone



β -ionone

Figure 4. Structures of peaks 37 and 45, benzoic acid, phenylacetic acid, 2-hydroxy-3-phenylpropionic acid, and ionones.

tives from New Zealand Honeys. T. White Clover, Manuka and Kanuka Honeys". *J. Agric. Food Chem.* **1988**, in print.
 Tan, S.T.; Wilkins, A.L.; Reid, G.M. "Floral Source Identification: A Chemical Approach." *The N.Z. Beekeeper.*

1986, *190*, 21-23.

Walsh, R.S. *Nectar and Pollen Sources*; National Beekeepers Association of New Zealand, P.O. Box 4048, Upper Hutt, **1967**.



**BUY DIRECT
AT WHOLESALE
PRICES**

- WRITE FOR PRICE LIST, SAMPLE FRAME OR LOCATION MAP
- LET US QUOTE ON YOUR ORDER

Mahurangi Hiveware

Pukapuka Road, R.D.3., Warkworth, New Zealand
 Telephone Puhoi (084620) 890, Evenings

Using Bits and Bytes to Count Your Supers and Boxes

By K.L. Trevathan

Have you ever considered using a computer in your beekeeping business? Or maybe you thought computers were too difficult for you to manage or even that they are merely for children to play *Space Invaders* on? In this series of articles we shall look at some of the many uses a beekeeper can put a computer to.

But first which computer should you buy and how much will it cost? That is the forty dollar question that only you can answer because it depends on many things. See a reputable dealer and ask around your beekeeping friends. Definitely move out of the toy area and buy a machine ready for real business application. Your children can still play games and learn to programme on it.

At present prices a machine suitable for your requirements should cost between \$2,000 and \$4,000 depending on whether you would like a colour or black and white display or your information stored on hard or a floppy disk. One thing for sure, buy a machine that is IBM-compatible so that large quantities of software are readily available to you at a reasonable cost.

Calculating your Honey Crop.

You will not long have finished extracting and you will know how your expectations change as the job proceeds. First you told your beekeeping friends that the season looked reasonable with a yield of at least four tonnes per hundred and then you revised that down to three tonnes per hundred as you got through the extracting and finally down to 2.7 tonnes per hundred after the honey was in the drums and you weighed it. Disappointing wasn't it? Not as much money as you budgeted for and what about all those empty drums you ordered from your packer? They will be a nuisance around the shed until next season.

Things need not be like that. Let me introduce you to a computer software programme known as a 'spread sheet'. No, these need not cost a fortune and can range from around \$200 to \$600 or so for the Rolls Royce 'do everything' version. You can even get one from the public domain where you usually pay a small fee of less than \$50 to the writer of the programme. On the surface 'spread sheet' programmes are nothing special but once you learn how to use

them you will find that it is one of the best management tools you can buy. At least as essential as your smoker or hive loader.

A 'spread sheet' is simply an electronic piece of paper ruled into columns and rows. They vary in size but the one I use is 63 columns wide and about 254 rows long. A large sheet of paper is not the great thing about this programme; the great thing is that all the boxes created by these rows and columns can be made to interact with each other. So each position or cell has an address of its own. The first cell is in row one and column A so its address is A1. The next cell to the right is still in row 1 of course but is now in column B so it's address is B1. Got that? Don't worry if you haven't as it is quite easy when you see it on your own computer.

So what's this to do with your honey crop? When you first get this programme you need to make a template of the relationships between the cells. The one I designed is for estimating the honey crop I started removing honey from the hives. How it works is that as I remove the honey from the hives I count the boxes of honey. You may do this already but to be of use to our computer programme it is important to count the boxes carefully and to keep the same relationship between full and part-full boxes of honey. I count all boxes at least three-quarters full as full, all boxes around half-full as half a box, and anything less than half a box I don't count. This may seem complicated and a waste of time but when you get home and feed this information into the computer you will find that it is extremely useful.

Look at the example and you will see that the part of the 'spread sheet' we are using has seven columns. The first column (A) contains the name of the yards for identification followed by the next column (B) with the number of hives in that particular yard. You add that figure only after you have removed the honey from that yard; otherwise it interfaces with the 'expect yield' figure in address G13. In the next two columns (C and D) you enter the number of full-depth and three-quarter boxes of honey you counted while in the yard. The fifth column (E) converts the full-depth and three-quarter depth boxes all to the equivalent number of full-depth boxes.

The next column (F) converts the boxes in column (E) into kilos of honey for the complete yard. The final column (G) tells you the yield for that yard in tonnes per hundred. Just one point: when you want to print out this chart normally, you turn the column and row numbers and letters off so that your chart looks better.

Now how did that come about? If you look at example two you will see what I entered into each of the cells in row three and it is not what is displayed in example one. The reason is that in cells D3 to G3 I entered formula's that react to the information I entered in cells B3, C3 and D3. Of course you could do this calculation with paper and a pencil and provide the same information. But because this takes a deal of effort it doesn't get done. However with the computer it is so easy that barely have I got the truck backed into the shed than I have the machine on and the information calculated. A yard of 20 hives just completed and we brought home 23 full-depth boxes of honey and 12 three-quarter boxes. Good or bad? Hard to work it out in your head isn't it. Have a look at example one again and see that the yard at Duncans gives the answer: 720 kilos of honey, or an average of 3.6 tonnes per 100 hives.

Now lets add two columns (G & H) to our 'spread sheet' to make it even more useful. Look at example three. At the end of extracting, when you know the amount of honey, produced enter this figure into cell H13 and the programme will automatically recalculate the tonnes per hundred for each yard in column G while in column H the kilos of honey for that yard will appear. These figures will not necessarily be the exact amount, but rather the difference between your estimation and the actual crop. These have now been apportioned over all the yards using the original ratio.

The great thing I find about this system is that after about five yards are cleared of honey and the number of boxes of honey are entered into the computer you have the average yield of those five yards showing in cell G13. The interesting thing is that you will find that your yield over your complete outfit will not be much different from what you calculated after only two or three days of removing honey. I simply

FIGURE ONE

A	B	C	D	E	F	G	
Yard Name	Hives	FD Box	³ / ₄ Box	Total	Honey	per 100	
1							
2							
3	Duncan	20	23	12	32	720	3.60
4	Geoff Smith Bott	14	22		22	495	3.54
5	Geoff Smith Top	12	15	4	18	405	3.38
6	Danny Rae	13	19		19	428	3.29
7	Dick Hill No 3	14	32		32	720	5.14
8	Dick Hill No 4	15	24	15	35	793	5.29
9	Ferguson No 4	11	19	2	21	461	4.19
10	Harold Gloag	17	23	7	28	636	3.74
11	Dick Hill No 2	16	33		33	743	4.64
12							
13		132	210	40	240	5400	4.09

FIGURE TWO

A	B	C	D	E	F	G	H	I	
Yard Name	Hives	FD Box	³ / ₄ Box	Total	Honey	per 100	Cor Hon	per 100	
1									
2									
3	Duncan	20	23	12	32	720	3.60	697	3.49
4	Geoff Smith Bott	14	22		22	495	3.54	480	3.43
5	Geoff Smith Top	12	15	4	18	405	3.38	392	3.27
6	Danny Rae	13	19		19	428	3.29	414	3.19
7	Dick Hill No 3	14	32		32	720	5.14	697	4.98
8	Dick Hill No 4	15	24	15	35	793	5.29	768	5.12
9	Ferguson No 4	11	19	2	21	461	4.19	447	4.06
10	Harold Gloag	17	23	7	28	636	3.74	616	3.62
11	Dick Hill No 2	16	33		33	743	4.64	719	4.50
12									
13		132	210	40	240	5400	4.09	5231	3.96

FIGURE THREE

- A3 = "Duncan
- B3 = 20
- C3 = 23
- D3 = 12
- E3 = SUM (D3/4*3) + C3
- F3 = SUM (E3*22.5)
- G3 = SUM (F3/B3/10)
- H3 = F3/F13*H13
- I3 = H3/B3/10

then multiply this average yield by the number of hives I have to know the amount of honey I can expect when the extracting is complete and the drums are weighed. You may think that this is a bit rough and ready but my experience with this method for four seasons is that I am seldom more than 1% out. Last season I was out at the end of the season by 68kg only, and that is more than near enough for me.

What do I use all this information for? The first and most important use is for budgeting. As early as mid-February I know the expected crop which allows me to plan my expenditure for the year. If things look bad I talk to my Bank Manager early and reduce spending before it is too late. Secondly how many drums do I need delivered from the packer and finally at the end of the season, I can rank all my yards in order of their honey yield and, surprise surprise, I find that the same yards nearly always in the bottom 10 percent and the same

yards nearly always in the top 10 percent. If a yard is always worse than the rest it is frequently not obvious unless you keep careful records. So I make a point of moving yards that year after year are at the bottom of the yield table. Might as well try placing them somewhere else or increasing your numbers in a good yard.

You may not agree with the formulas I have used in converting: firstly

three-quarter boxes to full-depth boxes or the conversion of full-depth boxes to kilos of honey. This is not important except to say that they work in practice for me. If you want to experiment and use different numbers then go ahead and find some that work for you.

Next issue we will look at using a computer and spread sheet for budgeting and cashflows.

A LETTER OF THANKS TO:

Mr and Mrs Perkinson
Mahurangi Hiveware
Pukapuka Road
RD 3
AWRKBWORTH

Dear Ken & Lynne

The Poverty Bay beekeepers have received your donation of 2,000 frames. You can be assured that they have been distributed on pro rata basis to all who lost hives in Cyclone Bola.

Your generosity is greatly appreciated and is typical of the generosity that has been shown to all people in the Poverty Bay - East Coast region.

People in our area are determined that if and when disaster strikes elsewhere in New Zealand, they will respond in like manner.

Please pass on our appreciation to the freight companies who transport-

ed the frames gratis. We also will be writing to them.

Thank you once again for your gesture.

Yours sincerely

Ian S. Stewart
Acting Secretary
Poverty Bay Branch

BOILED HONEY FROSTING

1½ cups honey
⅛ teaspoon salt
2 egg whites
• Cook honey and salt to 238°F. or until it will spin a thread, or make a soft ball when dropped into cold water. Beat egg whites. Pour the hot honey in a thin stream over the beaten egg whites continuing to beat until all honey is added and frosting will stand in peaks. Spread on cake.

Kiwifruit Pollination in the Bay of Plenty Using Honey Bees, Conditions of Supply, Standards and Quality Control

By Trevor Bryant

PREFACE TO DISCUSSION:

If the commercial beekeeping industry is to survive into the 21st Century, it must strive towards excellence in all production spheres. No longer can mediocrity be condoned if beekeeping and its client base is to prosper.

The business enterprise, whether operated as separate units or as a whole, must be profitable in all activities, be they honey production, queen bee rearing, or pollination. No longer can the manager of an enterprise afford to subsidise one activity from the proceeds of another if an acceptable rate of return on investment is to be achieved.

"Be more efficient" is the simplistic phrase of many business managers striving to maintain profitability. Efficiencies, are not enough, the manager must also be effective.

As the expert in the field of crop pollination utilising honey bees, the primary function of the professional pollinator is to ensure the clients' projected yields are achieved, even exceeded for least cost. This can only be achieved by being effective and efficient.

A client-base of profitable enterprises guarantees the future of any service orientated business. Being efficient and effective is the beekeeping industries best advertisement for the future.

ABSTRACT

Kiwifruit vines are dioecious. The flowers produce no nectar. Both flowers produce pollen. These and other factors eg., floral competition, make the crop difficult to pollinate.

Fruits must contain at least 1,000 seeds to attain the preferred market size, 33-36-39 tray count. Some 1,500-3,000 pollen grains must be transferred to the female flower for fruits to achieve this size. The number of beehives used to pollinate the crop has grown from 1,660 in 1975 to 47,589 in 1986.

Stable and realistic pricing, industry standards, auditing programmes, co-operation between growers and beekeepers has enabled the industry to strive for maximum economic yields.

INTRODUCTION

Kiwifruit (*Actinidia deliciosa*) was first exported from Te Puke in 1952 and has expanded to an export crop valued at \$NZ630 million FOB in 1987.

Prior to 1984, the amount of fruit produced was not considered important. Returns were high and growers were able to live comfortably on the proceeds of the crop at production levels 30% less than those required by the mid 1980s.

Successful growers in today's economic environment need to consistently produce $\geq 6,000$ export trays per canopy hectare. Further, the market requires that 65% of the crops be in the 33/36/39 tray count range: ie. fruits which weigh 110/101/93g respectively³.

Crops of $\geq 8,000$ trays per hectare are achievable with yields of up to 13,000 possible using conventional growing practices and honey bees as pollinators. The key factor to consistently produce high yields of fruit of the market preferred size is pollination.

THE POLLINATION PROBLEM

A number of factors which impact on pollen transfer and honey bee-foraging behaviour need to be considered if consistent yields are to be produced:

- ★ Kiwifruit vines are dioecious. The flowers produce no nectar. Both pistillate and staminate flowers produce pollen. Pollen of the pistillate flower is non-viable^{15,16,17,18,19}.
- ★ Fruit size is directly related to the number of seeds per fruit. The transfer of 1,000-3,000 pollen grains from staminate to pistillate flower will produce fruit with ≥ 700 seeds¹⁹, so $\geq 1,000$ seeds per fruit is required in the preferred market sizes^{15, 19}.
- ★ Male plant ratios of 1-8 females with males and inferior male types are common in many mature orchards.
- ★ Pollen forager loads of staminate pollen become diluted with non-viable pollen as honey bees move among the pistillate flowers.
- ★ Pistillate flowers are most receptive up to three days after opening but can be pollinated and set to produce full-sized fruits up to seven days after opening^{17,19}.
- ★ The most viable pollen from staminate flowers is produced within two-three days of flower opening^{17,19}.
- ★ Orchard environment and vine management impact on bee foraging. Eg. excessive shading from shelter trees and dense vine canopies inhibit flight^{15,21}.
- ★ Pistillate and Staminate flowering must be synchronised²¹. Bees can

become constant to either reducing cross-pollination¹⁷.

- ★ Kiwifruit vines flower from mid-November to mid-December, this coincides with other plant species which are a valuable nectar resource. Eg. white clover, *Trifolium repens* L.; Rewarewa, *Knightsia excelsa*; Kama-hi, *Weinmannia racemosa*. These and other species are more attractive alternatives to bees¹⁵.
- ★ Insecticides toxic to bees and used to control pests in kiwifruit and other horticultural crops can reduce numbers of foraging bees⁵.

IMPROVING POLLINATION

The focus here is on pollination but this must be kept in context as the benefits of good pollination can be negated by climate and by neglecting other cultural or husbandry aspects. The impact of poor pollination on nett return is enormous yet the cost of pollination is just 2% of total on orchard production costs.

Orchard Requirements:

- ★ Effective shelter to modify the orchard environment (climate) reduce wind velocity without excessive shading³.
- ★ Pruning for desirable crop loads and to provide good light for crop development³ and bee foraging²¹.
- ★ Replacement of 'other' males with superior clones in conjunction with adequate distribution of males in the fruiting canopy¹⁵.
- ★ Introduce honey bees to the flowering crop at the correct time^{3,20}.
- ★ Careful and judicious use of pesticides toxic to bees by all users when honey bees are in the vicinity of the crop to be treated^{5,7}.
- ★ Use sufficient pollinators or alternative systems to pollinate the projected crop load^{15,19}.
- ★ Reduce floral competition by mowing ground cover, plus sequential hive introduction and sugar feeding of bees^{7,15,22}.
- ★ Select hive sites that receive plenty of sunlight, are protected from winds, but have good air-drainage and sufficient land marks^{7,15,21}.
- ★ Use beekeepers who are members of the Kiwifruit Pollination Association.
- ★ Monitor honey bee numbers regularly among the vines to assess pollen forager activity; if a problem

is apparent contact the beekeeper immediately.

THE KIWIFRUIT POLLINATION INDUSTRY

Pollination of kiwifruit was first identified as a problem in the 1950's but researchers concentrated on identifying superior male clones¹⁸. It was not until 1970 that the placement of bees into orchards was advocated¹⁶ resulting in just under 100 hives being hired for a fee of \$10.00 per hive²⁶.

Further research culminating in 1974 recommended that eight beehives/ha²⁵ were necessary provides the catalyst for the industry as it exists today.

Rapid growth has become a major feature of the crop and the number of beehives required to pollinate the flowers has grown with it: from 1,660 hives in 1975 to 47,589 hives into 2,043 orchards in 1986¹⁴. Revenue from fees in 1986 was estimated to have earned \$3.6 million for beekeepers^{13,14}.

Dire predictions of an 80,000 pollination-hive shortfall¹⁷ and massive losses to growers^{17,20}, realistic fees and finance, changes in attitudes, the development of a financial data bank all assisted the beekeeping industry to meet the challenges of the 1980's.

By 1984 the influx of new beekeepers, grower pressure for accountability, support from the Ministry of Agriculture & Fisheries (MAF) brought about the formation of the BOP Kiwifruit Pollination Association (KPA).

An informal group of pollinators existed prior to 1984 and this provided the foundation of the new association. Membership was extended to all beekeepers involved or interested in supplying beehives for pollination in the Bay of Plenty.

The Association instituted rules¹, a code of ethics², and quality standards by which its members are bound¹. These have been continually revised and refined to meet the needs of industry, its members, clients, and technology.

The benefits accruing to members and clients quickly become apparent and similar associations, now affiliated to the New Zealand National Beekeepers Association (NBA), were established in other kiwifruit growing regions.

The KPA published the "Code of Ethics"² since adopted by NBA branches throughout New Zealand, which effectively replaced the so called "Gentlemen's Agreement": a verbal ethical agreement said to exist within beekeeping.

In 1987 the membership comprised 75% of beekeepers with more than 50 hives involved in pollination and these beekeepers provided 75% of all hives

Fig 1: Results of Kiwifruit Pollination Hive Survey Bay of Plenty — 1984⁶

Total Pollination surveyed		36
Number ≥100 hive pollinators surveyed		35
-percentage of group		97
Total orchard visits		38
Number of orchards survey reflects upon		1,153
-percentage of industry		73
Number of hives survey reflects upon		18,496
-percentage of industry		72
Pollination Hives Judged as:	No.	%
Satisfactory	12,321	67%
Fair	4,297	23%
Unsatisfactory	1,878	10%
Total	18,496	100%

used for pollination¹⁴.

The formation of the Association has bridged the gulf between grower associations and beekeepers and has developed into a credible organisation within which individuals can air grievances, promote industry concerns and requirements, particularly to Government departments and researchers.

The enforcement of the quality standards imposed by the KPA on its members has further enhanced its credibility with growers. It has also been instrumental in helping retain the Honey Bee Protection From Pesticide Damage Scheme⁴ for the past three years, after it was nearly abandoned in 1984.

QUALITY ASSURANCE

For some years, growers, the MAF, and responsible beekeepers had expressed concern about the quality of beehives placed in orchards. To establish what was occurring, MAF Tauranga-based apiculturalists conducted a survey of hives in 1984 (fig 1)⁶. This survey provided the basis for follow-up surveys in 1985 in the Bay of Plenty, Nelson²⁴, and Northland regions.

The results of the 1984 survey encouraged the KPA to levy its members

and put a quality assessor in the field to monitor members hives.

In 1986 the MAF published a general pollination hive standard⁷ which was further refined late that year²³ and formally adopted by MAF apiculturalists. The KPA has similarly modified association standards in line with the MAF recommendations and there can be no doubt that standards will continue to come under scrutiny as new information and research results come to hand.

This has further enhanced the reputation of the KPA.

POLLINATION FEES

The requirement to produce a specific unit for kiwifruit pollination became a necessity in 1982 with advances in research and increasing demand for honey bees.

The price of honey, loss of honey crop, production costs, and the demands for capital to increase hive numbers meant that no longer could pollination services be subsidised by honey production. Beekeeping had to be profitable if it was to provide industry with quality hives and survive financially.

MAF financial monitoring^{8,9,10,11} of the beekeeping industry was in its infancy in the Bay of Plenty in 1983,

Fig 2: Selected Beekeeping Financial Indices Per Hive MAF Financial Monitoring Programme 1987¹¹

Year	Pol Fees*	Vehicle	Wages	Crop	Fin. Charges
1981	48				
1982	48				
1983	59	10.26	13.66	7.51	15.33
1984	65	11.28	14.77	9.16	15.04
1985	71	8.23	15.65	5.68	12.69
1986	74	9.42	17.55	11.48	15.36
1987	90	11.49	17.78	12.70	21.04
1988 (Est)	91	9.84	23.50	13.91	23.76

* Pollination fees rose 80% from 1971 to 1982.

* Fees rose 52% 1985-87, expenses 60% for the same period.

although monitoring began in Southland in 1976/77. Sufficient data was available and combined with the financial data of concerned individuals enabled beekeepers to obtain an exemption from the price and wages freeze invoked by the Government in 1982¹⁰.

Fees have continued to rise steadily¹¹ as beekeepers have sought to meet the demands of a critical clientele. Financial monitoring has brought recognition to the financial realities of beekeeping, not only to beekeepers but also to their clients (fig 2).

After a considerable catch-up period it is suggested that pollination fees have at least attained a realistic level and will probably remain relatively static for the next two-three years.

THE FUTURE

The challenge for the beekeeping industry in the Bay of Plenty is to become more efficient and to hold production costs so as to remain profitable rather than becoming a cost-plus industry. The change from a producing industry to a servicing industry has been remarkable. However, the benefits will be lost if growers of kiwifruit, whose return per tray has remained static for the past three years yet whose costs have continued to rise, are faced with continual price increases from beekeepers.

Investment in efficient vehicles, good equipment, maximising of colony dynamics, and labour are improving the quality of the product produced and are helping beekeepers manage more colonies more profitably. With less stress, financial security, and a planned approach to their business, beekeepers can look forward to a period of financial security.

The emergence of corporate investors, professional pollination consultants, and the demand for a "health" orientated product assure the future of honeybees as pollinators of kiwifruit.

The success of beekeepers in the Bay of Plenty can be emulated by others but in conclusion the words of the late S.E. McGregor require reaffirmation²².

"A pollination service that expects to continue on a large scale over a long period must be equally interested in the welfare of the grower and beekeeper. It should be directed by both bee and crop specialists. Unless both industries are represented and have equal status in directing the programme it is doomed to failure."

FIG FILLING

4 cups ground figs
1 cup honey and ¼ cup water
juice of ½ lemon and ½ orange
• Combine and cook 15 minutes, stirring constantly. Cool before using.

1. Anonymous 1984 Kiwifruit Pollination Association (BOP) Rules
2. Anonymous 1984 Beekeepers Code of Ethics The NZ Beekeeper 183:29
3. Alexander G 1987 Careful management is key to a top crop. Fruit & Produce Journal, April-May; 24-27
4. Briscoe DA 1981 Regional Co-operation beats spray damage NZ Beekeeper 42(5):5-6
5. Bryant TG 1983 Slipshod pesticide practices put pollination services at risk. NZ Beekeeper 178:12
6. Bryant TG; Vardy C 1985 The Pollination Survey. MAF Tauranga Your Newsletter 35:3-4
7. Bryant TG; Vardy C 1986 Honey bees, pollination of crops. Information Services MAF Aglink FPP 860
8. Bryant TG 1985 Beekeeping Monitoring Park I. NZ Beekeeper 187:10
9. — 1985 Beekeeping Monitoring Part II. NZ Beekeeper 188:13-14
10. — 1986 Beekeeping Monitoring Part III.
11. — 1987 Financial Monitoring Report Beekeeping: Pollination 1986/87-1987/88. MAF Tauranga
12. Bryant TG 1987 Pollination 1986 Tauranga Apiary District. MAF Tauranga.
13. — 1987 Pollination 1986/87 NZ Beekeeper 193:5
14. — 1987 Pollination Statistics 1986 Tauranga Apiary District MAF Tauranga
15. Clinch PG 1984 Kiwifruit Pollination by honey bees 1. Tauranga observations 1978-81. NZ Journal of Experimental Agriculture 12:29-38
16. Ford I 1971 Chinese Gooseberry pollination. NZ Journal of Agriculture 122(2) 34-55.
17. Goodwin R M 1986 Kiwifruit flowers anther dehiscence and daily collection of pollen by honey bees. NZ Journal of Experimental Agriculture 14:449-452
18. Hopping ME 1981 Kiwifruit males: Selection of superior clones. Processing of Kiwifruit Pollination Seminar MAF Tauranga: 21-25.
19. — 1982 Spray pollination of Kiwifruit possible by 1980. NZ Journal Agricultural Science 16(1):46-48
20. Ivens JET 1982 Kiwifruit Pollination. Development Finance Corporation of NZ. PO Box 3090, Wellington
21. Jay C, Jay D 1984 Observations of honey bees on Chinese gooseberries (kiwifruit) in New Zealand. Bee World 65(4):155-166.
22. McGregor S E 1976 Insect Pollination of Cultivated Crop Plants. USDA Handbook No. 496:62.
23. Matheson A 1986 Colony standards for kiwifruit pollination, NZ Beekeeper 189:20-22.
24. — 1986 Survey of Kiwifruit pollination hives in Nelson. NZ Beekeeper 189:23-24
25. Palmer-Jones T Cinch PG 1974 Observations on the pollination of Chinese Gooseberries variety "Hayward". NZ Journal Experimental Agriculture 2:455-458.
26. Sale P; Briscoe DA 1972 Chinese Gooseberry pollination. NZ Journal of Agriculture 125(3):49-51.



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. No box number available.

FOR SALE

15 Hives plus complete equipment for 25 hives apiary producing Honey, Pollen, and Propolis. Please phone Gisborne 87837.

500 HIVES FOR SALE: 2 boxes high — excellent condition. New Queens. Sites and kiwifruit-pollination available. \$100.00 each. Happy Bee Apiaries Ltd, PO Box 14066, Hamilton. Phone 071 244 700.

For Sale or Lease, 650 hives, kiwifruit pollination, work and retail honey outlets, potential and equipment for 800 hives. 3 ton truck also available. Enquiries: ph Peter Lamb 83145 Gisborne.

Several complete Beekeeping Operations in North Eastern Saskatchewan, Canada, including Beehives, Buildings, production and Processing Equipment. Also additional Brood Chambers and Honey Supers available for sale. Contact Ken Childs, Agricultural Credit Corporation of Saskatchewan, Box 1480, Tisdale, Saskatchewan SOE 1T0, or call (306) 873-2693.

SITUATIONS VACANT

HAPPY BEE APIARIES have a position vacant from August 1988 to March 1989, involving Bulk Honey Production and Berry Fruit Pollination. Must be between 25 to 36 years old, with previous beekeeping experience and hold a current Heavy Traffic Licence. Apply: Happy Bee Apiaries, Box 14066, HAMILTON.

HONEY COCOA SYRUP

1 1/4 cup cocoa
1 cup sugar
1/2 teaspoon salt
1/8 teaspoon ground allspice
1/8 teaspoon ground cinnamon
1 1/2 cups boiling water
1/2 cup honey
2 teaspoons vanilla extract

• Combine cocoa, sugar, salt, and spices. Add boiling water. Blend. Place over low heat, bring to a boil and boil 5 minutes, stirring constantly. Remove from fire. Cool. Add honey and vanilla. Store in covered jar in refrigerator until ready to use. Approximate yield: 2 1/4 cups.

To serve: Heat 1/4 cup Honey Cocoa Sirup with 2 cups scaled milk over boiling water. Before serving, beat with rotary beater. Yield: 3 servings. Honey gives this sirup an unusual smoothness and a delicious flavor in addition to extra food value.

OTHER PUBLICATIONS

INTERNATIONAL BEE RESEARCH ASSOCIATION (IBRA)

IBRA is a charitable trust providing scientific and practical information on bees and beekeeping worldwide. All members receive BEE WORLD. For full details of IBRA services and Membership contact: International Bee Research Association, 18, North Road, Cardiff CF 1 3DY, UK, Tel: (0222) 372409 or (0222) 372450 (ansaphone), Telex: 23152 monref G 8390.

THE SPEEDY BEE

Keep up with the latest in the United States beekeeping industry with reports of meetings and developments from The Beekeepers' Newspaper. Published monthly. \$20.00 per year (mailed First Class). Write for air mail rates. The Speedy Bee, P.O. Box 998, Jesup, Georgia 31545 USA. Write for free sample copy.

THE APIARIST

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.

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: R30.00 per annum, payable in advance in South African Rands. Apply: The Federation Secretary, P.O. Box 4488, 0001 Pretoria, South Africa.

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.

FARMING UNCLE

Magazine for homesteaders! Covering small stock, gardening, bees, and much, much more. Free information or \$US8.00 one year (\$US12.00 foreign). Money-back guarantee! Farming Uncle, ®, Box 91E92, Liberty, N.Y. 12754, USA.

OTHER PUBLICATIONS

SCOTTISH BEE JOURNAL

Packed with practical beekeeping. \$4.80 a year from the Editor, Robert N. H. Skilling, F.R.S.A., F.S.C.T. 34 Rennie Street, Kilmarnock, Ayrshire, Scotland.

BRITISH BEE JOURNAL

Monthly — Single copies 22p plus postage. OVERSEAS: Annual subscription 4.20 sterling or \$18.40 post paid. Keep up to date by taking out a subscription now from us at — 46 Queen Street, Geddington, Northans, NN14 1AZ, England

GLEANINGS IN BEE CULTURE

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.

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 representatives for New Zealand, Andrew Matheson, MAF, Private Bag, Tauranga or Peter Brunt, Nelson Polytechnic, Private Bag, Nelson, or from International Bee Research Association, 18 North Road, Cardiff CF1 3DY, UK.

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.

AMERICAN BEE JOURNAL

Subscribe now to the oldest bee magazine printed in the English language. Amateur, professional and scientific news makes ABJ an attractive buy for any beekeeper. World-wide crop and market page an outstanding feature. The American Bee Journal is the largest monthly apiculture magazine in the world. Enquiries to American Bee Journal, Hamilton 1U.62341 USA.

NATIONAL BEEKEEPERS' ASSOCIATION

Promotional items for sale

Pamphlet "Bees and Honey"	22 cents each
NBA Pens "Honey You're Sweet"	\$5.06 per box members
	\$5.50 per box non members
Stickers "I Love my Honey"	\$2.75 per box
Trees for Bees Posters	55 cents each
Trees for Bees Tags	\$3.30 (box 100)

BOOKS

Practical Beekeeping in N.Z.
by Andrew Matheson

\$17.60

Nectar & Pollen Sources
of N.Z.
by R.S. Wash

\$2.20 members

\$2.75 non members



NEW

Recipe Sheets

20 cents each

Honey Bear & Bee Stickers

Honey Bear & Bee Mobiles

(price to be advised)

Available from

Jan Chisnall "Maungatai"
R D Greta Valley

—OR—

Jacqui Ashcroft
Ashcroft Honey House Ltd
P.O. Box 461 Havelock North

PLEASE NOTE
Prices include GST but
PLEASE ADD POSTAGE

