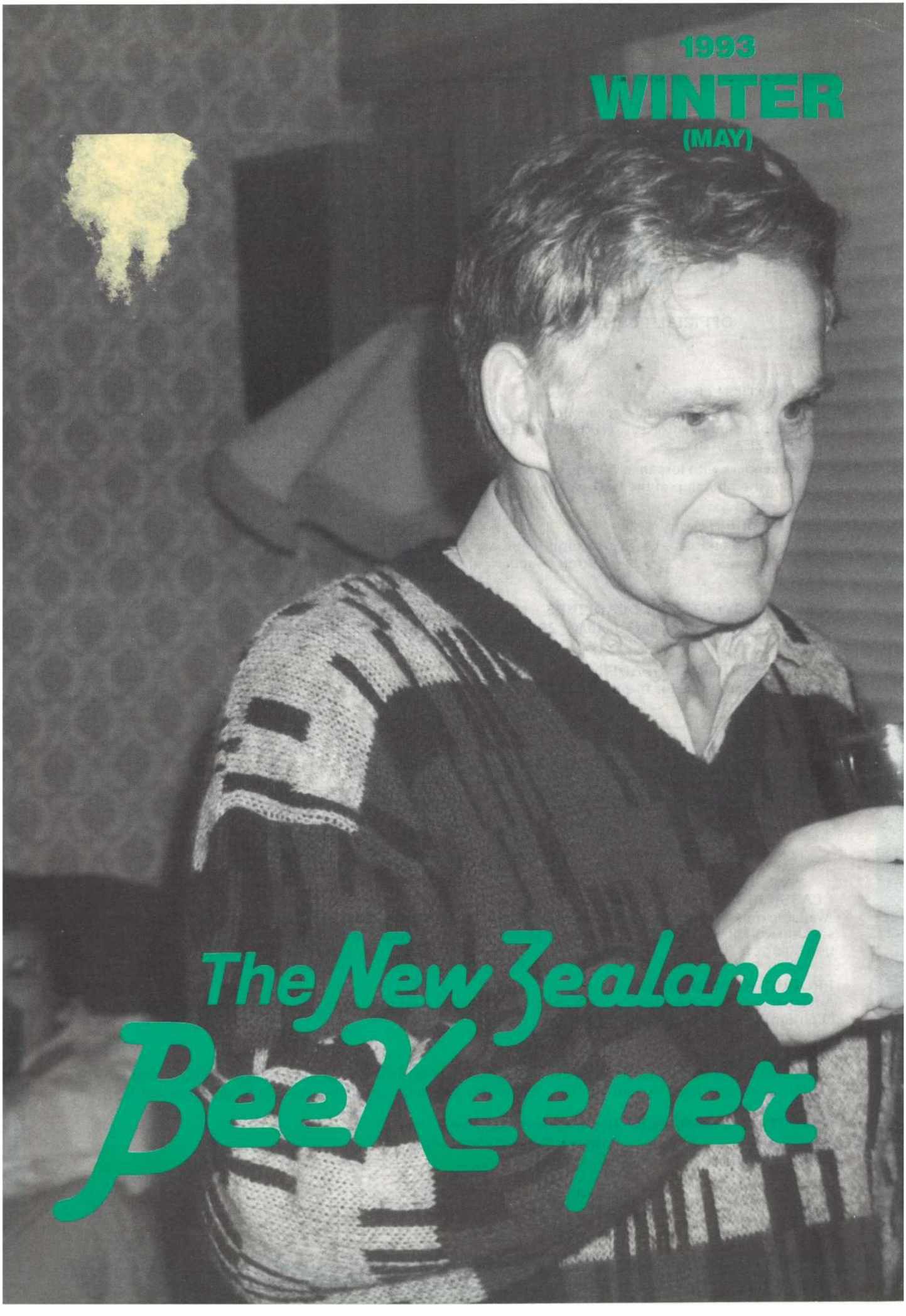

1993
WINTER
(MAY)

The New Zealand BeeKeeper

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.**

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POSITIVE ATTITUDES

From Ham Maxwell

One of my aspirations upon entering beekeeping was to become a commercial beekeeper. Naturally I looked around to find a role model. The fact that I'm still looking after some years leads me to wonder if a worthwhile role model exists.

Now one of the principals upon which any successful enterprise must be based is the outlook of the partners. A study of commerical beekeepers over some time has led me to the conclusion that they have no positive outlook. Negative, yes, decidedly so. In fact, so negative that anyone looking for positive reinforcement about beekeeping would be sadly disillusioned. Prices have never been poorer, marketing prospects have never been gloomier, costs have never been higher, and the introduction of proposed levies will be certain to doom the industry to total oblivion.

For any industry to survive product knowledge, from husbandry through manufacturing to marketing is essential. To gain a proper understanding in any field usually requires study, both theory and practice. Older beekeepers have seldom devoted time to theory, and excuse this by claiming lack of formal training. In the next breath they will claim that no amount of theory can make up for a good dose of practical 'hands on' learning. The fact that theory alone cannot make a successful practioner in most fields is readily agreed. Conversely lack of theoretical knowledge can result in serious delays in successfully marketing a product. A merger of both elements is essential. Time is an expensive commodity, and no industry endeavouring to compete on world markets can afford to take an inordinate time for its practitioners to "learn by doing".

Ongoing research is vital if any industry is to survive. Each beekeeper, in his or her own way, is a researcher, striving to increase yield, better bee temperament, colony management, disease resistance, and purity in the final product. The ability to share the knowledge gained is, however, where they do themselves and the industry a disservice. Remaining tight lipped about an advance they have engineered, or stumbled upon, may be fine where commercial advantage is to be gained, but failure to communicate can often cause inordinate delays within the industry. The need to communicate advances is vital, and the sooner the better. Lack of formal education need not be a barrier. And sensitivity to criticism must be overcome.

Too often, in gatherings of beekeepers, the scorn of the few is heaped upon the advertised activities of those dedicated souls who have a genuine desire to promote the industry. Derision is usually the method adopted. Is this perhaps a cover up for the rising awareness of serious deficiences in their own beekeeping? There are no greater enemies than the enemy within; those who not only do not want you to learn, but are determined that they themselves will not learn. Sadly beekeeping has an inordinately large number of such people. Ready and willing to be quick off the mark with scorn, slow and unwilling to discuss rationally, participate actively, and promote positively.

The need to be of a scientific bent is of little importance, compared to the genuine desire from within to get out of your shell and go looking for projects designed to improve not only your beekeeping, but also that of those around you. Start small by making observations of your hives' activity, or should you be more practically oriented, design and test out equipment which makes your handling of the hives more comfortable and enjoyable. Easing the strain on your back is a major factor which could be of inordinate assistance to thousands of other beekeepers. Ultimate marketing of such a product could prove rewarding.

Ideas are as varied as the personalities of beekeepers. Think about the people who make up the fraternity in your area. Who among them stands out as a "character", then think about why this is so. Is the label a result of capriciousness, dogged determination, blind obedience, or just plain inquisitiveness? Discard those who have nastiness as a motivating factor and you are usually left with a core of enthusiasts, eager beavers, keen to adopt new ideas on the basis of "it might work"! So adopt a positive attitude to your own beekeeping, the beekeeping of others, their hopes and aspirations, and the beekeeping industry as a whole. Who knows what the results may be, but at the very least, "it might work".

Dear Sir,

In the autumn 1993 issue of the New Zealand Beekeeper David Yanke described on page 9 of his brilliant article, a participant-funded breeding program maintaining and improving, in parellel both Italian-type and Carniolan bees.

I would like to ask you or David Yanke (I dont have his address) if you know a Carniolan beekeeper, who is selling queens in March.

Dr Chr.Kruger
Helmstedter Str.8
D-1000 Berlin 31
Germany

Copy sent to David Yanke.
Editor.

Dear Sir,

Recently we learned that the main beekeepers of NZ are obliged to pay enough in Hive Levy to accommodate the so-called other beekeepers (who more than likely have other income) with 50 hives or less.

This to us is most unacceptable and it is high time, NZ beekeepers all started to pay their way. In fact we would go so far as to say, the beekeeper with less than 50 hives, should pay twice as much because in the main he or she can be more of a problem than he or she is worth.

Lynley March (Mrs)

Dear Sir,

With reference to the caption about the 1925 Greymouth Conference on page 15 of Autumn 1993 edition of 'The New Zealand Beekeeper', I wish to advise that 'Ecroyd' is, and has always been spelt 'ECROYD' and never 'ECKROYD'.

Stuart Ecroyd

Sorry but this is the kind of typographical error which besets all editors. We try hard but they continue to sneak up on us.
Editor.

Dear Sir,

My name is Bezik Torgambrev. I am a 30-year-old man who has worked with honey bees for almost 12 years. My experience includes honey production, both extraction and comb, queen rearing, pollination for various crops, producing package bees, and collecting bee venom for commerical use.

Now I wonder if through your column I might ask if anyone in New Zealand can offer me a job as a seasonal worker? I am very interested in New Zealand and will do my very best for anyone who would be kind enough to employ me.

Bezik Torgambrev
Russia 125422
Moscow A-722
D/C Tourandaeby 5.M.

Dear Sir,

Hello to New Zealand from the U.S.A.

I found an advertisement with the name and address of your publication "The New Zealand Beekeeper". My husband is a retired beekeeper and over the years I have been collecting honey pot's and other honey and bee related items. Now that I am retired I am organizing an International Honey Pot Club. I wonder if any of your subscribers are collectors? I would love to hear from anyone interested. We have a good start but we want members from all over the world.

Our aim to preserve the pots and to gain knowledge about the history of them.

Betty Ramsey
4455 Nevada St
Salem, Oregon 97305
USA

American Foulbrood Disease Part II: Subclinical Infections

By R.M. Goodwin, J.H. Perry, & H.M. Haine
Apicultural Research Unit, Ruakura

The disease control strategy that most beekeepers in New Zealand use for their own beekeeping outfits, either knowingly or unknowingly, has been traditionally based on the following assumption;

If you inspect a colony and don't find larvae with obvious American foulbrood disease symptoms then the colony does not have American foulbrood disease.

If no disease is found, the next step is often to perform hive manipulations that could spread the disease to another colony if it was present. There are obvious problems with this scenario.

Firstly, most beekeepers do not usually perform complete brood checks (i.e. every brood frame in a hive is not examined for larvae exhibiting disease symptoms). The reasons for this are obvious considering the large amount of time that a complete brood check takes. It is common practice to inspect only three brood frames (often in the top super) with some beekeepers only inspecting a single frame. If there is only one diseased larvae in a hive with 12 frames of brood there is a 75% chance of it being missed if only three frames are checked. There are therefore problems in assuming that a hive is disease free based on an incomplete brood inspection. The simple solution to this problem would be to inspect every brood frame, but in most cases this is simply not practical.

However, even a complete brood inspection cannot guarantee a colony is free of American foulbrood disease. Colonies can contain American foulbrood spores but not exhibit any visual symptoms of the disease, so that even if you inspected every brood frame carefully you would not identify such a colony as having American foulbrood disease. When we conducted a survey of commercial beekeepers with Amercian foulbrood problems, we tested a large number of colonies for the presence of *Bacillus larvae* spores (Table 1). The colonies that tested positive received a complete brood check either by the beekeeper (Beekeepers C, D, E and G) or by us (Beekeepers A, B, and F). Only 26.4% of the colonies that tested positive for the presence of *B. larvae* spores contained larvae exhibiting American foulbrood symptoms. Therefore, most colonies that contained *B. larvae* spores did not exhibit visual symptoms of American foulbrood disease.

TABLE 1

Number of colonies tested, percentage (%) that tested positive and the percentage found to contain larvae exhibiting symptoms of American foulbrood disease.

Beekeeper	Hives	% Positive culture tests	% of positive hives with diseased larvae
A	400	9.3	35.1
B	422	81.8	28.9
C	200	10.0	5.0
D	200	6.5	15.3
E	200	24.5	18.3
F	200	0.5	0.0
G	200	6.0	8.3
Total	**1822**	**26.2**	**26.4**

Before the waters get too muddy we have to answer the question of what constitutes a diseased colony or larva. At this point we will ignore legal definitions or definitions of convenience and use a dictionary definition. This is important as the definition needs to assist in the control of American foulbrood disease.

The presence of B. larvae spores in the gut of larva does not necessarily mean that a larva is diseased. A larva is not diseased until the B. larvae bacteria are

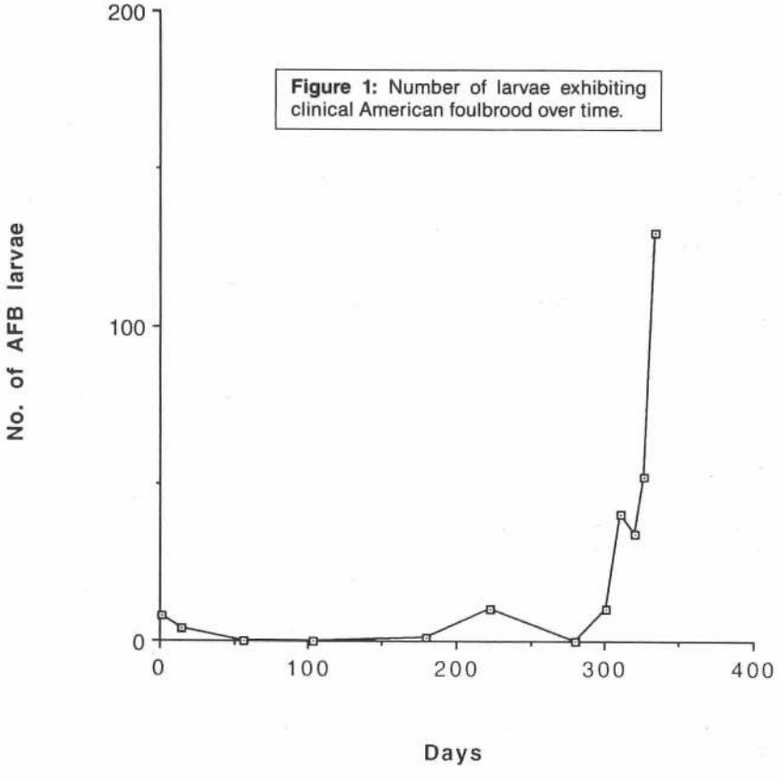

Figure 1: Number of larvae exhibiting clinical American foulbrood over time.

having adverse effects on it. Likewise the presence of spores inside a hive does not mean the colony is diseased. The colony is not diseased until it contains a diseased larva.

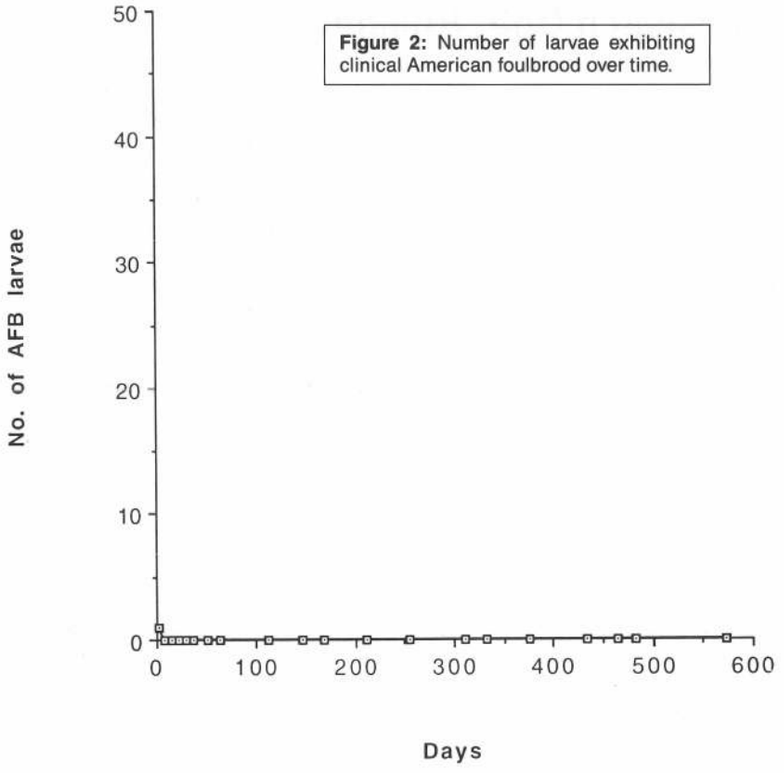

Figure 2: Number of larvae exhibiting clinical American foulbrood over time.

There are therefore three possible states:

1. *B. larvae* is present in a hive but causing no ill effects on any of the larvae (contamination).
2. *B. larvae* is adversely affecting at least one larva but the disease is not apparent to an observer (a subclinical infection).
3. *B larvae* is adversely affecting larvae and producing visible symptoms of American foulbrood disease (a clinical infection).

The presence of *B. larvae* spores in a contaminated colony, or one with a subclinical infection, can only be detected by allowing the bacteria to multiply on culture plates until the colonies are large enough to be identified. If spores are present in a hive and there is no clinical infection it will probably be for one of two reasons. The first is that the bees are not coming into contact with the spores and are not feeding them to larvae e.g. the spores may be sealed under the cappings of a frame of honey. However, more likely, the spores are being fed to larvae but not in sufficient quantities to cause the disease. *B. larvae,* like many pathogens, often needs more than one spore to be fed to a larva to cause the disease. The more spores that are fed the greater the possiblity that an infection will occur[1].

The presence of spores in a colony is, however probably indicative that either the colony is diseased, or a colony in the vicinity is diseased.

Subclinical infections occur at an individual larval level and at a whole colony level. Infected larvae do not show clinical symptoms of American foulbrood disease till they are an average of 12.5 days old. Therefore, the disease will remain subclinical for the first 12.5 days.

Many beekeepers are probably familiar with the symptoms of subclinical infections that occur on a whole colony level. Having found a colony with only a couple of diseased larvae, beekeepers are sometimes tempted to check through the colony again when they are going to destroy it. At this stage they are often unable to find any symptoms of the disease. The disappearance of the disease symptoms is probably due to the bees' hygenic behaviour. House bees will remove diseased larvae. In one trial it was demonstrated the 50% of the diseased larvae were removed before the larvae were 11 days old[2]. A colony may be diseased, but the larvae may be removed fast enough so that, when the beekeeper looks into the hive, all he sees is the empty cells where the diseased larvae used to be. Thus American foulbrood may give rise a patchy brood pattern. However inbreeding, failing queens or removal of larvae killed by other diseases such as sacbrood or chalkbrood can also give rise to a patchy brood pattern.

The presence of subclinical infections can be demonstrated dramatically if you look at the disease history of individual colonies that were kept after American foulbrood disease was first detected (Fig 1). This colony was diagnosed as having American foulbrood disease by a visual inspection. The length of time that it was diseased before the diseased was first diagnosed is unknown. As you can see it exhibited no further visual symptoms of the disease for a considerable period of time after American foulbrood disease was first diagnosed. If you had inspected this colony during that period you would have failed to recognise it as having American foulbrood disease. Adult bees from the colony tested positive for the presence of *B. larvae* spores during the period of time that it did not exhibit any clinical symptoms. Whether the colony had a subclinical infection during the time that it exhibited no clinical symptoms of the disease or was reinfected with spores stored in the hive is unknown.

Contrary to what is suggested in some quarters, colonies will not necessarily die out if they become infected with American foulbrood disease. Some colonies will recover from the disease completely (Fig 2). We will never know how many colonies become lightly infected (a couple of diseased larvae) and recover without ever being diagnosed as having American foulbrood disease.

It is possible to get an idea from the number of spores being carried by adult bees as to whether a colony is diseased or will become diseased in the near future. We have tested samples of 30 adult bees from approximately 3,000 colonies for the presence of *B. larvae* spores over the last 2 years. Where spores were present, we counted the number of bacterial colonies growing on the plates to gain an indication of the number of spores the bees were carrying. All of the colonies that tested positive and nearly 400 of those testing negative had every frame checked for diseased larvae. We then related the number of *B. Larvae* colonies growing

on the plates to the occurrence of visual disease symptoms within the colonies (Fig. 3). From this you can see that the more spores that the bees are carrying, the greater the likelihood that the colony will exibit clinical symptoms. Several of the colonies that tested negative were later diagnosed as having American foulbrood disease by further visual examinations. Whether this was due to errors in the plating or the colonies becoming infected in what was often two to three months between sampling bees and the colonies receiving a visual examination, is unknown.

Conclusions

Not only is the assumption of freedom from disease incorrect if you do not conduct a complete brood check, even a complete brood check is no guarantee of the absence of American foulbrood spores or diseased larvae. You need to consider this when you are about to take a frame of brood or honey from one colony to place in another. You may be spreading American foulbrood disease.

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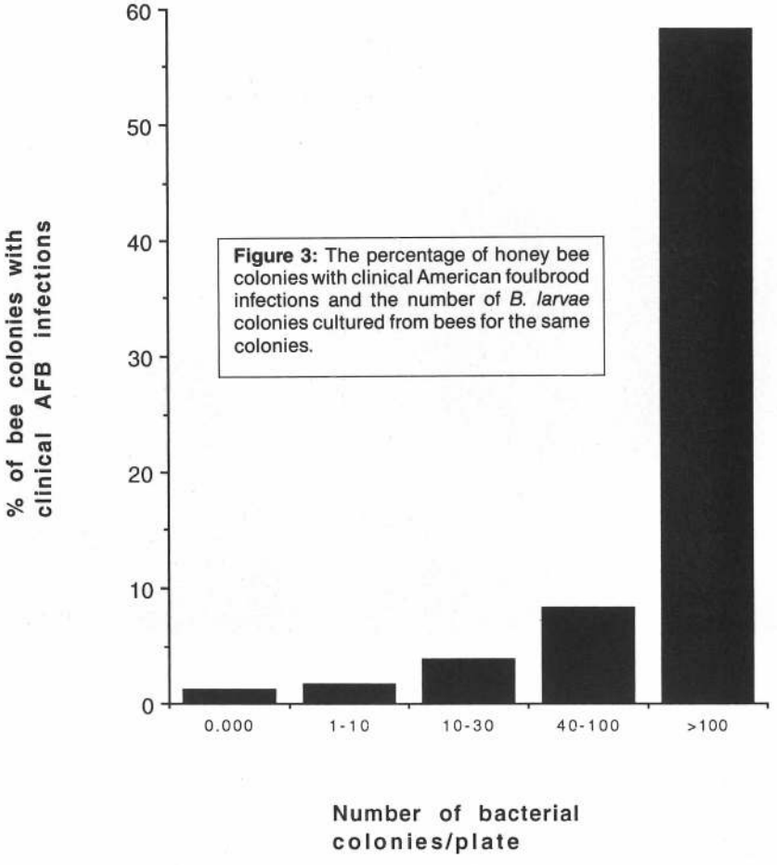


Figure 3: The percentage of honey bee colonies with clinical American foulbrood infections and the number of *B. larvae* colonies cultured from bees for the same colonies.

A SIMPLE TEST FOR NOSEMA DISEASE

Louise Malone, Catherine McIvor, and Helen Giacon

From left: Louise Malone, Catherine McIvor, and Helen Giacon.

Have you ever wondered if your bees have nosema (or "no-see'em") disease?

This virtually symptomless disease is very common in New Zealand and can reduce your bees' honey production by up to 25% (Goodman *et al.*, 1990). Nosema-infected bees don't pollinate as well or live as long as healthy bees (Anderson and Giacon, 1992; Bailey, 1981), but even so, they don't look any different from healthy bees.

A tiny protozoan called *Nosema apis* is responsible. It multiplies in the gut tissue of an infected adult bee so that its digestive tract eventually resembles a lumpy bag of nosema spores and the bee dies an early death. Unfortunately nosema spores are only six thousandths of a millimetre long, so you can only see them with the help of a powerful microscope. For most beekeepers this means sending a sample of bees to MAF for examination.

For those who would like to know the nosema status of their hives, but don't have access to a microscope or aren't sufficiently concerned to send away a sample for diagnosis, we have developed a simple nosema test.

The test is based on two principles: 1) some biological stains will colour bee tissues but not nosema spores, and 2) when in water, nosema spores will settle to the bottom of whatever container they're in. If there are enough spores and the container has a pointy bottom, you will be able to see them as a whitish pellet, especially if the contrast has been improved by colouring the water with a dark stain.

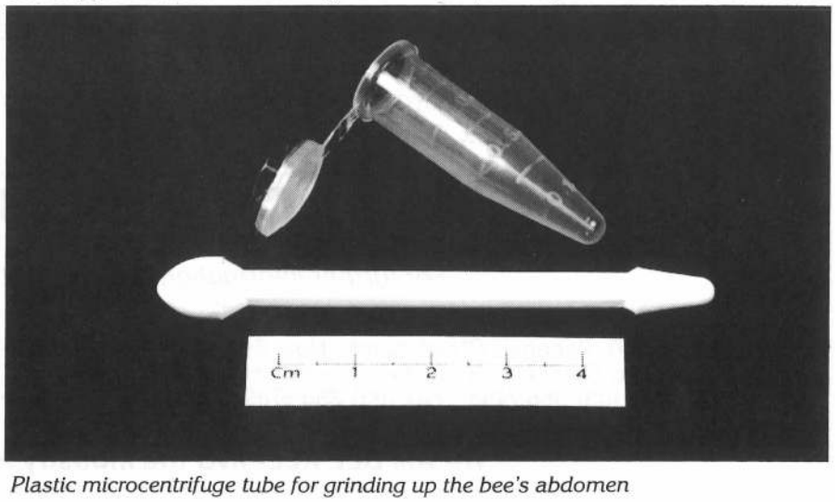
The following equipment is required for the test (Fig. 1): plastic 1.5ml microcentrifuge tubes (ten per hive) (Costar brand, available from GIBCO BRL, P.O. Box 15-202, Penrose, Auckland), a teflon pestle (available from Labsupply Pierce, P.O. Box 34-234, Glenfield, Auckland), some nigrosin stain (Sigma brand, from Salmond Smith Biolab, Private Bag, Northcote, Auckland), a rack to stand the tubes in (a block of wood with holes drilled in it would do), a small bottle for the stain and an eyedropper. The stain comes as a powder; you should make a saturated solution of it by dissolving about half a teaspoonful in about 100 ml of water. Some approximate current costings are: tubes, 11c each; teflon pestles, $6 each; nigrosin powder, $18 for 25g (this will last for many tests).

To perform the test, take ten live adult bees from each hive, kill them by freezing, then pull off the abdomens and place them each in a separate tube. (You can discard the head, wings and legs.) Using the eyedropper add enough water to half-fill each tube and then grind the abdomen with the pestle until it has completely disintergrated. Any large pieces of bee cuticle can be removed with the pestle. Add more water so that each tube is nearly full, then add two drops of the nigrosin solution. Cap the tube and invert it to mix then leave it standing in the rack overnight. Make sure that you scrub the pestle thoroughly with soapy water after each tube.

Test results are read the next day by carefully holding up the tubes and looking directly at the bottom of the tube. A grey deposit or pellet at the bottom indicates that the bee had a nosema infection. There will be no grey deposit, only the black liquid, in tubes prepared from healthy bees (Fig. 2).

The size of the deposit gives an idea of the severity of infection. Heavily infected bees produce large grey pellets which may completely cover the bottom of the tube; bees with lighter infections produce only a small grey dot.

It may be more convenient to collect a handful of bees and process them as a pooled sample by crushing them in water in a small seal-top plastic bag, dispensing the mixture into tubes and



Plastic microcentrifuge tube for grinding up the bee's abdomen

then adding the nigrosin and processing as above. Bear in mind however, that this method is less accurate than the individual method and it will not tell you as much about the severity of infection.

For a faster result you could spin the tubes in a centrifuge if you have one or make a centrifuge rotor attachment for an electric drill (Fig. 3) and use that. About a minute of spinning is sufficient and then the result can be read in the usual way.

Once you have determined the nosema status of your hives you have a number of options open to you. You may want to get a more accurate diagnosis by sending a sample to MAF, and we would especially recommend this if you are breeding queens or raising bees for export. If the nosema infections seem heavy and/or widespread you could treat the affected hives with fumagillin (also called Fumidil-B) and then re-check later to see if it has worked. If infections are light or occur only in certain hives you could try moving those hives to a drier, sunnier position and then re-checking. Nosema levels tend to be higher in spring and autumn, so sometimes the problem will sort itself out with time. It would be a good idea to check your hives at different times of the year, to gain a picture of how nosema varies with the seasons in your apiary.

ACKNOWLEDGEMENTS

We thank the Honey Industry Trusts for funding initial studies of the reactions of nosema-infected bees to various biological stains. We are grateful to Dr Peter Wigley for his idea of the portable centrifuge rotor and to Mr Don Hancock for making the prototype.

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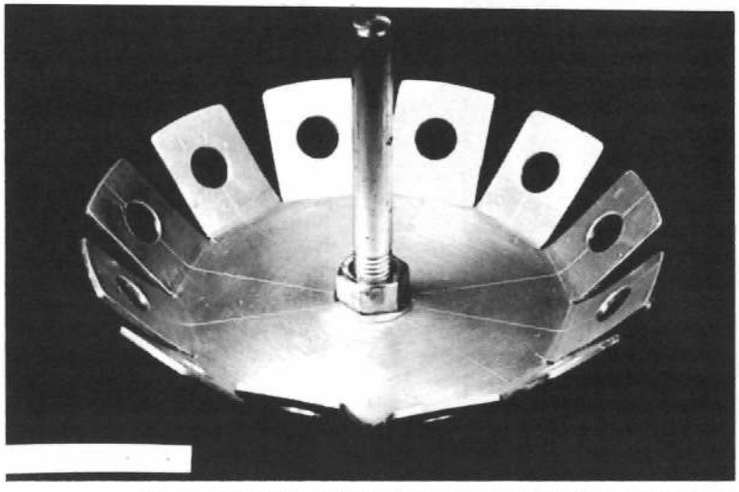
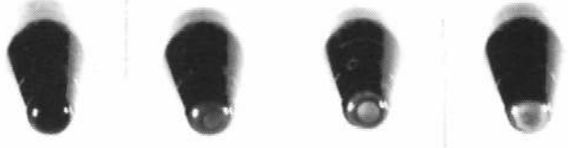


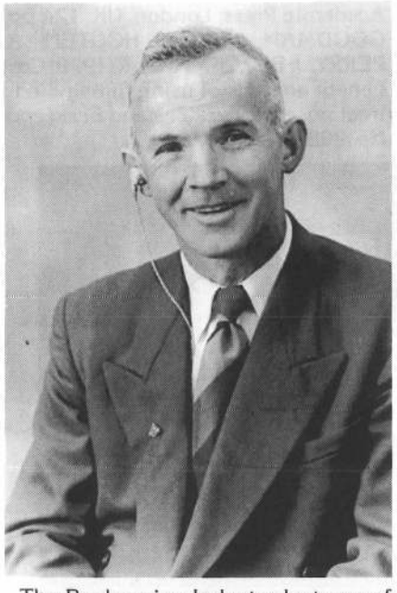
Above: Fig III A portable centrefuge rotor to fit a cordless power drill made from aluminium sheet 2 mm thick, its overall diameter is 140 mm and the holes have a diameter of 10 mm. The shank is bolted on and has a diameter of 10 mm.

Below: Fig II View of bottom of tubes after test has been carried out for (from left to right) a healthy bee, light-medium, and heavily infected bees.



THE LATE J.W. (JACK) FRASER 1919-92

By Don Stedman



The Beekeeping Industry lost one of it's more colourful past Presidents and Life Members with the death of J.W. (Jack) Fraser.

Jack, born in Invercargill in 1919, was educated at Ryal Bush Primary School and Southland Boys' High School and then entered Dunedin Teachers' Training College. While at College he played rugby for the Otago Junior Team. After graduating from college he took up his first teaching position at Riverton School. He was involved in rowing while living there. When war was declared in 1939, Jack volunteered for the Armed Services and went overseas with the 23rd Battalion in the 3rd Echelon, arriving in Egypt as Greece and Crete were being evacuated. He was wounded at Capuzzo and was invalided back to New Zealand on the first hospital ship in 1941.

After convalescing he returned to teaching, taking a position at Glenorchy in 1943. While there he met Gretta Glasson the dental nurse, when she arrived on one of her bi-annual visits, which lasted a fortnight at a time, and they were married in Napier in 1945. He then taught at Gummies Bush until the end of 1945 when he moved back to Glenorchy. In 1947 he approached the Late Bill Herron and asked to be taught about commercial beekeeping. After six months tuition with Mr Herron, Jack returned to his father's property at Ryal Bush where he set about establishing a home and a beekeeping business. He built himself a house with the help of his father and brother. The house took 11 months to build. Meanwhile Jack and Gretta lived in a tent with their two children and Gretta did the cooking at her mother-in-law's house. Jack liked to get up at 5am and work in his garden, before tending the bees. This was his practice for many years.

Jack's connection with teaching gave him the background to debate, a talent which stood him in good stead when he was elected to the NBA Executive at the Wellington Conference in 1953. He served on the Executive for nine years, including three as Vice-President and four as President. While on the Executive he was appointed NBA Representative to the HMA, and involvement which lasted for sixteen years. Four of these years were by appointment, the remainder as an elected member. Five of those years were as Chairman. A formidable record indeed.

Many of us remember Jack debating a topic. His hearing aid, either by accident or design, would go on the blink so that he was unable to hear interjections and would therefore carry on to make his point. So strong were Jack's points of view, and his power of debate, that he was often described as a miniature "Pocket Battleship". A very apt description as he contained a terrific amount of energy and tenacity in a comparitively small compass.

His great service to the industry was recognised when he was elected to Life Membership of the NBA at Conference, Palmerston North, in 1974.

During his beekeeping years Jack maintained his interest in education with his involvement in school committees and the High Schools Board, on which he served for sixteen years, several as Chairman. He also maintained a keen interest in RSA Affairs, primarily at the Lorneville Branch.

Aged sixty, Jack retired from beekeeping and pursued his passion for the outdoors at Manapouri, where he spent a few weeks every winter catching opossums and, in the season, fishing from his beloved boat, the Anna Lee.

Jack contracted Parkinson's Disease and passed away peacefully on 5 September 1992, aged 73 years. He is survived by his wife, three daughters and two sons.

LIBRARY NOTES From John Heineman

At the Southland field day a carton of magazines and IBRA reprints were given to the library by Tony Glissold (thanks Tony). It enabled us to fill some gaps in volumes and the following items should be added to the catalogue:

IBRA reprint M52, F. Ruttner: Methods of Breeding Honey Bees; intra-racial selection or inter-racial hybrids. 7 pp., 1968, Germ.

IBRA reprint M56. K. von Frish: The foraging bee; 1969, 12pp., Germ.

IBRA reprint M89. O.R. Taylor: The past and possible future spread of Africanized bees in the Americas. 12pp., 1977, USA.

IBRA reprint M84. L. Bailey: Recent research on Honey Bee viruses. 10pp., 1975, UK.

IBRA reprint M81. K.M. Doull: Recent research on the use of pollen supplements 3pp., 1974, Australia.

With the compliments of Murray Reid a three-part article published in the American Bee Journal June, July and August 1992:

STRATEGIES FOR THE PREVENTION AND CONTROL OF AMERICAN FOULBROOD by Andrew Matheson and Murray Reid.

Many of us know these two authors for their thoroughness when involved in writing or discussions. This article bears witness to that attribute. Distribution, methods of identificaion, development and transmission, control methods, disinfecting of contaminated equipment, factors affecting incidence, legislation and strategy for prevention and control both inside New Zealand and elsewhere are discussed.

A small group of Southland and Otago beekeepers formed "The Bee Breeders Syndicate" some decades ago with the aim of assisting the establishment of a queen breeder and then having the right of preferential supply of the queens produced. The syndicate has passed on and at a final meeting members present voted unanimously to close the account and give the balance to the library fund. A nice gift of $157.00

LIFE MEMBER IVAN DICKINSON

Ivan Dickinson's involvement with the beekeeping industry goes back to 1957 when he helped a small commercial beekeeper in Balclutha at weekends. From there, he says, his interest grew like Topsy.

In those days commercial beekeepers were reluctant to share their knowledge and ideas. In fact, it was a challenge to see inside someone else's operation. Ivan believes that for progress in an industry as small as ours it is essential that ideas, theories, and political views be shared. This is perhaps more difficult for beekeepers than in some industries because many work in isolation and tend to lose themselves in the little worlds of their own bees.

Ivan served on the NBA Executive for 10 years, from 1972 to 1976 as President. As President he survived the odd crisis. One that springs to his mind was that when the Association became insolvent and he spend several sleepless nights until the then Minister of Agriculture decided to increase the Association's grant from the seals levy.

Another crisis Ivan remembers was during the lead-up to the demise of the HMA in 1981. As its Chairman, he had an injunction served on him. That was a worrying time for all concerned. Fortunately it was eventually resolved by negotiation and with the minimum of legal agro. At such times Ivan has asked himself: 'What and I doing here?' But nothing is as bad as it seems, and with support from the industry and both sides of the political fence most problems, both major and minor were ironed out.

One thing Ivan has always insisted on, and that is the communication at all levels must be maintained. 'We all have opinions but we must always be prepared to listen to others' points of view and be prepared to consider them along with our own,' he says.

Something Ivan can be especially proud of is his involvement with Telford. Early in his executive years, and following a proposal from John Heineman, he endeavoured to develop a beekeeping cadet scheme. This failed through lack of support from the industry. However subsequently discussions were held with Telford and they asked Ivan to help them in setting up a course in beekeeping and a training unit with 500 hives. Beacuse of his interest and involvement he was invited to join Telford's Board of Management in July 1985 and so served until August 1992.

Where now for IJD? While he is currently in his second term as a director of the NZ Honey Producer's Co-op, he intends easing out of the commercial side in the not-too-distant future so he can do more tramping, boating, and fishing. The Milton Rotary Club runs guided freedom walks along the Milford track and Ivan serves as one of the guides two or three times a year. He finds that most relaxing and enjoys being out in the country and meeting people from all over.

Apart from that Ivan enjoys his civic duties. He is Chairman of the Tokomairio High School Board of Trustees and a member of the Clutha District Council. Recently he was awarded the QSM for services to Education and beekeeping.

Ivan has been grateful for many things, and to many people, during his long career as a beekeeper, but most of all he is grateful for the support given him by his wife, Merle, and his family. They have always been ready to offer a helping hand or a sympathetic ear to the woes of a beekeeper lost in problems far removed from the home.

BUZZING AND BUSSING

By Jenny Dobson

If you were in Northland over Christmas/New Year, you may have seen a large camper bus with bees on the side and 'Kereru Buzz Co' on the front. John and I, our four children and the dog were on the road exploring the far north and having a well-deserved holiday.

We live in rural Kereru, 50 km southwest of Hastings and nestled under the Wakarara and Ruahine ranges. It is open hill country, with wide views of the surrounding mountains and with manuka, clover and willow growing in abundance. Patches of native bush and gorse, broom, and thistles keep our bees well supplied with pollen.

It is almost nine years since we moved here with the dream of starting our own business and enjoying a country lifestyle. Things have not worked out exactly as we thought. We have not made $xxxxx by producing xxxx amount of queen bees with xxx amount of effort! We have however, found a happy country life, developed a diverse and interesting business, and managed to have some great holidays.

Currently we run 350 palletised hives and up to 1200 seasonal mating nucs. We produce honey (anything from 0-six tonnes per 100 hives) and supply some pollination hives, but we are mainly farming our bees for queen and cell production.

Some years we export queen bees but most of our production is for the New Zealand market. We supply queen bees to many hobbyist beekeepers who often appreciate some practical advice!

We have also developed a same-day queen cell service for commerical beekeepers, sending up to 5,000 cells around the North Island each season. This involved much travelling for us and some cells cover 550km before they reach their new hives. We use coachlines to transport the cells which are packaged in insulated polypacks. John often delivers cells into town on his 'courier' bike: a Honda GL400 which he dreams of upgrading to a 1000cc BMW K100 one day. At least dreams are free!

Soon after we started producing queens. John decided he needed a better system of transporting queen cells and after experimenting, devised a portable electronic incubator we named the 'Carricell'. It proved so successful that we began to market them and the Carricell is now well known around New Zealand. It is a product he is proud of and we have recently sold some overseas: a market which could have big potential.

I mentioned that our business is diverse, in fact as well as buzzing it is bussing. At first John supplemented our income by driving the local school bus and when runs were tendered a few years ago, we won two contracts. The run for our own school is one of the longest in Hawkes Bay. We drive 140 km a day along the base of the Ruahine Range. John and I take turns driving or employ a relief driver when our bees keep us too busy.

I have had to learn about checking oil, tyres, etc, and once when John was away working in town, really excelled myself mechanically. Our bus had been having distributor cap problems especially in the rain, and I had mastered the art of removing condensation and spraying with CRC. One morning the motor kept dying momentarily and finally, half way between home and the first pick up, it stopped completely. Investigating under the bonnet, I discovered the familiar distributor cap was broken right through. I saw a bundle of baling twine hanging in a nearby shed and being reasonably resourceful and, with the help of some girl guide knots, soon had the distributor cap securely trussed. I drove without further incident to the end of our run where I asked the mechanic who lived there to take a look. With a bemused expression he replaced my repair job with neatly applied tape. Needless to say, the bus would not go at all after that and we ended up transporting children to school in

parent's cars.

For the future we have been trialling royal jelly production and next spring plan to substantially increase our production of pollen. I am also expanding my range of handpainted beeswax candles. We had two employees working with us over the summer and now wonder how we managed by ourselves.

When we are not beekeeping or bus driving. John likes to go tramping with our children and I compose pub poetry and work out with aerobics. Our eldest daughter Amy is in the 7th form at high school and boards with my parents during the week. Emily, Joseph, and Laura attend Kereru School, a two-teacher country school which provides an excellent learning environment and has plenty of community support. I take singing once a week with both classes and John often drives the bus for school trips.

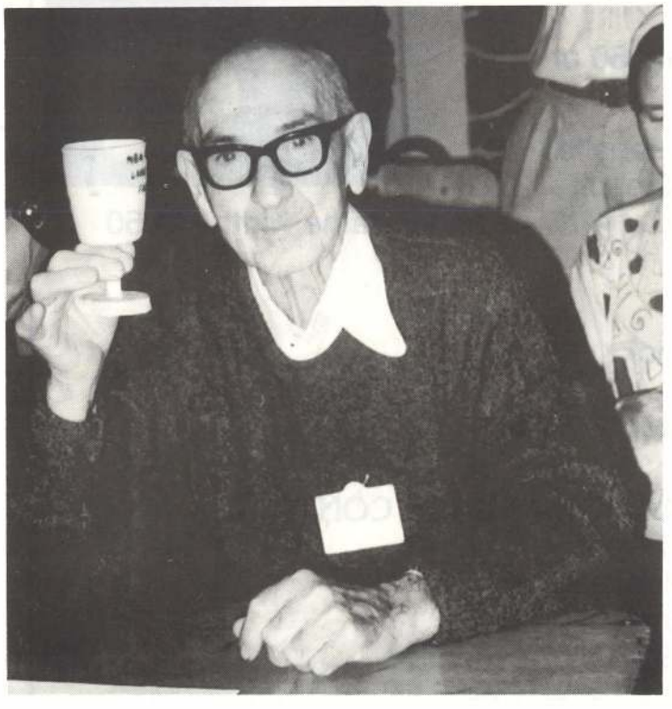
Next summer we may take the big 'Buzz Co' down the Wanganui River Road. That is another part of the country we would like to explore. Buzzing or bussing - one way or another we always seem to be on the go!

(On previous page) John and Jenny with their family. From left: Emily, 12; Jess; John; Jenny; Joseph, 10; Laura, 7; Amy, 16. Right: John with a Carricell.

A POT-POURRI FROM TH
AND BLENHEIM

Photos Mary-A

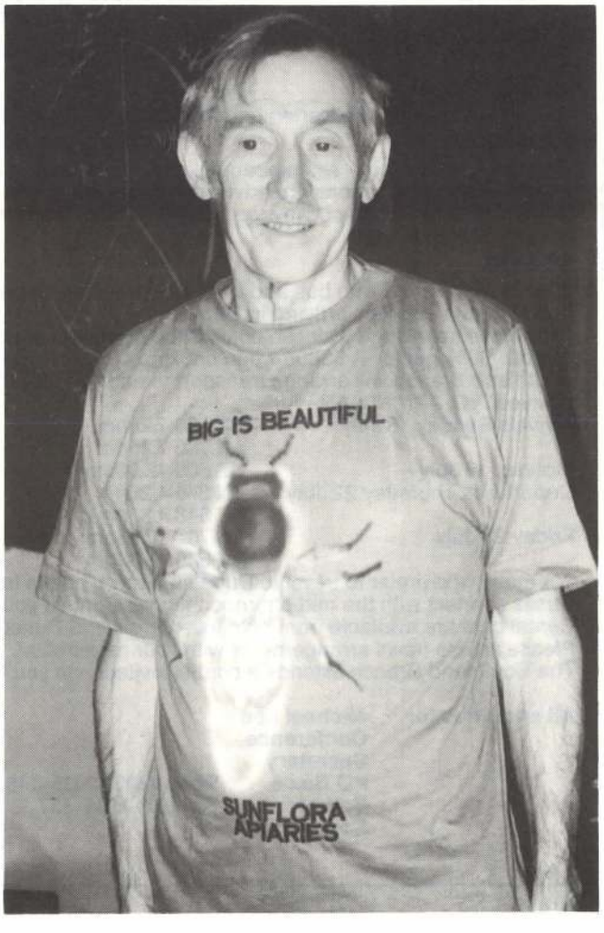
Above right: Listening to a speaker at Taranaki. Above: Stewart Tweeddale and Stan Young at Taranaki. Below left: Ron Stratford at Rotoiti. Below right: Blowing bees from honey supers at Taranaki.



E TARANAKI FIELD DAY 'S LAKE ROTOITI

Anne Lindsay

Above Left: At last we have Frances Trewby on camera! Above right: John and Merle Moffitt extracting the manuka crop. Below left: VIP, Sam, with Mary Anne Thomason. Below right: It pays to advertise.



NATIONAL BEEKEEPERS' ASSOCIATION 1993 CONFERENCE

AGM, CONFERENCE OF DELEGATES, AND SEMINAR

GORE JULY 19-22

VENUE: CROYDON LODGE, WAIMEA ST, GORE

NBA SEMINAR

CHANGING LEGISLATION AND REGULATION

- ★ Occupational Health & Safety
- ★ Employment Contracts
- ★ Export Certification
- ★ Honey bee biology

QUALITY

- ★ Total Quality Management
- ★ Food Safety
- ★ Quality assurance options
- ★ A beekeeper perspective

PROGRAMME:

Monday 19 July	Specialty Group meetings from 9.00am
	Dinner - set menu
	Social get together 8.30pm
Tuesday 20 July	NBA seminar 9.00am
	Ice skating 7.00-8.00pm
	Sponsor's evening 8.30pm
Wednesday 21 July	Special General Meeting 8.30am
	AGM and Conference 9.00am
	Partners' Bus Tour
	Conference Dinner and Dance
Thursday 22 July	Conference and AGM

COSTS

Social get together	Free first hour then own cost
Seminar	$25 includes light lunch, am/pm teas
Conference	$33 includes 2 lunches, am/pm teas
Dinner & Dance	$40 single
Partners' Bus Tour	Cost to be adviced

REGISTRATION

Please assist us by registering before 11 June 1993 on the form in this issue.

VENUE

Croydon Lodge, Gore - set in beautiful grounds including a 9-hole golf course. The special conference room rate is **$75.00.** Early reservations are advisable. Transport to and from other motels and camping ground in Gore will be available. Please contact Croydon Lodge direct for accommodation bookings.

Phone: (03) 2089-029 Fax: (03) 2089-252

TRAVEL

Gore is well served with bus and train services from all parts of the South Island. Southland Branch members will meet bus and train services arriving in Gore.

For those travelling by air two conference discounts are offered: 1. Air NZ - 25% quote Dom 1825/3 when booking, 2. Ansett - 30% quote TA 53868 when booking.

Southland Branch will arrange transport to and from Invercargill airport to connect with the following flights: (Cost to be advised). NZ - Arr N3; AN - Ansett.

Arrivals Sunday 18 July	NZ 539 7.20pm
	AN 733 7.25pm
Monday 19 July	NZ 509 12.00pm
Departures Thursday 22 July	AN 876 4.25pm
	NZ 548 4.35pm
Friday 23 July	AN 762 10.25am
	NZ 530 12.30pm

For those who prefer to travel to Dunedin airport, public transport to Gore is available with Intercity and Mt Cook Landline. Buses connect with the mid-afternoon flights. Contact your travel agent for details.

Rental cars are available from both Invercargill and Dunedin Airports.

Please advise travel arrangements with your registration.

The Southland Branch extends a cordial invitation to you to join us at the 1993 annual conference.

All enquiries to: **Michael Lee**
Conference Secretary
PO Box 5 **Phone (03) 2016-345**
Balfour **Fax (03) 2016-457**
Southland

This year's conference is in Gore - the centre of Southland beekeeping, from July 19-22.

You are assured of a warm welcome at Croydon Lodge with its excellent facilities and friendly helpful staff. Southland Branch members have been burning the midnight oil to ensure that all their visitors will be excited, stimulated, educated, and satisfied by the seminar speakers and conference activities.

Travel to Gore via either Dunedin or Invercargill - for the adventurous spirits amongst you we can arrange the last leg of the trip in a vintage Dominie or Tiger Moth.

Gore is within easy reach of southern skifields around Queenstown, the Catlins coast, Fiordland (try a trip to Milford Sound with the snow all around), and only a short hop from Stewart Island, the jewel of the South.

Annual dinner guests will be entertained by a distinctively Southern group. We know this will be a memorable night.

Costs are being kept to a minimum and our canny crew will ensure you get value for money.

Early registration is requested, see opposite page for full details. If you can't make up your mind write to the Conference Secretary for more information.

We are well aware that this season has been difficult but hope that many of you will be able to join us to address some of the serious matters facing our industry.

See you in Gore in July.

NATIONAL BEEKEEPERS' ASSOCIATION
CONFERENCE 1993
REGISTRATION FORM

Please register me/us for the following activities:
(complete for all members of party)

Name:..... Phone:.....

Address:..... Fax:.....

Branch/Organisation:.....

	NUMBER	TOTAL
Conference $33	.....	.....
Seminar $25	.....	.....
Dinner and Dance $40 (single)	.....	.....
Partners Bus Tour (cost to be advised)	.....	.....

I enclose payment in full of $

Travel Arrangements

Note: Southland Branch will meet bus and train services at Gore. We will arrange transport to connect with flights at Invercargill airport as shown in Conference advertisment (cost to be advised).

I am travelling by car/bus/train/air

	day	time	service	flight no.
Arriving	.....	.....	.....	.....
Departing	.....	.....	.....	.....

A light meal will be available about 9.15pm Sunday for those arriving on evening flights to Invercargill (approx $10.00). A three-course set menu meal will be available Monday evening (approx $20.00).

Please indicate if you are interested

Light meal Sunday evening Yes/No

Set menu meal Monday evening Yes/No

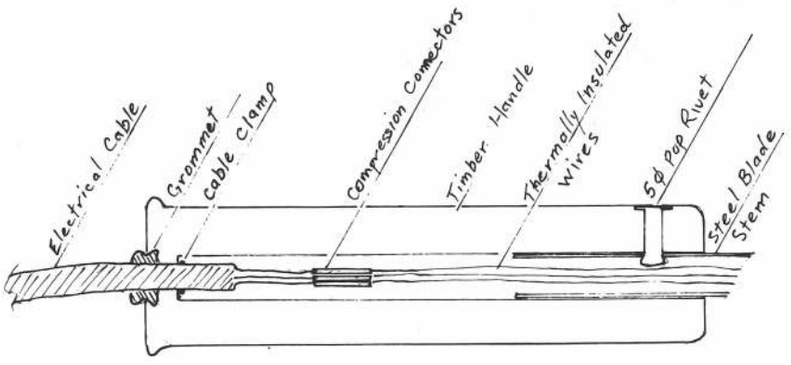
Note: Closing date is 11 June 1993

Forward to: **Michael Lee**
Conference Secretary
PO Box 5
Balfour, Southland

Phone: (03) 201-6345
Fax: (03) 201-6457

DON'T THROW AWAY YOUR OLD KNIFE.

By Ron Morison



Section of Electric Uncapper Handle

A lot of hobbyists use an electric uncapping knife: latest catalogue price $165.00.

After a while it refuses to heat up, but don't throw it away. The fault is likely to be in the flexible cord, usually just where it meets the handle. First carefully drill the 5mm pop rivet out, preferably using a light drill press. This requires only 10mm penetration. Pull the grommet back, pull the wooden handle back, then check the lead wires with a continuity meter.

The compression connectors can be prized off and replaced. If your thermostat packs up, don't worry. Get a switch similar to those used on most vacuum cleaners. Fit it into a block of wood or similar. Connect to the knife then operate by foot as you uncap. Those who don't like to cook their finger to test for heat can fit a pilot light into the circuit.

EXPORTING

The NBA has, with the assistance of its members, established an export liaison group. This group will assist members who:

a) may be considering exporting

or

b) wish to discuss an exporting matter with someone else in the industry.

The following members will be pleased to provide information for members new and inexperienced in the export of honey.

ORGANISATION	CONTACT PERSON	TELEPHONE NO.	FAX NO.
Airborne Honey	Peter Bray	(03)243569	(03)324236
Arataki Honey	Percy Berry	(06)8775400	(06)8774200
Ceracell Products	Stephen Mahon		(09)2740368
Kintail Honey	Dudley Ward	(06)3748301	(06)3748256
	James Ward	(0728)58038	
NZ Honey Producers Co-Op	Steve Lyttle	(03)6848882	(03)6884859
Southern Honey Exports	Allen McCaw	(03)4177198	(03)4177198
Waitemata Honey	Neil Stuckey	(09)4038491	(09)4738556

A BIT MORE ABOUT NATURE'S CHEMISTRY

By John Heineman

In the previous issue of this magazine we looked at how pheromones react as well as serving as a means of communication. The picture would be incomplete without also looking in the opposite direction where the hormones do their vital jobs inside the body of the bee. Hormones are vital indeed not only for the bees' existence but for all living creatures including Homo sapiens (that's us). We all know, or should know, how very important these unseen substances are for our own well being and how much they influence the correct functioning of the different organs.

Back to the Encyclopedia Brittanica:

"Hormones are organic substances that are secreted by plants and animals and that function in the regulation of physiological activities and in the maintenance of a constant internal environment (homostasis). They carry out their functions by evoking responses from specific organs or tissues that are adapted to react to minute quantities of them. The classical view of hormones is that they are transmitted to their targets in the blood stream after discharge from the glands that secrete them. This mode of discharge (directly into the blood stream) is called endocrine secretion. The meaning of the term hormone has been extended beyond the original definition of a blood borne secretion, however, to include similar regulatory substances that are distributed by diffusion across cell membranes instead of by a blood system".

In bees hormones are produced in the endocrine glands of which there are three major ones to be found in the body of a bee larva. One of the hormones is involved in the moulting process and disappears when the larva becomes an adult bee. Another gland manufactures the Juvenile hormones. These control the retention of the larval type body organization during its early development process. They are also involved in the differentation of the female castes. But as to how exactly and to which extent hormones play a role in this phase of a honey bee's development is not yet known. Research and trials have shown a series of different results and much needs to be proven.

Then very probably hormones are involved in the body's water control and in the production of eggs.

At present it seems that we know a lot less about the hormones in honey bees than about their pheromones and a large grey area exists. So let us hope that not all research in this field comes to a stop when too many scientists and research workers are made redundant.

Now you may think that all this is of just academic value and has little to do with practical beekeeping. That is not so. Consider the following:

The change from the larval to the pupal stage and from pupa to adult bee is triggered by the action of hormones. The glands producing the hormones have to reach a certain stage of development before they are able to

dispatch these messengers to put the changing process in motion.

It is well known that cold, shortage of food (both honey and pollen), and stress have an adverse effect on the development of a colony and its individuals. If a queen-raising colony does not receive an adequate supply of the goodies we will finish up with perhaps no young queens at all or, at best, with some undersized runts. Those poor conditions can also affect the timetable of the brood, (workers, queens or drones). The normal length of time from egg to adult becomes longer which is not desirable. It is reasonable to assume that any bees developing under such adverse conditions will be of a lesser than average quality, unable of optimum performance during their working life which may also be shortened.

So it is very important to make certain, as far as possible, that the right conditions are there for the proper and timely development of those tiny glands inside a bee's body. Then the whole chain of events occuring from the moment the egg has been laid to when the adult bee emerges can proceed without delays or set backs.

Man has chosen to domesticate honey bees so it is up to man to do the right things to help them along. A feral colony exists or dies without our interference but then it is not our investment. It is not kept for pleasure and profit.

Ref: The Hive and the Honey Bee (Dadant), Encyclopedia of Beekeeping (Morse & Hooper), Australasian Beekeeper Vol. 94/4 p.138.

It is the month of May again so winter is nearly upon us. HAVE YOU:

1. Left enough tucker on the hives to see them through the lean time? It is not too late to check, better be safe than sorry. If something extra is needed give it now. Sugar syrup would mean more moisture in the hive, not desirable at this time. Better put in some combs (from disease free source of course!) alongside the cluster. If combs are unavailable make a damp slurry from raw sugar and place the needed quantity on a sheet of paper placed on top of the frames directly above the cluster. Make some small cuts in the paper to give the bees an easy start. With some wriggling about of queen excluder and crown board everything can be fitted snug again.
2. Checked your queens? A poor old queen can easily peter out during the winter and you finish up with queen-less colony, a drone layer, or nothing at all in the spring. It would be better to unite now. A small weak colony does not winter well but will have a better chance placed on top of another hive over a split board. The floor heating thus provided will help and cost nothing.
3. Put in the mouse guards and placed some rodent poison under some of the hives?
4. Attended to ventilation? If the crown board has an entrance out in the rim for when in use as a division (split) board place it on the hive with the entrance facing down. It will help to keep the inside of a hive dryer which is all to the good. A very tight fitting telescopic lid would of course cancel this benefit.
5. Cleaned grass and weeds away from the hives? Long growth will keep your gear damp for longer and make it rot sooner and dampness is never good for the bees but especially not when temperatures are low.
6. Made your site safe from disturbances by life stock?
7. Trimmed away overhanging branches, gorse bushes etc. which may shade the hives too much and too long? It is also rather sad to see hives flattened by a heavy fallen branch or blown-over tree. We do get winter storms you know.
8. Replaced any rotten, broken or worn-out hive equipment and taken such items away instead of chucking them over the fence?
9. Done your bit towards PR? Call in at the farm house and ask the cockey if the placement of your hives is still convenient for him, if he plans to work up any of the paddocks you have to cross when attending to your hives. Leave your telephone number with him and ask him to give you a ring when something unforseen happens to the hives during the winter. Offer payment if a toll call is required. Leave a pot of honey behind (not as rent, just PR). this shows that you care for your property and also have his interest at heart. An attitude appreciated by any good farmer.
10. Ordered any queen bees for spring introduction? If you do require any order now, don't leave it till later for you may get to the bottom of the list. Bad luck for you if they arrive late or not at all and frustrating for the supplier who likes to oblige.

And after all this is done? Sure it's time to relax, watch the idiot box, play indoor bowls or whatever else. Then while relaxing it won't hurt to read some bee literature. And don't forget that our winters are usually not that long. It will give you time to fix up broken bits and pieces, assemble new gear etc., etc. I can again think of at least another 10 points but leave that to you so that you have something to do. One thing however before I stop: those hive records? Well worth your while to go through them and reflect on what has gone wrong and what worked out right. You may discover that your own actions caused something which was not wanted. It is amazing how many mistakes are made repeatedly which could be avoided by a little study of records. That is really what records are kept for.

Reflect, Plan, Act. Get organized for next season's bumper crop.

THE NEW TREZISE FAMILY SHOP

The Trezise family of Geraldine has opened a shop selling a variety of bee products including furniture polish, shampoo and conditioner, candles, hand cream, as well as honey from their hives.

Noel and Val Trezise, with their 18-year-old daughter, Ruth Jeffery, opened the shop around the end of January. They have been selling their honey for some three years but thought it time to expand.

The bases of many of the products are Royal Jelly, propolis, and manuka honey. Noel stresses that he hopes to educate customers to understand the health properties of honey beyond those commonly known.

The shop also has an observation hive to show customers where the products originated.

One reason for the expansion into the shop was to give a job to Ruth who has recently finished her seventh form year. Ruth treats the job as a challenge.

It is too early to say just how successful the sales of alternative products are but she hopes tourists buses will make regular calls at the shop and so allow her to expand.

Incidentally, the metamorphis of an old shed into a bright and sunny shop was the work of brother Tom, aged 20.

HOW THEY BEEKEEP IN SLOVENIA

By John Heineman

Slovenia, 2,000,000 people, capital Ljubljana, is the most western part of the old Yugoslav republic. It is now independent and is not involved in the terrible strife taking place in Bosnia next door. It has a long tradition in beekeeping. It is the home country of the Carniolan bee **(Apis mellifera carnica).** Anton Jansha, a Slovene, wrote "Lesson of Beekeeping" in 1771 (copy in our library). There are some 150,000 colonies kept in the country with an average production of 10-13kg per hive. However, with intensive management and migratory beekeeping 40 to 50 kg p.h. can be harvested. The honey is mainly dark from forest sources and is popular in Europe. Bee diseases seem to be on the increase, B.L., chalk brood, Varoa, Nosema are the main problems with rarely Acarine for good measure.

Alex Gregorc, who took these photos, is a vet specialising in bee diseases. He is now veterinary advisor for beekeeping in the western region of Slovenia and he keeps about thirty hives.

Above: Beehives on the truck. Below: A typical apiary in Slovenia, August 1992.

Otago

I note we had no report in the last issue and hope to do better in future. Our summer, in common with most of the country, was of a fleeting nature, here today and gone tomorrow. Autumn was a little better for some, but there was snow well down round our hills in Central Otago this morning: April 21.

Except for a few exceptions crop reports do not make good listening. Our own crop is better than we have seen for some years, but then four years of drought is not difficult to improve on. With a light crop nationally it can reasonably be expected that prices and demand will improve, but when?

In my last term as President, branch activity has been slower than I would have liked. Perhaps the blame should lie at my door. Gavin McKenzie, whom most of you will know of, was elected president at our branch's AGM last month and has a fairly full programme planned for the year. Best wishes Gavin. Our other officers were re-elected for another term. Our monthly general meeting followed the AGM and some of Gavin's pupils spoke about their countries and beekeeping in those countries, notably Papua New Guinea and the Solomons. Well done.

I have been concerned for some time about the absence of representation of the larger (more than 1,000 hives) operations at branch level. This was illustrated at our AGM where only two of these larger operators were present.

Our friends and neighbours will be well along the track with preparations for the annual conference. Hope to see you there.

Lin McKenzie

Auckland

Late summer in Auckland was cool, sunny, and dry. Consequently the bees seemed to pick up the slightest whiff of honey quicker than usual.

Most hives should winter down OK, although some are not as full of stores as one would like. With the dry weather there is plenty of pollen in the hives. It is nice to see the honey prices up: they usually are when no one has any to sell!

I think about 20-25% of my income comes from honey, about 60% from pollination, and the rest from package bees, wax, etc. This may change next year with kiwifruit the way it is. Consequently I think it important that our marketing plan includes more than just honey. The manuka honey price increase is a welcome start. Pollen seems like a good alternative to look into over the winter, although spending money on pollen traps is not what one needs right now.

The planting of my cabbage trees, tree lucerne, and manuka is nearly done. All three grew surprisingly easily from seed.

Nigel Birse.

Canterbury

The weather told it all; what looked like a promising year turned out disasterous in some cases. In Canterbury the hives on the lighter land managed a good crop but if you were on the heavy soils the clover failed to yield. There was one joy however: hives that were within flying distance of borage crops (*Borago officinalis*) returned excellent yields of water white honey.

Honeydew has also been poor, with small amounts produced in the spring and next to nothing in the autumn

The hives are going into the winter in good order although they still have a good appetite for sugar. Autumn mating of queens has been excellent but I guess something has to go right every once in a while.

The work is almost finished now, so lets hope the price will move up for the little honey that was produced.

Richard Bensemann

Southland

After the season began with such great promise it ended on a dissappointing note. Honey production in Southland is down a third on average this season. It looks as if we have to survive another year with low production and low prices. As one local beekeeper stated, honey in the drum is like money is the bank. If you can arrange the right exchange rate.

Conference plans are well advanced and we are looking forward to meeting other beekeepers from around the country and giving them a taste of Southland hospitatility.

Alister Lee

Poverty Bay

After feeding hives throughout the spring, prolonged wet and cold weather lasted into early summer and bees were consuming when they should have been producing throughout most of the district. Consequently, most beekeepers report crops well below average. More recently, the same sort of weather has meant long delays in removing the honey. Few can remember a more difficult season. Still, as the saying goes, "winners never quit", and if we wanted a soft job we wouldn't be beekeeping. The rewards must come eventually to those who can weather the difficult times.

The autumn disease inspection day was held in the first weekend in April. Eight beekeepers from the Bay of Plenty came to assist the Poverty Bay volunteers, which was a marvellous gesture and greatly appreciated by us. Thanks again gentlemen, you were great.

Peter Burt

Southern North Island

The crop in our area is way down on previous years. Some lowland pasture produced a little more honey during Feb/March while those higher up produced very little. Just to throw salt into the wound, meteorologists are predicting that we could be facing a cold hard winter and perhaps another wet spring. It all depends upon the El Nino weather patterns. We have talked about it for years but perhaps it's now time for beekeepers within a district to consider pooling their honey crop so it is marketed in an orderly fashion. We need the best possible price to come through the winter in a good financial state.

The Branch ran a very successful field day at Trevor and Gaye Rowe's in Eltham. The weather was fine, the attendance very good, and many were impressed with Trevor's honey house and the demonstrations. Unfortunately we did not have time to complete all the programme as questions went on a little longer than anticipated. However, we ended the day with a top notch bar-bee-que. Thanks to the Taranaki beekeepers.

There is a lot going on nationally and internationally that affects beekeepers. The marketing committee is moving along, new legislation is being discussed in parliament, and now there are problems with live bee and honey exports.

For example, the "New Europe" has made us sit up and take stock of our present management practices. There is talk that new certification requirements state that honey cannot be exported into Europe from sites

within a 5k (or will it be 8k) radius of a BL diseased hive. This could become a headache for some who have the odd intermittent hot spot. This may mean we will have to communicate with our neighbours and MAF more. Disease statistics will be more important to us. We'll want to know before we start our extraction where BL has been found so these hives can be left until later. At least we have the tools now to be able to test hives in a suspect area and detect high levels of spores. This will at least prevent us from inadvertently spreading BL during spring management.

From talk around the Branch it looks like quite a few will be going to this year's Conference in the deep south. With all that's going on, it should be worth attending.

Frank Lindsay

Nelson

This season must be the most unusual experienced by many beekeepers. For two or three weeks before Christmas the weather was good and we expected a reasonable crop, but after rain between Christmas and New Year the honey on the hives rapidly disappeared along with the nectar out in the field. For once we can't blame wasps because apart from a few spots, mostly in the hills, they were not very troublesome.

There is no doubt that the downturn in kiwifruit will affect those beekeepers who specialise in pollination.

Those who attended the St Arnaud weekend, February 19-21, would have enjoyed themselves and gained some interesting information, despite the rain. Norm Donovan gave an fascinating talk on blueberry pollination in the Nova Scotian hill country. Add to this the other speakers and Marlborough Branch can be congratulated on the show they put on.

At our March AGM Fred Galea and Ian Paterson were elected President and Secretary respectively. Let's hope they have some influence on the weather.

Ron Stratford

Marlborough

The honey season in Marlborough has been patchy but not the disaster it was expected to be. Some apiaries produced above average crops while others haven't done much apart from fill the broodnest with honey.

We usually manage to produce quite a bit of manuka honey but this year it is scarce. Like a lot of plants manuka flowered well but the nectar didn't flow due to the lack of sun. Marlborough is supposed to be the sunshine province, would you believe?

Our Rotoiti weekend was a great success and was enjoyed by everybody who attended thanks to excellent speakers and entertainment. Its good to see beekeepers sharing ideas and information for the good of all.

I heard a story about some Aucklanders keen to attend our Lake Rotoiti Weekend. Only trouble was they got lost. Apparently the North Island has a Lake Rotoiti somewhere as well.

Mark Milne

Hawkes Bay

The season is winding down. We've had a lot of liquid sunshine this year. It's been good for pastralists but for everyone else in primary production it's been a difficult if not disastous season. Bulk honey prices have moved up and hopefully they can be maintained in future. The branch continues to move in progressive direction, strongly supported by a core group of dedicated people. The commercial beekeepers are grateful for the outstanding effort put into conference by Bob Wotherspoon and Ron Morison. As two hobbyist beekeepers it shows that hobbyists are an important part of our industry, and that we can, and should, work together for the benefit of everyone. Bob has retired as President and will be remembered as the man who made branch funds grow from a near deficit into four figures. We still don't know how he did it!

Colin McLean

South Canterbury

The past season would rate as one of the most dissappointing and frustrating for many years. It was obvious in December that an average crop was unlikely as hives were just not in good shape after a cold, wet, and snowy spring which continued into summer. Hives averaged a mere two tons per hundred, so one cannot see very much hive maintenance, and a new truck this winter.

At least the autumn weather was better for requeening, and hives are going into winter in good condition, which hopefully will result in a better, more memorable, season next year.

Peter Smyth

Waikato

Spring was wet and cold. A fortune was spent sugar feeding the hives but they were still in poor order when the 'FLOW' should have commenced.

Summer was still wet and cold, so the clover and associated crops did not produce.

Autumn, and at last the sun is shining but the ground temperature remains low. There was little or no pasture crop but those with manuka got some return.

Here, on the Central Plateau, our last hope is for some crop from the calluna vulgarre. Again, whilst the weather is fine, it is still far too cold for any honey. I have spoken with people who have been in the Industry 30 years or more and 1992/93 must be the worst season ever.

Ross Blackman

PESTICIDES RAVAGE HAWKES BAY

Between $30,000 and $50,000 worth of damage was caused to Arataki's Hawkes Bay crop last year, says Ian Berry. Ian estimates that 1,000 of the 3,700 hives out for pollination were badly affected and the honey crop from those hives was reduced or lost.

"It was the worst for years," Ian said. "The Arataki loss could easily have been 20 million bees. There were literally bucketfulls of dead bees, not only from our hives but from those of the hobbyists also. Some hobbyists were wiped out.

"It is a metter of getting growers to obey the law", Ian continued. Bees in October fly in a three-kilometer radius so insecticides where the bees landed had had a disasterous effect. Such damage to the industry could result in a surcharge on pollination hives. Some years ago we had a similar problem which drew a surcharge. Ron Morison, Hawkes Bay president estimated that a quarter of the 6,000 odd hives in Hawkes Bay had been affected.

HONEY AND DESSERTS

By Sue Jenkins

Honey adds a unique dimension to our desserts. This is because we are using honey as the sweetner and also because of the honey type used. As each honey type has its own distinctive flavour, we need to choose a honey flavour that will balance and enhance all the flavours and ingredients in the dish that is finally prepared and served. A milder honey such as clover or vipers bugloss may enhance the total flavours, whereas if a stronger flavoured honey, eg kamahi or manuka, is used, it may dominate the dish so as to destroy it.

We also need to remember that if we vary some of the ingredients in the recipe, such as using peaches instead of apples, the stronger flavoured honey that is fine to accompany the apples may be inappropriate to use with peaches.

HONEY AND CINNAMON CHEESECAKE

250g plain digestive biscuits
60g butter, melted
3 eggs
500g quark or cottage cheese
⅓ cup light flavoured honey
2 tablespoons raw sugar
grated rind of 1 lemon
ground cinnamon

Process biscuits in a food processor until fine crumb. Pour in the melted butter and mix briefly. Tip into a loose bottomed flan ring with a 23cm diameter base. Press around the sides and on the bottom of the tin, then chill until firm.

Break the eggs into a bowl and beat in the quark or cottage cheese, honey, sugar, and the lemon rind. Pour the egg mixture into the biscuit base. Generously sieve the cinnamon over the top. Place in a preheated oven at 160°C. Bake for approximately 40-50 minutes, or until the filling is set. Cool for 15 minutes before removing from the flan ring. Serve cold or warm with fresh fruit such as strawberries, blueberries, kiwifruit, or lightly poached fruit.

BAKED HONEY CUSTARD

2 large eggs
2 tablespoons honey
1½ cups milk
¼ teaspoon vanilla essence
½ teaspoon cinnamon or nutmeg

Preheat oven to 180°C. Heat milk in a saucepan until almost boiling. Beat eggs in bowl until yolks and whites are combined and not foamy. Add honey and mix well. Slowly add milk to egg mixture. Add vanilla essence. Pour the mixture into a baking dish set in a pan of hot water to with in 3 cm of the dish. Sprinkle with cinnamon or nutmeg. Bake at 180°C for 35-45 minutes or until firm when the tip of a knife is inserted in the centre of the custard. Serve hot or cold. (4 servings).

APPLE PUDDING

5-6 apples
⅓ cup honey
1 teaspoon coarsely grated lemon rind
1 tablespoon water
50g butter
2 tablespoons honey
1 egg
½ cup flour
½ teaspoon baking powder

Peel, core, and slice the apples. Place in a baking dish. Cover with cling wrap and cook for 6-8 minutes on high in a microwave. Stir in the honey and lemon rind and water.

Soften the butter, add honey and cream until smooth and creamy. Add egg, beat well. Stir in the flour and the baking powder. Carefully spread it on top of the apples. Bake for 30-40 minutes or until golden. Serve warm with custard, or cream or ice-cream or yoghurt.

ROLY POLY PUDDING

¼ cup manuka honey
25g butter, cut into cubes
1 cup boiling water
1¼ cups flour
2 teaspoons baking powder
½ cup milk
2 tablespoons melted butter
1 teaspoon cinnamon
2-3 grated or sliced unpeeled apples

In a 23cm round baking dish measure honey, butter and boiling water. Stir to dissolve honey and butter. In a mixing bowl, stir together the melted butter, flour, baking powder, stir in the milk. In another bowl combine the cinnamon and grated apple. Roll out the dough, spread on the apple mixture. Roll up like a sponge roll, seal the edges. Cut the roll in to 6-8 slices and put them, best cut side up in the uncooked sauce mixture. Bake at 180°C for 40-45 minutes, spooning sauce over the rolls every 15 minutes. Cook until the scone mixture is firm and golden brown. Serve with custard, or ice cream.

Variations: other fruit, such as rhubarb, peaches can be used, with milder flavoured honeys.

HONEY BAKLAVA

9 sheets filo pastry
250 g butter, melted
1½ cups chopped walnuts
2 tablespoons cinnamon

SYRUP

¼ cup honey
½ cup water
2 tablespoons lemon juice
1 stick cinnamon
thin slices lemon peel

Place three buttered sheets of pastry into base of a buttered ovenproof dish the size of the pastry sheets. Sprinkle with half of the combined nuts and cinnamon. Repeat this and finish with a pastry layer. Bake in a preheated oven at 185°C for 20 minutes or until the pastry is golden. Take it out of the oven. Combine the syrup ingredients, bring to the boil and cook for 5 minutes until the syrup spins a thread. Take out cinnamon and peel and pour over the baklava whilst still in the tin. When its cool, cut into diamond shapes.

OLD FASHIONED BREAD AND BUTTER PUDDING

2 eggs
2 cups milk
½ teaspoon vanilla essence
3-4 tablespoons lightly flavoured honey
1 cup fresh breadcrumbs (2 slices of bread preferably brown or wholemeal)
2-3 apples, grated
½ cup sultanas
4 tablespoons coconut

Lightly grease a baking dish. Beat the eggs with the milk, vanilla essencee and honey. Add the remaining ingredients. Pour the mixture into the prepared baking dish. Bake at 180°C for 30-45 minutes, or until the custard is set and lightly browned on top.

A SWINISH STORY

From Ham Maxwell

From time to time a beekeeper receives a call for help. Whether from a fellow beekeeper or from someone outside is not important. What is important is how you respond. Some beekeepers have thick skins and are deaf, until that magic word 'money; is whispered. But there exists amongst our breed a few with weak hearts and minds who respond unhesitantingly to any requests for assistance.

Those who know Fred only slightly, tend to consider him hardnosed in his dealings with people, particularly if they have crossed swords with him. Yet there is another side to Fred which he endeavours to keep hidden, a side which his rugged feature belie, his gruff voice fails to betray, and his aggresslve stance positively suppresses. To reveal his hidden self is not easy for Fred, but if someone can hit the right note then a new person is revealed. Many times over the years those of us who are friends of Fred have seen this "other self" uncovered and have initially marvelled.

Early spring in our part of the country sees the blossoms out, the bees flying, and every positive sign that another good season has started. With the first spring inspection comes a thankfulness that another winter is over and providing a careful watch is maintained the hives will begin to build their numbers. Should anything happen to the hives in the way of disaster, and the beekeeper is a beginner from the previous season, then panic rapidly takes over. Disasters come in two forms, natural and man-made. Death of the queen in early spring, an unseasonal weather change, earthquakes, are all determined by nature. Crop spraying, vandalism, complaints from neighbours, tend to be classified as man-made disasters. Some beekeepers are born lucky and have little experience of disasters from either category, others have met the lot, yet simply shrug their shoulders and carry on as best they can. Fred fits the latter category of beekeeper and has built up quite a fund of knowledge, but more importantly he has an ability to be in the right spot at the right time to pass this experience on to the newer beekeepers.

A typical incident was Fred's introduction to Percy. One evening, having sat down to enjoy his evening meal, a phone call interrupted his culinary activities. A lady beekeeper was on the line with a request for the names of beekeepers in her area. Seems that a hive was on its side and she was apprehensive about restoring it to normal because the bees were not in a terribly good mood, her gear was minimal, and she was physically unable to lift anything at the time. Fred responded with a few names off the cuff, but it appeared the lady had already been in contact with them and found they were either absent or had busy schedules. The list of club members failed to raise any more names, so Fred offered his assistance.

Early sunsets were the norm for that time of year. It would be dark by the time he got to the property. However, a quick check of beesuit, gloves, smoker, hivetool, and footwear took but a few moments. Finding a map of the area took a little longer and he had to check the spotlight on the truck. Instructions given for finding the location included the fact that the entrance to the property entrance was not easy to find in the dark. The truck had a tankful of fuel, the radiator was also full, so off he set. Two valleys later saw him on the road to the coast, and he saw that each property he passed had a number sign at the gate, all clearly visible by the light from the truck headlights in the darkness. This made it much easier to find his location, something not always easy in the country. However, many district councils have encouraged farmers to adopt a number system with reflective signs at their property entrances. This helps emergency services to locate a particular property with greater ease, and in Fred's case it helped him considerably. Finally the numbering system made him aware that the property he sought was the next sign. But not so, the next sign showed he had overshot the entrance he was seeking. Turning the truck was not easy with a ditch both sides of the roadway, but turn he did and got out the spotlight. Being totally dark, no moonlight, and with thick trees on both sides did not help in finding the road entrance. Travelling slowly, he shone the spotlight along the road verge, but the trees simply swallowed the ray of light. A light mist made matters worse, but he finally spotted a gateway newly carved out of the clay bank. No number to reflect the light from the lamp, but there was a sign on the gatepost. Red lettering on a piece of weathered board indicated he had arrived.

The lady did say the drive up to the house was a bit steep, one part of it had been washed out a little! With much caution Fred eased his vehicle up the drive with all four wheels engaged, passed the washed out section on the second attempt and arrived at the house. The welcome was warm, so Fred and the lady proceeded to don their gear whilst the lady's husband got out the ute from the shed to take them up the hill to where the hives were. With advice to "hang on" they set off in total darkness, up a steep slope with the wheels making a rather "squishy" sound in the mud. This sound seemed to get louder and louder. Suddenly Fred was warned to duck: they were approaching a gateway with an electic fence wire suspended over it. Riding on the ute tray has its moments! Finally the truck stopped, but this only meant a further climb up the hill, the way lit by a somewhat erratic Batman torch. By the time they arrived at the hives Fred had decided he would not have much faith in Batman to guide him to any location.

There was the hive, on its side, mostly still intact, the bees covering the exposed sections to protect the hive from the night air. The baseboard was nowhere to be seen until, with much thumping, the torch was persuaded to stay alive long enough to reveal that the baseboard was further up the hill. A loose wire mesh surrounded the hive site, but was mostly flat on the ground. A quick 'recry' revealed that all supers were intact, no frames had been broken, and the bees were relatively quiet.

As the hive sections had to be relocated up the hillside there was no way, without splitting the hive into sections, to try and restore the hive as a unit. Fred bent over the hive to start separating the supers, got the lid off, then went to remove what had been the top super. It was full of honey, full depth and very heavy. As he took the strain to lift the super there was an awful noise right behind him. It came from a pig, a very large and ugly pig, which when seen at very close quarters in the light of a flickering torch looked much bigger than it probably was. To say this was disconcerting was an understatement, suffice to say that Fred lost his hold of the super. Gravity being what it is, the super went down with a bump. At the same time Fred's eyebrows defied the same gravity forces and rose to their limits. Loud shouts from the lady revealed the name of the pig. "Get out

of it, Percy, you have caused enough damage already today." Fred then realised it had been the pig which had knocked the hive over, more that the bees were no longer passive. The dropped super had stirred them into a fighting mood. Two major disruptions in a day was too much. There was no option but to carry on, and being covered from head to foot by bees seeking to penetrate the beesuit is not the most pleasant of occupations, particularly when they start stinging through the veil, the beesuit, in fact anywhere they think will be effective in removing this nuisance to their existance. The pig meanwhile had scampered off into the darkness. Fred stacked the separated supers on the lid in reverse order then moved them one by one up to the base, further up the hill. Having slipped twice in the mud, he finally took up the last super, the heaviest and moved up to the hive. Naturally his boots failed to find the secure foothold needed, and it was nearly disaster again for the bees in the super, but with a final heave the super was at last placed in position.

With the lid finally on the hive a big sigh of relief escaped Fred's lips. Then from out of the darkness the lady's husband called that as the track was so wet it would not be wise to attempt to drive the truck down the hill, the risk of it sliding off was too great. That meant a slippery crawl down the hill, the torch still flickering sadly, and with warnings to avoid the stumps from the previous day's scrub cutting. Falling only twice was a miracle in the circumstances, but back at the house revealed two beekeepers liberally sprinkled with bees and a husband doing his best to avoid being too close. Disrobing under the spotlight saw a lot of the bees attacking the light, and meant only a few stings to the beekeepers from dissatisfied clients. Then into the house for that welcome cup of tea, a long chat about beekeeping, with Fred being asked for advice on hive protection from animals.

We asked Fred if he wanted to return to the farm in daylight hours to renew his aquaintanship with 'Percy'. We gathered from the tenor of his remarks the sooner the said pig was rendered into rashers of bacon the more appreciative Fred would be of its worth. We don't think Fred is cut out to be a farmer.

THE NEW EMPLOYMENT ACT IS HERE AND IT APPLIES TO YOU

The Health and Safety in Employment Act has been "law and orderable" from April 1, and it does involve you.

The few work environments it does not cover are some areas of defence forces, people who do not work for reward or hire, householders who hire people to work solely on or in their home and aircraft and ship crew.

As with any new law, there are many things to learn about its working and effects. The best place to get information is through the Occupational Safety and Health Service (OSH). The best place to learn how it works is in your place of work.

In forestry industry, the key point to remember is that employers, employees, contractors and sub-contractors have specific duties. These are detailed in sections 6 to 18 of the Act, but here is a guide.

Employers have the most duties to perform.

Responsibilities include the provision of a safe working environment; procedures for dealing with emergencies; the identification of hazards - existing, new and potential - and the - process of dealing with them if they are deemed significant; keeping a record of all accidents where someone was or might have been harmed; providing employees with the relevant information and materials to deal with hazards.

The Act gives employees responsibility for their own safety and health while at work (but this responsibility does not detract from the employer's duties). Employees must also ensure their actions do not harm anyone else.

A person who controls a place of work may be someone who owns, leases, subleases, or occupies a place of work, or has control of plant or equipment used in a place of work. Such people must take all practicable steps to ensure those in or near the place of work are not harmed.

Self-employed people must take all practicable steps to ensure their action, or inaction, while at work, does not harm anyone, including themselves.

A person or company (a "principal") engaging a contractor or subcontractor must take all practicable steps to ensure the contractor, subcontractor or their employees are not harmed while at work.

Contractors and subcontractors who employ staff are required to perform all the duties of an employer.

The exception is when a householder engages someone to do work on his/her home. For example, hiring a plumber to fix a drain does not mean you are liable for their safety and health under the Act. In the forestry industry, some of the previous legislation, such as the Bush Workers Act 1945, and the Machinery Act 1950, has been amalgamated into regulations under the Health and Safety in Employment Act.

This will be followed up with a new or amended regulations in those areas. A review process involving consultation between OSH, industry, employee organisations and other interested parties will determine the makeup of both new regulations and codes of practice.

Once again, the key point to remember is that everyone has a responsibility under the Act for some part of the health and safety process; whether it is their understanding and actions in their immediate work area, in the whole of their workplace or in the whole of their industry.

The message the new law brings is that safety and health need to be an integral part of business, right from the planning through to the production of the goods or services, and only employers and their team can make it so.

The Department of Labour's Occupational Safety and Health Service is responsible for administering the Act.

OSH has information, in the form of products and services, to help workplace understanding of the new law and help with ways to put its requirements into practice. OSH will help develop systems to gauge the effectiveness of safety and health management.

NATURAL PEST CONTROLS

From Crop & Food Research Digest Summer 1993

For the past 50 years most of us have believed the adage that: 'Sprays are the answer to all our unexpected garden pest problems.'

But attitudes are changing as an increasing number of New Zealand growers are getting out of the habit of picking up a spray to fight pests on their plants.

They are adopting Crop & Food Research's integrated pest and disease management (IPM) programmes to reduce the chances of crops being affected by disease or pests and encourage the use of biological control for pests.

This is good news for the consumer, who gets to eat a natural product, and for New Zealand's economy. Enhancing the nation's clean, green environmentally-friendly image is generally accepted as the key to a brighter economic future.

Vegetable diseases and pest scientist Dr Nicholas Martin is pleased with the response from the nation's glasshouse users to his pest management programme.

"Our advisor, Dr Nancy Beck, has been explaining the programmes to growers over the past year. She has found that many of them are making moves to adopt the programmes," he said.

Integrated pest management programmes are more complex than existing pest and disease control practices. They require growers to plan ahead more carefully so that when predators are used to control some pests, control of other pests and diseases can be achieved without harming the beneficial organisms.

The programme for greenhouse crops uses natural enemies to control the key pests - whitefly and two-spotted mite. It also encourages the use of bumble bees to pollinate plants.

A small wasp parasite know as *'En force'* is used to control white-fly. High numbers of whitefly can debilitate tomato, cucumber and other vegetable plants but the main problem is the covering of fruit by sticky honey dew secreted by the whitefly. *En-force* parasites lay eggs in immature whitefly and kill them when they reach full size. The parasite is put into the crop weekly for a number of weeks.

Mite-E is the predator used to control two-spotted mite. Two-spotted mite can reduce plant yields and kill plants. Hosts include cucumbers, cymbidium orchids and roses. Usually a single introduction of Mite-E will protect a crop.

Crop & Food Research produces the natural enemies that growers buy to introduce to their glasshouses or outdoor crops.

The strategy for outdoor vegetables includes the establishment of new natural enemies which persists and spread naturally in the environment.

Tomato fruitworm, a key pest of several important vegetable crops, is now controlled for the larger part of the season by two such newly established parasites that kill the caterpillars before they cause damage.

Pheromone traps, which are set in crops to monitor population increases of the tomato fruitworm moth, indicate when damage by those caterpillars escaping parasitism may occur.

Outdoor vegetable crops advisor Tim Herman has helped develop the pest management systems and is now demonstrating them to growers and training tham to monitor tomato, sweet corn and brassica crops.

He has shown that savings of 50 percent in insecticide use are common using the integrated pest management techniques.

From Crop & Food Research Digest, Issue Three: Summer 1993

SOTHEBY'S AUCTION ANTIQUE PERSIAN HIVES

The bees were buzzing at Sotheby's in London on April 29 when a collection of 100 glazed pottery Persian beekeeping hive covers was included in the sale of Islamic Works of Art.

This remarkable collection of pottery beehive covers was formed in Persia over a period of 20 to 30 years by Dr A Middlehoek of The Netherlands. The covers range in date from 1735 to 1935 and thus represented a corpus of local glazed pottery covering a period of over 200 years. Each of the covers was circular and was imaginatively, and often amusingly, illustrated with a variety of colourful decoration, including figures, flowers, animals, and birds, as well as abstract designs and Islamic inscriptions. Some of the plaques also bear the name of the owner of the hive that they once adorned.

One of the pottery plaques even came complete with its original hive. This persian beekeepers hive dates from the second half of the 19th century and is of a long (85cm) cylindrical shape woven with cane and coated inside and out with a mixture of red earth, chaff, and dung. The front end it recessed with an inner circular cover of wicker and an outer ornamental glazed pottery cover pierced with an oval hole, while the back was covered with a closure of wicker or wood (missing in this example). This remarkable object provided a fascinating insight into the history of beekeeping in Persia and was estimated to fetch $1,200 - 1,800. The pottery plaques were divided into lots of 12 with each lot estimated at $4,500 -6,000. Sotheby's did not tell the NZBK what any of the above did fetch.

Beekeeping has been known in the eastern Mediterranean region and specifically in ancient Egypt from 2,500BC or even earlier, and cylindrical woven hives, similar to the one in this sale, were described by Roman writers such as Varro and Columella. In Islam the bee was greatly revered, nowhere more so than in the Qur'an, where the Prophet Muhammad says in the Sura titled "The Bees" (Al-Nahl).

And thy Lord revealed to the bee:
Make hives in the mountains and in the trees and in what they build.
Then eat of all the fruits and walk in the ways of thy Lord submissively.
There comes forth from their bellies a beverage of many hues, in which there is healing for men.
Therein is surely a sign for a people who reflect.

Classified Advertisements

Available only to registered beekeepers selling used hives, used plant, and other apiary equipment, and those seeking work in the industry. $17.50 for 20 words (inclusive of GST) payable in advance. No discounts apply. No production charges. Maximum size: 1/6 page. No box number available.

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INTERNATIONAL BEE RESEARCH ASSOCIATION (IBRA)

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 — including BEE WORLD, a truly international beekeeping magazine published quarterly in the English language — will broaden your beekeeping horizons. Details and a wide selection of books and publications from New Zealand IBRA representatives, Cliff Van Eaton, MAF, Private Bag, Tauranga or Peter Brunt, Nelson Polytechnic, Private Bag, Nelson.

OTHER PUBLICATIONS

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.

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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.

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THE SCOTTISH BEEKEEPER

Monthly Magazine of the Scottish Beekeepers' Association. International in appeal, Scottish in character. Subscription rates from: D.B.N. Blair, 44 Dalhousie Road, Kilbarchan, Renfrewshire, PA10 2AT, Scotland, U.K. Sample copy on request — $1 or equivalent.

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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.

HONEY INDUSTRY TRUST

Honey Industry Trust applications close twice a year, on February 15 and August 15.

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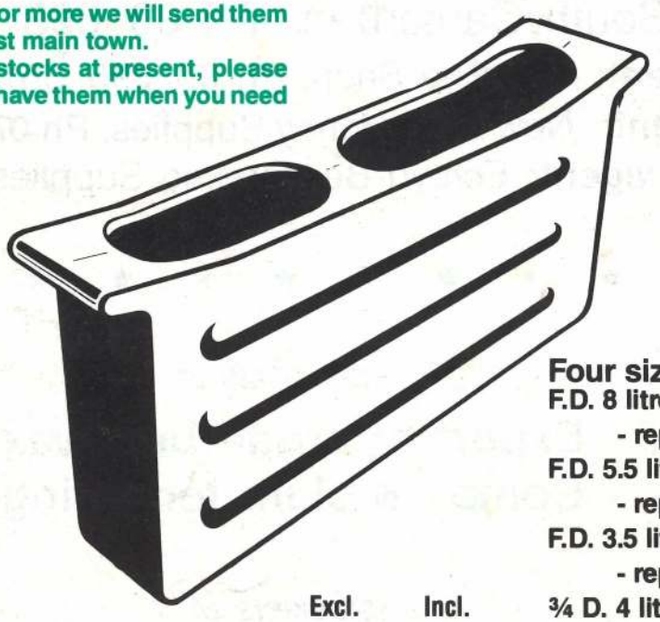

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