THE NEW ZEALAND beekeeper

DECEMBER 1983

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Postal Address.....

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Signature.....

4153

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THE NEW ZEALAND BEEKEEPER

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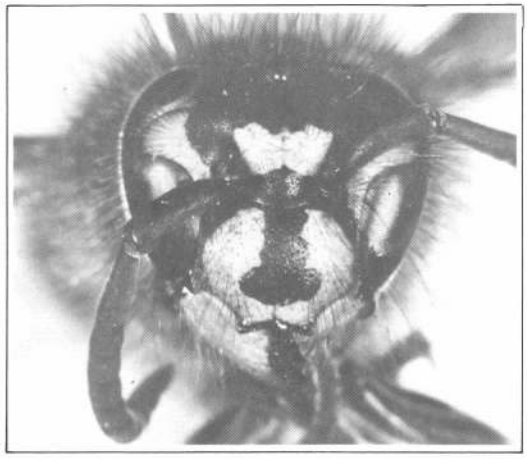

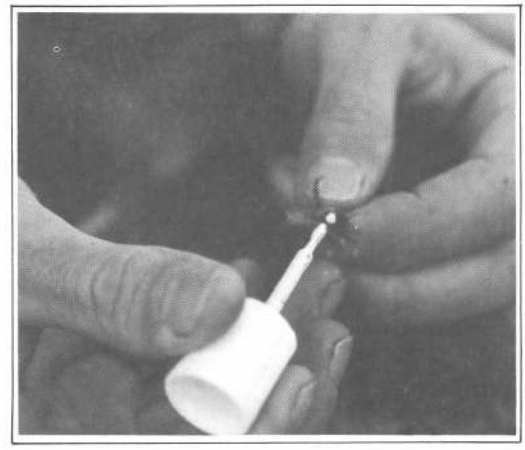

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Production charges
Advertisements should be provided in a camera-ready form or as photolitho negatives. Where copy has to be typeset, or where film work or bromides are required, these will be charged to the advertiser on a time and cost basis. Minimum charge $10.

Beekeeper rates
Registered beekeepers selling queen bees, used hives, used plant and other used apiary equipment are eligible for an advertising discount of 20 per cent of the appropriate commercial rate. Where the appropriate rate is in doubt, the editor's decision will be final.

Production charges only apply to single insertion beekeeper advertisements or where special artwork, filmwork or bromides are required.

Classifieds
Available only to registered beekeepers selling used hives, used plant and other used apiary equipment, and those seeking work in the industry. $5 a column cm. No discounts apply. No production charge. Maximum size: 1/6 page.

SUBSCRIPTIONS

Commercial beekeepers: The NZ Beekeeper is distributed free-of-charge to beekeepers with 50 or more hives, subject to payment of hive levy.

Others: Beekeepers with fewer than 50 hives and other subscribers: $12.50 a year. This includes (for New Zealand subscribers only) membership of National Beekeepers Association of New Zealand (Inc).

EDITORIAL

A rewarding eight years

IN DECEMBER 1975 the format of The NZ Beekeeper changed to the now-familar A4 size. The first professionally written articles appeared and layout changed dramatically.

A new editor had arrived. Welcomed by some, but not by others.

Nelson branch put forward a series of remits to try and change the new broom's ways. Chris Dawson stopped writing the beginner's pages and after a first issue article, Kevin Ecroyd drew a sword which was only really sheathed when he had launched a rival publication of his own.

Now it's all water under the bridge, of course. Kevin's once again advertising here, the editor's received a letter from Nelson asking him to revise his departure plans and everyone's waiting to see what the new editor –1984-style – will bring.

It has been an exciting eight years, not only for the editor, but for industry as a whole.

At my first NBA conference in Taupo, a major speaker was Robin Jansen, an eager free enterpriser who wanted to have a lash at exporting honey on his own behalf. Now anyone who wishes can export honey and Robin has sold his bees and is making hive components.

The HMA, which dominated each conference until 1981, is now to all intents and purposes dissolved and those who fought for its retention don't appear to be any the worse for its departure.

A stream of presidents have come and gone in the last eight years. Ivan Dickinson was in the chair in 1975, to be followed by Percy Berry, Michael Stuckey, Paul Marshall and Tony Clissold.

It's an amazing turnover for an agricultural industry. In Meat Boards, Dairy Boards and Wool Boards chairmen seem to last for decades. With bees the life span seems to approximate that of the queen in a hive.

Of the presidents all were good, but Paul Marshall was undoubtedly the best in all senses of the word. At the expense of his own business, he oversaw the wind-down of the HMA and under his tutelage, the beekeeping industry became well known in politically important circles for the first time in decades.

Good on you Paul, the industry owes you alot more than there are ways to acknowledge such an outstanding and selfless contribution.

The eight years of editorship have been important years for Agpress. In the beginning, the NZ Beekeeper was only one of two contract magazines published by the company.

With longterm aims of being publishers in our own right, The NZ Beekeeper was an opportunity to show the world what we were made of. It was also a training ground for agricultural writers who now know a lot more about apiculture than they ever would otherwise – Jeremy Howden, Angela Walton, Simon Mill, Bronwyn Falconer, Fran Reynolds and Warwick Massey.

In the process, the cost of the exercise became a little bit forgotten and today with its own publications now well-established, Agpress can no longer afford to subsidise the editorial content of the magazine. Hence the change of editor and publisher.

To all those beekeepers, advisers and others who have gone out of their way to make the Agpress job a pleasurable one, thanks. It's always difficult making your way into someone else's industry and those who helped show the way deserve extra large honey crops this year and in forthcoming seasons.

As a parting shot, I would like to emphasise a point I tried to make in the last issue – that the beekeeping industry will never really achieve its aims of "Better beekeeping – Better marketing" unless it is willing to pay for the services it requires.

Its magazine, its public relations, its executive officer services, its marketing ... the cheapest option is not always the best. Or as they say on Wall Street, "You can't expect to make money unless you invest money".

For the 150-odd beekeepers for whom beekeeping is a full-time business, New Zealand can at times be a fairly lonely place. Among 10 000 horticulturists, 50 000 pastoral farmers, myriad local bodies and 3 million consumers, it's sometimes a little hard to hear the buzz.

The Agpress team has its ears well attuned. We hope that the sounds we hear will be of beekeepers doing well and making their political needs felt.

Trevor Walton
Editor

CORRESPONDENT

CONFUSED SEX ROLE

Dear Sir,

I too, like Piers McLaren wondered about female flowers producing pollen. However, I'm even more confused by Murray Reid's electrical terms. I learnt nothing behind the school bike shed with regard to AC/DC, only how to roll your own.

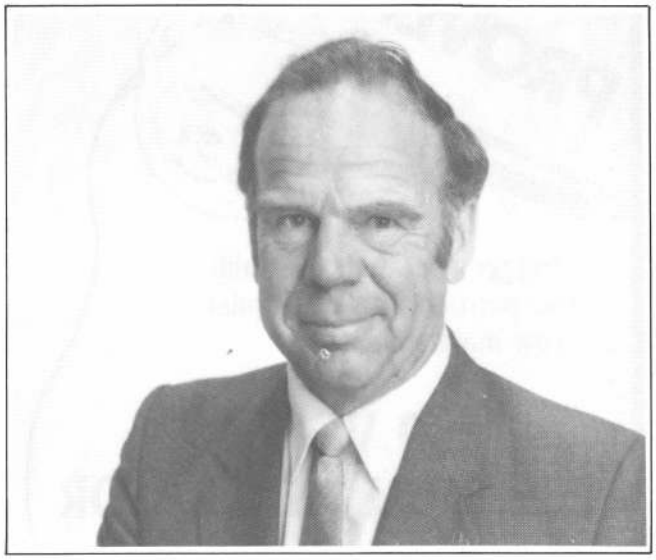
But to the point of my letter, can Murray tell us if anyone has tried to induce the female pollen to fertilise the male ovary? Perhaps if this induction could occur we could get a crop of kiwifruit off the male plants!!!

Yours,

Wondering.
Nelson.

PRESIDENT'S REPORT

NBA president Ian Berry



SINCE ACCEPTING the position of president of the National Beekeepers' Association at Nelson I have been giving some thought as to how best to serve the industry for the coming year. I feel it is important to keep beekeepers informed as to what is going on at national level, and the logical way to do this is to report every three months through "The NZ Beekeeper".

All members of the executive and our general secretary were in attendance at the meeting we held on September 13–14, 1983 in Wellington. A copy of the minutes has been forwarded to all branches and anyone wishing to know full details of this meeting should contact their branch secretary.

We were not able to spend as much time as we would have liked on industry planning and industry promotion because of a rather full agenda. We decided to hold a two day meeting, on November 26–27, 1983, instead of the one day meeting normally held at this time of year, to allow more time to discuss these important issues. Other issues which the NBA is involved with at present are:

A new editor for "The New Zealand Beekeeper": The executive and I feel sure the majority of New Zealand beekeepers will be sorry to lose the services of Mr Trevor Walton, the editor of "The NZ Beekeeper" for the past eight years. Trevor has brought many improvements to our journal including our logo, the larger pages and generally improved layout.

Some of Trevor's more subtle touches, such as the photograph of Peter Pegram and his 20 foot container balancing on blocks illustrating my reply about the need for a balanced industry in the September Journal, will be missed, and I would take this opportunity of thanking him on behalf of the executive for his help and co-operation over the years and to wish him and his team a prosperous future.

This issue of December 1983 will be Trevor's last issue of "The NZ Beekeeper", and we will need to have a new team in place for our March issue. Basically, when reorganising our journal we should be looking for a better journal at a lower cost, which may prove difficult if not impossible, but I do feel that more input in the way of articles from beekeepers and more help from the executive to the editor could make the editor's job easier and improve the content. Also, if we can find a way to increase circulation to the large numbers of beekeepers not receiving our journal, we could lower some of the costs. We can but try.

Sulphur to replace cyanogas for killing bees: Jasper Bray's suggestion at conference that this could be worth looking into looks like proving a sound one. With luck, the answer could be as simple as getting a good fire going in a smoker, spooning in some sulphur, blowing plenty of the resultant smoke into the hive and then blocking up the entrance. Mr Brian Sherriff of Cornwall, England, when talking to the Hawkes Bay Branch, confirmed that this is how he killed off any unwanted hives in the autumn. Two things to watch are, to keep a separate smoker for the job and do not accidentally set fire to the hive.

If any beekeepers are willing to experiment with sulphur or already have knowledge of this subject, why not write up something for the March issue and send it in to the general secretary who can pass it on to the new editor.

Hive branding: The executive recommends to all beekeepers that they seriously consider branding as much of their equipment as possible with their apiary registration number. There are two reasons for this: As a measure which helps prevent theft of beehives and, in the event of theft helps to prove ownership of hives in a court of law. Branding also increases the possibility that the culprits will be brought to justice and that the hives will be recovered. It is one thing to know the hives are yours but a very different thing to be able to prove it if they are not branded.

Second, if you wish to borrow money on the beehives you are more likely to be able to do so if you can show the potential lender your hives are readily identifiable. Firebranding is a very quick and cost efficient method of branding once you have the necessary equipment.

Hive levy and subscriptions: On deciding to leave the hire levy at 17.5 cents and the membership subscription at $12.50 for 1984, the executive realised we could be running a pretty tight budget for the next financial year. However, we were reluctant to make any changes during the price freeze and also considered it prudent not to make any move until the situation with the money from the two Trust Funds being set up becomes clearer. At the time of writing this report (October 17, 1983) the winding up of the Honey Marketing Authority and the setting up of the Trusts has still not been finalised; we do have the assurance of the chairman of the HMA, Mr Ivan Dickinson, in a letter dated October 7, 1983 that he and his board "are endeavouring to expedite these matters of the Authority and Trust as soon as possible".

By the time this is published most of the problems of getting the bees through to this season's honey flow should be over and I would like to wish all readers the very best for the festive season, a bumper honey crop and a prosperous 1984.

Ian Berry.

KING BEE

(WHERE THE NBA HAS ITS STING)

Pollination costs

There seems some hesitancy by NBA executive to accept that the price freeze exemption negotiated by Bay of Plenty pollinators benefits the national industry. Executive requested more information from Bay of Plenty branch on their request that NBA pick up the $350 tab for the negotiations.

In IBRA

NBA has joined IBRA as an individual member. Costs are £28.50 for the 1984 calendar year and copies of the Journal of Apicultural Research will be made available to the librarian.

Don't thaw the freeze!

It appears that somewhere out there someone may be attempting some fancy footwork through the Price Freeze Regulations.

Honey producers should be aware that the Department of Trade and Industry is ever vigilant in its investigation of possible breaches of the Price Freeze.

We publish, without further comment, a letter sent to Mr S. Goodman as secretary of the NBA, by G.W. Hedges for the Secretary of Trade and Industry:

"It has been brought to our attention that some honey producers may be selling honey at prices which contravene the Price Freeze Regulations 1982.

"It appears that some producers are incorrectly assuming that sales made to new customers can be made at market prices.

"However the Price Freeze Regulations 1982 specifically provide under regulation 4 that the maximum price that goods may be sold shall be the normal price at which those goods were sold prior to the freeze. This regulation limits honey producer prices to levels that do not exceed the prices that producers realised prior to the freeze.

"I am advising you of this situation so that you may in turn clarify the situation to your members.

"I would be pleased to outline the situation more fully if you feel this would be of benefit to your members and the industry generally."

MARKET REPORT

No shortage of honey in shops

by Ian Berry

WHILE SOME NZ honey packers have run short of supplies, it appears there will be no real shortage of honey in the shops before the new season's honey becomes available. By that time however, honey stocks in the country will probably be at their lowest level for a number of years.

Beekeepers interested in export marketing are reminded of the list of beekeepers who are prepared to offer advice to potential exporters which was published in the September The NZ Beekeeper.

The Bank of New Zealand have a booklet entitled "Help for the Exporter" and no doubt other banks have useful information available to potential exporters.

The following extracts from the "Honey Market News" of October 31, 1983 give an indication of the market conditions in the United States during October 1983. At November 9, 1983, US$.50 cents a pound was equal to NZ$1.68 per kilo.

Northern and Central California

Most packers cannot match the price levels fixed in the government loan programme and remain competitive with imports, so a large portion of this season's honey crop is being put under the loan programme.

Bulk honey prices were 'significantly lower' in October with light amber ranging between 44 and 46c/lb, 2c below the September range.

Foreign honey sources were aggressively making offers. Canadian good quality clover, white and alfalfa white to water white colour grades in large volumes, were from 50 to 50½c/lb with very liberal credit terms and delayed payment schedules. Packers were buying for future delivery, anticipating the early 1984 market.

Beeswax market: Trading very limited and slow. Only best quality light coloured beeswax sold. Offering prices remained unchanged at $1.10/lb for light coloured wax. An occasional handler paid $1.50/lb for large volume sales (over 2000 lbs) of the best clean light coloured beeswax.

Bee pollen: Beekeepers continued to make active offerings on large supplies of pollen but handlers reported only a very limited demand. Sale remained steady but slow on packaged pollen for human consumption through retail outlets.

Handlers report surplus inventories with large volumes held in freezers awaiting consumption. Trading in bulk pollen has been light with most sales at the bottom end of $2.80–$3.50/lb.

A new but potentially large outlet for pollen is bee feed pollen. It can be mixed into the late winter – early spring feeding programme to build winter colony strength. Trading for bee feed pollen has been moderate but is expected to expand at a rapid rate in the near future. Handlers report that trading for supplies or barter is a common method used in bee feed pollen exchanges.

Cash sales are limited and are in the $2–$2.50/lb range for the occasional large exchanges between pollen producers and packaged bee suppliers who use the pollen as a supplement in their feeding programme.

New bee hazard warnings for registered pesticides

ANOTHER IMPORTANT step in improved bee protection under the Pesticides Act 1979 has now been taken with the completion of the Pesticides and Bee Toxicity Warnings List. The following is the list approved by the Pesticides Board on 15th September 1983.

PESTICIDES AND BEE TOXICITY WARNINGS

Toxic to bees – Spray must not contact plants in flower if they are likely to be visited by bees.

PESTICIDES

Aminocarb	Azimphos-Ethyl
Azinphos-Methyl	Carbaryl
Carbophenothion	Chlorphyrifos
Cypermethrin	DDT*
Deltamethrin	Dialifos
Diazinon*	Ethion
Etrimphos	Fenitrothion*
Fenvalerate	Lindane*
Maldison*	Methidathion
Methiocarb*	Naled
Parathion*	Parathion-Methyl
Permethrin	Phosmet
Pirimiphos-Methyl	Prothiofos
Triazophos	Trichloronat

*(not pellets)

Toxic to bees – Do not apply to leguminous plants in flower except in the evening and spray must not contact other plants in flower if they are likely to be visited by bees.

PESTICIDES

Bromophos	Dichlorvos
Endosulfan	Trichlorfon

Toxic to bees – Spray must not contact plants in flower while bees are present.

PESTICIDES

Bioallethrin	Bioresmethrin
Dinoseb	Dnoc
Pyrethrum	Rotenone

Toxic to bees – Spray must not contact plants from X days before flowering to petal fall if the plants are likely to be visited by bees.

PESTICIDES	DAYS
Acephate	7
Carbofuran	7
Demeton-S-Methyl	7
Dicrotophos	7
Dimethoate	7
Formothion	7
Methamidophos	7
Methomyl	10
Mevinphos	3
Omethoate	7
Oxamyl (not pellets)	10
Pyrazophos	3
Thiometon	7
Vamidothion	7

Toxic to bees – Spray must not contact plants in flower if they are likely to be visited by bees except in the evening when bees have stopped working.

PESTICIDES

Pirimicarb

As can be seen there are five different warnings which appear after the words "Toxic to Bees" and a list of different pesticides under each heading. Under the Toxic Substances Regulations all labels on pesticides will have to be updated by 1st August 1984, and the new "Toxic to Bees" warnings will be incorporated in the new labels as they are brought into use.

Regulation 14 of the Pesticides Regulations 1983 reads as follows: "14. Use of pesticides toxic to bees – (1) This regulation applies to every pesticide in respect of which the label approved by the Board bears the words "Toxic to Bees".
(2) No person shall apply any pesticide to which this regulation applies otherwise than –
(a) In accordance with a permit issued by the Director-General; or
(b) In accordance with the warning appearing on the label."
Regulation 16 of the Pesticides Regulations 1983 includes the following:–
"16. Offences – (1) Every person commits an offence and is liable on summary conviction to a fine not exceeding $1000 and, where the offence is a continuing one, a further fine not exceeding $100 for every day or part of a day which the offence has continued, who –
(a) applies or causes to be applied any pesticide in contravention of regulation 14 (2) of these regulations."

While I feel publicity and education must remain our main thrust for reducing bee mortality from pesticides, the above new laws should be a big help in dealing with this difficult problem. The new laws also show the importance to the beekeeping industry of having a NBA representative on the Pesticides Board, as it gives us the means of ensuring our problems are not lost sight of among the many other problems in the wide and complex area of pesticides.

I would like to place on record the industry's grateful thanks to all who helped bring about these improvements in bee protection and especially to the Board, the Secretariat and Mr Pat Clinch.

– Ian Berry

LIBRARY NOTES

THIS TIME we have nothing to report about any new items received by the Library.

There have been several enquiries about a catalogue, sorry it is not available yet. It is in the hands of the general secretary who is trying to find the best way and means to produce a supply of this necessary list.

As our present Editor is not renewing his contract we would like to thank Mr Walton on behalf of the library and its users for the many magazines, and also some books, he has passed on or donated.

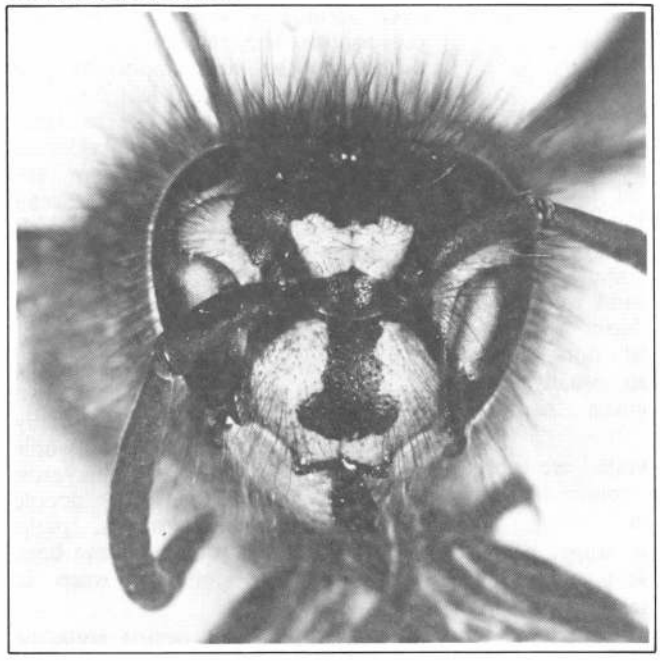
John Heineman
Technical Library
P.O. Box 112
MILTON

Japanese accept we're antibiotic free

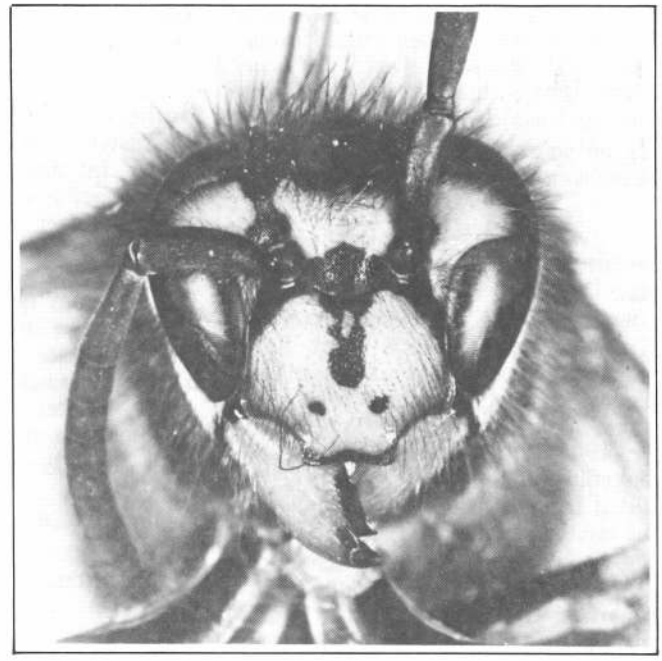
AFTER VERY lengthy discussions the Japanese Government has agreed to waive the testing of New Zealand honey for the presence of antibiotics. According to MAF apicultural specialist Murray Reid, Japan is now prepared to accept the additional statement "Free from Antibiotics" on the official export certificate for Japan which must accompany all honey to Japan.

This is a requirement able to be met by the New Zealand beekeeping industry due to the prohibition in the Apiaries Act 1969 on the use of drugs for controlling foul brood.

Common wasp female



German wasp female



The common wasp is here

On February 3, 1983 Dr Barry Donovan of Entomology Division, DSIR, Lincoln, found a worker common wasp (*Vespula vulgaris)* buzzing in the gutter of George Street, Dunedin.

During April, six nests of this wasp were discovered by entomologists from the University of Otago and DSIR and undoubtedly other nests remained undiscovered. Workers, drones and queens were captured within about 20 square kilometres of the central city area of Dunedin.

Subsequently, one of four workers which had been captured in Lower Hutt on February 13, 1983 by Mr G. Cheape proved to be *V. vulgaris*. Mr K. Bateman, of the Zoology Department, Victoria University of Wellington, indicated that he had earlier collected spring queens and a number of nests. More recently he has received common wasp queens from Nelson.

THE VAST area occupied by the common wasp, *V. vulgaris* in the world suggests that a very wide range of climate and other factors can be tolerated. If this is so, then probably most of the vegetated areas of New Zealand will become occupied by this pest.

There would seem to be no reason why the rate of spread of the common wasp should be markedly different from that of the German wasp *V. germanica,* which was distributed throughout the country within about 15 years. However, much depends upon comparative queen production and nest establishment rates, for which there is little information.

If as in the northern hemisphere the common wasp becomes more common than the German wasp, it can be anticipated either that:

- German wasp populations will remain stable, and common wasp numbers will be additional (and therefore increased wasp problems will occur)

  or that

- German wasp populations will decrease so that the overall number of wasps will show little or no change.

Possible control measures

Extermination of the common wasp would not be possible without a massive effort because of the size of the areas occupied.

In 1979, Entomology Division, DSIR, initiated a biological control programme for German wasps. A parasitic hymenopteran, *Sphecophaga vesparum,* which lays eggs in sealed wasp brood cells, was imported into New Zealand from North America and Europe and has been kept in quarantine since then.

The common wasp is a preferred host, but it was anticipated that the German wasp would be successfully parasitised. Now that the common wasp is present in New Zealand there should of course be an even greater possibility of establishing the parasite.

Host specificity tests have been carried out on *S. vesparum* to ensure that it will not parasitise honey bees or other species of bees. Although two drone brood cells in comb from which honey bees had been removed were found to have been attacked, other tests have shown that worker bees completely destroy these parasites. Honey bees throughout the northern hemisphere have never been known to be attacked by *S. vesparum.*

Permission to field-release the parasite has now been given, and if sufficient adults can be reared releases may begin next summer. Even if the parasite does become established, however, little effect would probably be noticed for many years.

If common wasps attack your beehives, the most effective means of control will be to destroy wasp nests within 1 km of the hives.

It will be important for beekeepers to watch for the appearance of common wasps in their areas, and to note any behavioural differences between the two species of wasps. The interactions ▷

of the new wasp with honey bees should become obvious within several years and hopefully they will be no more severe than those with the German wasp. Time will tell.

If you want to have wasps identified, specimens can be sent to the author.

Origins

New Zealand's common wasps probably originated from one or more fertilised queens which must have reached the country on ships and/or planes. Several specimens were captured in the North Island from 1921 to 1945, but the Wellington and Dunedin colonisations probably resulted from queen introduction during the late 1970s.

The original range of the common wasp was Europe, Asia and North America. However, by 1961 the species had become established in Melbourne, Australia and by 1973 was present on the island of Maui, Hawaii.

Specimens from Dunedin are much larger than those from western North America, which suggests that that area is not the source of our infestations. No comparison has been made with wasps from other areas, but the speed and volume of world transport is such that they could have originated from almost any area of their range.

All six nests discovered in Dunedin were collected and studied. Two had not reached peak size. By late May no foraging wasps were observed, which suggests that overwintering nests may not be produced in the Dunedin area. (A perennial nest has been reported in Southern California). The largest nest taken in Dunedin was spherical with a diameter of 370 mm and had 14 layers of comb.

The four nests that terminated naturally averaged 12 563 cells. This number exceeds by 2 863 cells (29.5 per cent) the cell average for 41 nests from England, examined by Archer in 1980, and is six times larger than the mean of 19 nests from the north-western United States.

Of the 12 563 cell average of the four New Zealand nests, 4 796 were large cells. It can be estimated that an average of 2 005 queens developed in each nest and the largest New Zealand nest probably produced 3 393 queens.

The large mean nest size and high number of new queens produced in New Zealand indicates that the common wasp is succeeding extremely well here and is able to compete successfully with the German wasp.

Biology of the common wasp

All castes of the common wasp are similar in size and colour to the corresponding castes of the German wasp. However, common wasp queens and workers nearly always have an anchor-shaped black mark on the face, whereas queens and workers of the German wasp have a simple black line or several dots. Males of the common wasp usually have much blacker abdomens than do common wasp males.

Nests of German wasps are grey, while those of the common wasp are mottled light brown.

Common and German wasps belong to the group of insects commonly known in the northern hemisphere as "yellowjackets" or "hornets". The total number of species of these paper nest-building social wasps is about 58. England has seven species and North America 19.

The two wasps are very closely related, and their biologies are essentially the same. Fertilised queens hibernate during the winter in sheltered, dry areas such as cracks in logs or spaces under peeling bark. When warmer weather begins the queens become active and search for a cavity in which to construct a nest.

European and North American common wasp nests have been located in tree stumps, underground cavities such as rodent burrows, and in spaces between walls of buildings. Sometimes nests are aerial.

The six nests discovered in Dunedin were all underground, although one was bulging from the surface of a steep bank.

The queen raises the first generation of workers herself, but after the first workers emerge she reduces her foraging and other activities in favour of increasing her egg laying rate. During mid to late summer the nest size increases rapidly, and by early autumn drones and new queens begin leaving the nest. Both sexes feed, then mate, after which new queens seek out hibernation sites for the winter. The deterioration of weather during autumn and early winter causes the death of drones and workers so by mid winter common wasp adults are no longer active.

The common wasp overseas

The common wasp is usually one of the most abundant of the seven wasp species present in Britain, although wasp abundance varies greatly from year to year. The common and German wasps are the most important pest wasps in the United Kingdom. In Austria, Germany and Switzerland, 220 of 337 wasp nests collected during 1980 and 1981 were the common wasp. Nests of this species were 3.3 times as common as nests of the German wasp.

In North America the common wasp is second only to *V. pennsylvanica* as a pest species. Yellowjackets, some of which must have been the common wasp have long been known to damage various fruits, especially grapes, and to attack and sting people working in orchards and vineyards. High wasp numbers can cause people to desert camping grounds, parks and zoos. Similar problems have been caused by the common wasp in Norway and Alaska.

On the other hand, wasps consume numerous insect pests such as flies, bugs, caterpillars, codling moths and pear psylla.

Of most concern to beekeepers is the possible effect of these pests on honey bees. Nuclei have been robbed in autumn in England, and dead worker wasps have been found among hive debris in the United States. There are three records of worker wasps killing foraging honey bees in the field in England, and similar records for Russia and Connecticut.

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Queen marking has its merits

by Nick Wallingford

BEEKEEPERS MARK queens for a variety of reasons. Among them being to make the queen easier to spot, to keep track of the age of queens in the hives, and to tell if the queen is replaced through supersedure.

Marking generally involves putting a dot of paint on the thorax of the bee.

Researchers who must individually mark large numbers of worker bees have developed codes involving several colours in a four dot matrix on the bee's thorax. Others use small metal tags with numbers that are glued to the thorax. To mark the queen the procedure need not be so involved – a single colour dot makes a queen highly visible and enables more accurate records to be kept. It is a simple procedure and I recommend it to all beekeepers.

Though most books about beekeeping suggest the use of airplane modelling dope or fingernail polish I have not found these very satisfactory. They are slow drying and the solvent that must evaporate would appear to be similar to an alarm pheromone. Queens marked are often chased and pulled about by the workers, resulting in damage or loss. Once the dot is completely dry, however, it does not disturb them, so take care not to place the freshly marked queen immediately back on the frame.

I have found typist's correction fluid a much better marking material. There is a built-in brush for applying the dot, a variety of colours are available and it dries rapidly. I keep a tightly-stoppered jar of it in a small pocket built onto the back of my smoker; whenever I come across an unmarked queen it is a matter of only 30 seconds to mark her. Once marked, the dot will last the life of the queen. The only problem I ever had was with a queen marked immediately before introducing her to a hive – the bees nearly chewed the dot off her and she was replaced later in the season!

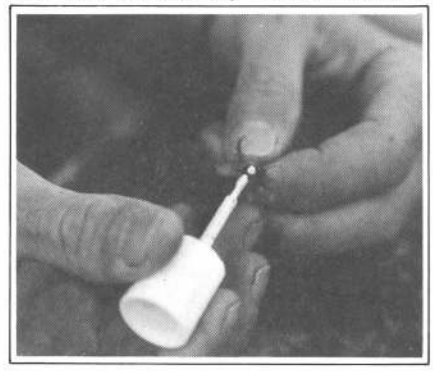
Handling queens for marking is not so difficult as most beekeepers believe. If in doubt of your abilities, drones make safe and expendable practice grounds. I don't wear gloves most of the time, but if you do you'll do best without them if you don't want to crush too many queens. Before picking the queen up, loosen the top of the typist correction fluid and place the jar nearby.

The queen is picked up by her wings, approaching her from behind with the right hand. She is then allowed to grasp my left fore-finger with her front legs, and with gentle pressure I transfer my hold on her to my left forefinger and thumb, generally holding her lightly by two or three of her legs.

It helps to brace the hand with the brush against the hand holding the queen, and steadying them both against the hive may be necessary. I usually hold the queen for five to ten seconds to allow the dot to thoroughly dry.

When put back on the frame the queen may try to reach around at the marking herself, and occasionally a worker or two may even react to her. I have had no losses so far as I know using this technique and material.

The dot *should* go on the thorax only. I'll admit to having daubed queens on the wings and once, with shakey hands, on her head. Even these queens were accepted by the bees and successfully headed colonies



Handling is not as difficult as some suppose and with typists' correction fluid marking is a simple exercise.

for two seasons. Occasionally, if the fluid becomes too thick it can be thinned with special thinners from a stationery shop. Young queens with many soft hairs on their thoraxes are especially difficult to mark if the fluid is partially dried out.

Some beekeepers with large or clumsy hands prefer not to handle queens directly; others feel that the odour of the beekeeper's hands might affect reacceptance by the bees.

A simple device can be used to hold a queen lightly to the frame while marking. A simpler method still would be to hold her down with a rubber band stretched between two fingers – take care not to exert the pressure on her abdomen and try to hold the queen with the rubber band between thorax and abdomen.

One equipment supplier sells a small (25 mm) push-in cage to temporarily confine the queen. She can be held lightly against the frame and marked through the large mesh cover.

If marking the queen only to make her easier to find, white or any light colour will work very well. If you want to keep track of age or strain, a colour coding system is needed. One advocated by the International Bee Research Association uses five colours.

For queens of the years with the indicated last digit, the corresponding colour is used. The series repeats every five years (by which time you most certainly *should* have replaced her!)

Year ending in	Colour
1 or 6	White
2 or 7	Yellow
3 or 8	Red
4 or 9	Green
5 or 0	Blue

This year's colour would be red, and next year's is green.

The only drawback I have found to marking queens is that I occasionally miss a supercedure queen, as I now often look for the colour dot rather than for the queen herself. Once you begin to mark your queens, I think you will be surprised at the number of successful replacements through supercedure that do take place within the colony.

Marking queens using these methods is an easy matter for any beekeeper. Hobbyists will find the daunting task of looking for the queen much easier. Beekeepers with larger numbers of hives will find it a useful system for more accurate recording of the queen's age.

The Arataki requeening team: Lynda Sutton, Dimitria Kyriakaki and Dean Compton.

Arataki team opts for autumn requeen

by Ian Berry

THERE WAS one good thing about the poor honey crop in Hawkes Bay last season. Not having much honey to handle gave us more time to do our autumn requeening.

There are three key factors in producing good crops of honey. Good queens, good sites and keeping the bees fed in the spring. While most beekeepers aim to have good queens in their hives the numbers of different ways of achieving this aim would seem about almost limitless. One of the most successful methods we have used for making sure our 6000 hives in Hawkes Bay are headed by good queens, not more than two seasons old, has proved to be autumn requeening with two day cells.

Last autumn we killed 3236 queens and put in 5117 mainly two day cells. That is, cells two days after they were grafted. We put the first cells in on January 17 and the last went in on March 15.

The difference between the number of queens killed, and the number of cells put in, represents the number of division boards put in where we killed the queens and put a cell in both halves of a two storied hive with a division board between the two boxes.

All hives were checked for queenlessness etc, and for winter feed later in the autumn, and we had a success rate of 80.4 per cent hives shut down compared with the number of cells put in. We had a total of 876 division boards left in at close down.

Because some of the checking was done after the queens had stopped laying, it was not always possible to pick out some of the queenless hives or the odd dronelaying queen, but we caught up with these during the first round in the spring. We united some of the spare divisions onto these hives.

While I have not attempted to work out accurately the number of queenless etc in the spring it would not have exceeded a further 5 per cent loss. This means we had a total of more than 75 per cent laying queens for the number of cells put in with the misses being more than covered by the spare divisions.

The cells were put out on a total of 41 days which gave us an average of about 125 cells per day. We normally had a team of three beekeepers killing the queens and putting out the cells.

Miss Dimitria Kyriakaki, one of our senior beekeepers who originates from Crete, usually led the team with two of our younger beekeepers, Lynda Sutton and Dean Compton, completing the team. These three did the bulk of the requeening but were helped out on odd occasions by other members of the staff.

The first step in our autumn requeening is when we remove the honey and reduce the hives to two boxes high, leaving each hive with equal to about six combs of honey for winter feed.

As always when removing honey, or as last season over much of Hawkes Bay when removing the empty boxes, we check the brood carefully for disease. We then place a queen excluder between the two boxes. Any member of the team removing honey who misses AFB at this stage is liable to be caught out as the requeening team will certainly pick it up a few days later. Fortunately, with the low incidence of disease we have had for many years, this has not happened for a long time but I can remember when it did happen on one occasion.

The hives are then left for at least four days so that any eggs in the box which does not have the queen are hatched, and it is then easy to tell which box has the queen.

AUTUMN REQUEENING

When requeening, the team works separate hives and they first split the hives in half placing the top half on the lid, or where our hives are four hives on a pallet under a common lid, on the inner cover. Then a quick check to see which half still has eggs and then a search is made for the queen until she is found and killed.

The only queens not killed are good young queens which have not been laying more than a few weeks and the occasional queen which cannot be found. This means we are killing some good queens less than one season old, but as we only requeen every second autumn it does not pay to save them.

The hives with queens which just cannot be found are given a cell anyway, but the hives are marked so we can check back and if the old queens are still there we can kill them and put on a division.

Normally, we do not miss many queens per day and while I have not checked the figures, I do not think it would be likely to average more than 3 per cent.

For the queens which we do not find by just looking over the combs, we have what we call a sieve box. This is an empty super lined inside with shiny tinplate lightly oiled and has an excluder nailed firmly on the bottom. All the bees from the box with the eggs are shaken into it and the bees smoked through, with hopefully, the queen and drones left.

If the queen still is not found, we can sieve the other box as well in case the queen got through the excluder which was between the boxes. We do not use the sieve box any more than necessary as it can stir up robbing and robbing can be the number one problem with autumn requeening.

We carry the cells in boxes on the truck, and as soon as the queen is killed we either place one cell in the hive and close it up, or if it is a strong hive, we check that it has at least two combs of honey and some brood in each box and put one cell in each box with a division board between them.

The boxes we carry the cells in are ordinary, full depth supers with gauze tacked underneath and two 50 x 50 mm runners nailed crossways to keep the box up a bit and allow the air to get underneath. On top we have a sack and a lid to keep in the bees. We have two bars of cells in each box, and on these bars we would normally have about twenty five two day old cells.

Care needs to be used when handling two day cells when wearing gloves, but it is surprising how soon most people can acquire the necessary skill. One of the big advantages of two day cells is that you can see that they are in good order when placing them in the hive, whereas a sealed over cell cannot really be checked without opening it up.

In the shade

When all the cells in the box have been used, the frames and bees are taken out of the box and the new cell raiser is made up as follows: One frame of young brood is placed between two frames of honey and pollen over one side of the box, and about nine good frames of bees are shaken in, taking care to get plenty of young bees and not too many drones. The sack and lid are then put on top and the box is put back on the truck or if the weather is very hot, underneath the truck in the shade.

When the truck gets home, the bees are put down straight on the grass (or dust depending on the season) and the lid taken off, the bag being pulled to one side and one frame holding two bars of sixteen cell cups each being placed alongside the brood. One corner of the bag is folded back when it is replaced, and one end of the lid is left tilted up so the bees have an entrance.

Next day, the cells are grafted and two days later we have more cells ready for the road.

We feed the cell raisers by placing a comb of honey further over in the box at the time of grafting and uncapping one side. The other side is uncapped the day after when the cells are checked.

Very simple

This method of raising cells is very simple and quick but there are two complications. The weather and weekends. If the weather is too poor to take the cells on the road, we either leave the cells and put them out later at eight to ten days from grafting, or collect royal jelly from them and regraft.

As we do not normally put out cells at the weekends, the bees brought home for cell raising on Wednesday, Thursday and Friday are not needed for grafting until Saturday, Sunday and Monday. In this case, where the cells are not grafted the day after the bees are brought home, we remove the frame of brood at the time of grafting.

When we check the cells the day after grafting we mark the number of good cells on the lid, and it is a simple matter when picking up the cells the next morning just to put the bag and lid back on the hive so the bees are shut in, and place the box of cells on a cushion on the truck.

Raising cells by this method is so easy we are normally able to raise more cells than we need which gives us plenty of scope for culling out any poorer cells.

After requeening, the hives are left for about five weeks when the hives are checked and if necessary, fed to a minimum of three combs of honey; any queenless hives are united with paper to hives with queens. The reason for leaving only three combs of honey instead of our normal six is because a lot of these hives are going into the winter as single storey hives. This does mean we have to check these hives again for feed in August.

One of the advantages of autumn requeening would be better queens. This is because there are lots of drones of the right age and the weather is normally more settled than in the spring. Also, the yellow drones seem more active in the autumn and this results in better coloured mating.

Spring can be a very busy period for beekeepers especially those who do a lot of orchard pollination. It has been a great timesaver this spring to have had sufficient spare one storey divisions with good young queens to not only patch up the hives requeened in the autumn, but also to make up the losses in the hives requeened the previous autumn. This means we have been able to concentrate our energies on feeding, evening up the hives for strength and supering instead of putting out cells and making up divisions.

There are several problems which can make autumn requeening difficult: If you have a heavy late crop you are too busy. If your crop is very poor perhaps you cannot afford to do the work. Robbing can be a big problem and unless you can keep it well under control, it is better not to attempt autumn requeening.

Wasps can also be a problem and hives stirred up and divided in the autumn with some hives finishing up queenless are an invitation for wasps to attack. Also, requeening in the autumn can be very hot, heavy work with the hives being full of old stinging

▷ bees, and the need to wear complete protection from stings at a time when the weather tends to be hot can be pretty uncomfortable.

The question of how much extra feed is needed to winter over divisions rather than dividing hives in the spring could be asked but from our experience in Hawkes Bay it is not of much consequence.

The timing of autumn requeening is important. We started a bit early this year with some of the first hives we did swarming. This means our queens flew away and the hives finished up with queens they had raised themselves.

It is also very important not to re-queen too late. From experience it can be very tempting to carry on a bit later than originally intended to finish off an area or make up for some hold up. Sometimes you get away with it, but other times you can finish up with a lot of drone-layers and poorly mated queens.

It is not always a matter of weather either. I suspect it has something to do with the fact that there are a lot less drones later in the autumn and perhaps the drones that are left are past their best.

This spring the weather was kind to us in Hawkes Bay for the willow flow, and it has been a real pleasure to see the beautiful frames of brood the young queens have been laying, the nice quiet yellow bees, and the very rapid build-up so useful when you are needing lots of strong hives for orchard pollination. At the time of writing (October 20, 1983) it looks as though we will be going into the coming season with the hives in excellent order for the hoped for honeyflow, and while the weather has been very helpful, I believe the main reason for our hives being in such good order, is the fact we have requeened such a high percentage of them during the past two autumns.

If you are not doing any autumn requeening at present and have not tried it before, I would suggest that you start thinking about giving it a trial run next February. You could find it leads to more honey at less cost.

An old timer picks up the editorial glove

A PREVIOUS issue had commentaries on the merits of gentleness in regard to golden bees as compared with dark races, so as one of the old timers you invited to write, I comment on experience on this subject, and especially the merit sometimes encountered with the black bees, as compared with some strains of golden Italians.

Now, I was once told at a conference that if Bill Bray were to talk on bee-keeping to listen carefully, and in conversation with him he told me that he considered that the well-regarded English bee was now only to be found deep in bush areas or high on mountains.

On travelling from National Park to Lake Taupo with my wife, we ran through a swarm at the Ketetahi hot springs track. I stopped, and when the swarm had clustered, I hived it.

The following spring, I took the hive to one of my apiaries at Turangi. The bees were quite docile to handle, and when I had to feed the other Italian hives, I found that they had nectar in the top corners of all the brood frames, and had gathered three supers of surplus honey. The next year in a poor season they gathered two supers.

Now if I had not had the usual strong bias against other than golden Italians, these were the bees I should have bred to use at National Park, in hard climatic conditions, but I lost them that winter, through taking all the honey above the brood nest to see just how good they could be.

Later I bought one hundred nuclei, golden in colour, and so gentle one needed no veil nor smoker, and established them at National Park. I saw that they had full combs of feed honey next to the brood nest, but they failed dismally to cope with the harsh conditions of the high country. All had brood patches in only two frames, and that only two or three square inches, and they died out.

Allen Hansen, who had bred them, told me if I were going to buy them regularly for the Park he would breed a darker bee for me, so he understood the likelihood, but also they seemed to follow exactly the behaviour outlined, in an article once published here, on the danger of in-breeding.

Where very many nuclei, for mating queens, are in one place, almost all from two or three selected breeder queens, I believe this is a definite danger.

Now for very many years, I bought two select tested queens from Bob Stewart. These bees gave very good results in honey production mated to local drones. The breeder hives were very gentle, but would decline in hive strength to very small clusters for winter.

The hives bred from them occasionally suffered from paralysis, and the producing hives had to be regularly requeened, because in a second or third cross they were so savage as to make handling most difficult and unpleasant, quite a danger to stock close by.

I had another experience near Waikowhai, on the West Coast, near Auckland. It had many acres of short Manuka scrub, now all covered in housing. A pig farmer collecting hotel garbage leaves from a fruit shop and trimmings from cauliflower leaves, used to leave sacks of the leaves for my brother's poultry farm. One day he asked me if I would hive a swarm for him, which I did, black bees, quite docile to handle. Soon I used to take full sections, beautifully capped and finished, every week. They produced 150 sections, using one brood nest and a half super, with no bother.

My own apiary near by, Italian and hybrid, were a real problem in swarm control, and in spite of doing all I knew – I was a hobbyist at the time – I could obtain nowhere near the same results. I did once find a lid off a hive, and a tommyhawk between two frames, quite a remarkable thing for the bees to have gathered!

One other odd thing, the ranger at National Park met me one day, and asked if I would remove a hive from a mountain hut half way up Ngauruhoe; they had been there for two years. Unfortunately, I then became heavily involved in the tutine honey affair, and was unable to do it, and when I was able, the trampers hut had been fumigated. What bees to survive as high as that on a snow capped volcano.

I write of these experiences because one wonders whether the dark races might have special abilities and be useful in some districts which have special climatic hardships. In many areas the dark races are not at all good, but I expect in many cases these are hives which have regressed from Italian bees, and look almost entirely black, with a touch of Italian. It is probably difficult as Bill Bray said, to find the true old English bee, of good reputation, which one reads was largely eliminated by the Isle of Wight epidemic. Does anyone else remember many years ago the 'Gleanings' articles on 'Mountain Blacks', and their virtues, when one or two breeders advertised them as having special values.

J. R. Barber,
Piopio.

FROM THE COLONIES

WESTLAND

Late winter and spring seem to have returned to normal this year. Oh, we've had our rain – some heavy falls, with flooding, but we've had our sunshine too, and the hives this year came out of the winter and into spring in better condition than they have for some years. With fine spells during October, hives were generally more than sufficient in stored pollen and remarkably in some hives, to the point of showing signs of being pollen-bound or pollen-clogged . . . one of the better problems of beekeeping not often experienced here.

The weather at the time of writing (end of October) has been fine and very warm for some days, which may herald an early start to summer and the honey flow. Prospects for a crop generally look quite good, although we down here do not expect any southern rate this year. Given the right weather in December we could still do well off other bush and pasture sources. An average or better crop would be a lift to sagging spirits after last year, and I guess that would be true for most other areas of New Zealand as well.

Sandy Richardson,
West Coast.

BAY OF PLENTY

Though most of the winter has been quite dry and mild the Labour Weekend just past has got the rivers running high now; if there was just some way of evening it all out somehow. Hives in the Bay of Plenty have been quite slow in build-up. Some have seemed very reluctant to move up into a second box, but they haven't been reluctant to eat the syrup!

Hives in the Rotorua area have done well out of the spring. Hives near Five-finger had white wax and fresh nectar during the first week of August. Other bush flows have kept them nicely supplied. At present they are very strong and showing few signs of swarming.

The Branch held a Field Day on October 1 at John and Sue Brown's Katikati Honey Centre. A native plant nurseryman and speakers from the Tree Crops Association, Forest Service, spoke mainly on the topic of "Trees for Bees". Though the weather was a bit spotty, the programme was informative and the company pleasant.

The pollination period is approaching and beekeepers have been getting some much needed publicity to help avoid spray damage. Trevor Bryant and Dave Sawden of MAF have been writing some timely articles for the papers, and with the Fruitgrowers' Federation co-operation that we have had, the tremendous loss to insecticides may be reduced. The map system to monitor hives going in and out of the orchards has been extended this year to Katikati, as well as the Tauranga and Te Puke districts already covered.

By the time this magazine comes out, the hives will already be out of the orchards, a monumental task of hive shifting. In total, about 18 000 hives will be used in the Bay of Plenty this season, and these must all be moved in and out over about a five week period. Since they must be set out in orchards, trucks have to be moderately small to get around, and there is a lot of midnight oil burned before the whole exercise is finished.

Nick Wallingford,
Tauranga.

HAWKES BAY

Hawkes Bay is a beautiful picture this year, not a blade of burnt grass to be seen, in fact the rain has been coming every seven to 10 days with the prospect of an above average crop. Early Manuka is just bursting and the cabbage tree is in full flower.

A very enjoyable field day was held at the Community College, Taradale, with over 50 members attending. Many thanks to Martin Taylor, Ian Berry, James Ward and Paul Ashcroft our speakers. A sausage sizzle for lunch and congratulations to Nolene Blair for cooking and Greg Gear for the smoker competitions.

Kiwi pollination is just on this week so all hands to the trucks. Hope all the extractors are ready.

Better beekeeping.

Keith Leadley,
Hastings.

FROM THE COLONIES

SOUTH WESTERN DISTRICTS

The continuing warmth of a perfect spring has revived hopes for a more normal honey season. Colonies have strengthened well. Only a month to go as I write before the main nectar flow begins; one more important month of sugar feeding to end a long and difficult winter.

But there have been some weeks of self sufficiency – with a better than average flow from willow. Everything down our coast seems to be earlier. My farmer friends made silage in late September, orchardists are wanting pollination of hives a week earlier. Even the native bush along the upper reaches of the Wanganui River has come alive with blossom in abundance.

We've been reminded of the importance in spring of tree sources for pollen and nectar. Farmer host for our October field day was Hew McKellar near Feilding. Nearly every native tree he has planted along the fenced off banks of the stream through the middle of his farm is listed as suitable for bees. He has primarily planted for shelter, timber and beautification. We saw in his well laid out farm a natural habitat for bees.

The multi-purpose function of trees was also a special interest of Bob Hathaway at the National Plant Materials Centre at Palmerston North. Our field day group of beekeepers were shown many varieties of willow, eucalypts and acacia. He is compiling a list of those clones and species most attractive to bees.

In anticipation of a very busy harvest, a sub committee is already planning for next year's conference when we will be looking for you at New Plymouth.

John Brandon,
Wanganui.

OTAGO

After a very wet September (double the average rainfall and low number of sunshine hours) and not much better first half of October, beekeepers in this part of the country have had their troubles in completing their first round. However, the weather is much kinder to us lately and once again it is a pleasure to go out and work with the little buzzers.

Our sympathy goes out to our unfortunate colleagues in the Nelson and Whakatane areas. We know what a flood means (remember the Taieri disaster?) Bad weather up north plays havoc with queen supplies to us blokes here in the South. So we suffer a little with you.

In general, winter losses have been considerable: A larger number of queens than normal have packed it in and a number of hives died through starvation. Probably not surprising after the wintery summer and the very wet winter we now have behind us. Where near-willow hives have benefited this time, it is also noticeable that there is less incidence of pollen shortage than has been the case in the previous two or three seasons.

We held a spring field day at Middlemarch (Central Otago). Mrs Allison Mercer, who is doing brain research work at the University of Otago, told us how she is making use of the bees. Very fascinating indeed and it once again brought home how wonderful and amazing nature is. Cliff van Eaton, apicultural advisory officer, kept our interest with a good slides show on the subject of diseases, and a Central Otago beekeeper showed us how he goes about his operations. New executive member, Allan McCaw put us into the picture regarding NBA matters. A demonstration and visit to the nearby honey house of John Dale brought a good day to its end.

Some of our branch members joined Southlanders at the big working bee held at Telford Farm Training Institute in September, knocking up gear for the projected beekeeping scheme. A lot of work was completed with a lot of pleasure.

The following is the 1984 programme of events compiled by John Foote.

Friday, March 2 – AGM – Green Island Plunket Rooms at 8 pm.
Friday, May 6 – General meeting – Green Island Plunket Rooms at 8 pm.
Tuesday, June 5 – Otago–Southland convention.
Friday, July 6– General meeting – Green Island Plunket Rooms at 8 pm.

Friday, Sept 7 – General meeting – Green Island Plunket Rooms at 8 pm.
Saturday, Oct 6 – Annual Field Day.
Friday, Dec 7 – General and social meeting – Green Island Plunket Rooms at 8 pm.

John Heineman,
Milton.

CANTERBURY

We are enjoying an easy spring here in Canterbury; warm weather and no high winds have enabled the bees to make the most of a good willow flow and an excellent flowering of dandelion, gorse and broom. With the ready accessibility to these essential pollen and nectar sources, hives have built up extremely well.

However with the honey flow still three to five weeks away, swarming and feed problems may prove embarassing to many beekeepers.

Prospects for the honey flow look good. From Kaikoura to Oamaru the country has never looked better. Slow steady rains and overnight drizzle followed by hot days has brought away amazing growth. But, we all know too well, that a lot could happen between now and extracting time.

Honeydew has been slow this spring, but the prospects of a good flow are very good with trees covered in dew and warm weather enabling the bees to work it.

Markets and prices for honeydew are good with reports of forward sales being made at very acceptable prices. It is hoped that weak sellers won't again lower these acceptable prices that have been reached.

Preparations are well underway for the Christchurch A & P Show, in which the Canterbury branch is having a stand consisting of extracting and processing equipment, beehives, live bees, wax, photographs and a display of locally packed honey. This is to be held on November 9th, 10 and 11th.

Good luck to all for a successful season and best wishes for the new year.

Tom Penrose,
Christchurch.

WAIKATO

The Waikato had a cold dry winter again this year. Hives near heather and five finger gathered good stores and there were few feeding problems.

Spring was mild and queen raising began about two weeks earlier than usual with good acceptance of cells and early matings.

Kowhai flowering was heavy and a brilliant show this spring and no doubt many bees got drunk and have lost their licences. Willow and barberry both produced well in my area but were patchy in other areas. The barberry flowed so well here that there are some yards with supers of honey, something that hasn't happened for at least 15 years. Hives that built up on willow swarmed with the barberry flow, up to 20 per cent in yards over a wide area.

Lack of rain was a worry and there was a possibility of a season over by December. However, on October 5 it started to rain heavily and steadily, drains filled, rivers overflowed and the ground was well soaked. Farms have a flush of growth and their production is headed for yet another record.

As I write this on October 31, the weather has changed from humid with showers to cold with showers, and hives on the central plateau have used up their heather and five finger stores and feeding has become urgent.

Those using the new liquid sugar are very pleased as each

feeding is lasting two weeks longer than that mixed from bagged sugar.

Further to the branch's approach to the Waipa Council about the clearing of all willows, a deputation met with the council and received a sympathetic hearing. The council have agreed to leave some willows and are starting a nursery of their own which will grow many of the trees suitable for bees.

Prospects for the coming season look good if the weather behaves for us. Pastures are strong in growth, Rewa Rewa budding is good on the Coromandel but variable in other areas and the Tawari budding has started but the crop is always affected by the weather on the tops of the ranges. If the sky is clear and the tarseal is melting from the heat, that is Tawari weather.

A Merry Xmas and a prosperous New Year to all.

Ray Robinson,
Waihou.

POVERTY BAY

After the driest summer ever recorded, honey production figures were well down for the last season, but some rain did eventually come to change the country from brown to green. The winter was mild making wintering an easier task. Spring so far has been good also, with many working days available for the bees, with quite an abundance of flowers about. The fear of another drought is present, and has been predicted by some people, but we'll have to wait and see.

MAF has been busy with disease inspections lately, and I've been told that the percentage of infection is down so far this year – a good effort Murray and Co.

With kiwifruit plantings increasing, so too is the demand for bees. After a meeting of local beekeepers in October, Poverty Bay beekeepers involved in pollinating kiwifruit have formed their own organisation – the Poverty Bay Pollination Association.

The association has been formed to co-ordinate publicity on spray damage that could be caused by fruitgrowers spray programmes.

Hives being put into kiwifruit orchards will be marked on a map in the Fruitgrowers Federation office.

There are over 2000 hives involved in kiwifruit pollination from Tologa Bay in the north, to Muriwai in the south, and Te Karaka in the west.

Association members feel that with co-operation from all the different fruit growing orchardists, a decrease in the loss of hives by spray damage will result. Officers elected for the new association are President, John Thorpe, Secretary, Ian Stewart, Press Officer, Tim Gueze, MAF liaison officer, Ivan Race. There are still a few creases to iron out; perhaps we would be wise to follow standards set in the Bay of Plenty. Thank you Trevor Bryant for coming over and lending a helping hand.

Hopefully this will be a better season than last.

Peter Lamb,
Gisborne.

NELSON

I must confess I was among the fortunate, as several Nelson and Marlborough beekeepers have found themselves practising their skills at treetop and mudbank level this season. The official figures for total hive losses in the area amounted to 120. In one salvaged silted up hive that survived the deluge house bees are, to date, still endeavouring to clean out their sedimented larders.

Sustained rainfall in our region has ensured good pasture growth which could predict a clover flow in December.

Much general discussion at our recent branch meetings has been directed at launching a co-ordinated pollination service aimed at providing customers with a list of reputed ▷

suppliers who will conform to standards set out in a letter of intent. This should be seen, by all concerned as a healthy move in the right direction.

Fred Galea,
Hope.

SOUTHLAND

Many of the beekeepers in Southland have found at their spring inspection that their winter losses have been greater this year. Several theories have been advanced as to why this should be. The willow flow has been very patchy with the trees in northern Southland and some other areas being affected by frost. It is understood that the Te Anau area had a good spring build up. At the time of writing there appears to be an ample supply of pollen in most areas (something unusual for Southland). Some apiarists are unable to make up as many nucs as they would normally because of the lack of feed honey.

A very industrious and pleasant weekend was held at Telford Training Farm in conjunction with the Otago branch. It was interesting to see the many jigs used assembling boxes and frames and wiring jigs, and also foundation installation. Some members thought it may be a good idea to make it an annual affair. How about it, Otago?

Southland field day will be held at Andy Booth's Drummond honey house on Saturday January 28th, at 10 am. As with previous field days a full programme is being arranged. Bring your swimming togs as there is a swimming pool nearby. A good time should be had by all.

Les Foster,
Gore.

NORTHLAND

Spring has been most unusual with lower rainfall and milder temperatures than normal. Hives did not winter well though, and there has been mysterious field bee losses at times.

Pollination seminars at Whangarei and Kerikeri, organised by MAF advisory officers proved very popular with both beekeepers and fruit growers in attendance. Pollination is starting to grow in Northland now and will be big business in the future.

We were delighted to see Cliff van Eaton in the north and he gave a very informative address in Whangarei on queen breeding.

Crop prospects look good, even though we had our share of rain in late October. The rest is in the lap of the Gods.

Terry Gavin,
Whangarei.

NORTH OTAGO

In the last few months, North Otago has been experiencing Southland weather, rain and more rain. Consequently our willow flow which we all look and hope for never eventuated. But the old hands say poor willow flow good honey flow – we'll see if they are right.

The bad weather almost everywhere has put us a few weeks behind schedule and, of course, this delayed the queens which was not much help. However apart from that, things are looking reasonably good for a good season although we in North Otago have learnt not to count our honey until it is in the drum; a fortnight's nor' wester and the whole place could be parched and look like a desert. We must be due for a good season, we need it.

Well, as this is the last branch notes for the year, on behalf of all members of this branch I would like to wish everyone a happy Christmas and a bumper of a New Year.

G.E. Winslade,
Oamaru

Some observations of honeybees in kiwifruit orchards

by Doreen and Cameron Jay, University of Manitoba, Canada, under the auspices of the New Zealand Kiwifruit Authority.

WHILE UNDERTAKING a study of honey bee dispersal in kiwifruit orchards funded by the New Zealand Kiwifruit Authority, we had the opportunity to observe honey bees under various circumstances and to analyse pollen samples taken from traps places on various hives. The following observations are reported here with the understanding that other avid "bee watchers" may have also seen the same phenomena.

Bee behaviour in kiwifruit orchards

After a rainy period and/or a cool night, bees from hives placed on the ground appeared to take a long time to begin foraging the next morning despite ambient temperatures being high enough for bee flight. Perhaps some research, where hives are placed on stands off the cold ground, is required to determine if bees will fly earlier in the mornings.

It was obvious that bees had little difficulty in flying around, over, and even through gaps in windbreaks to forage on adjacent blocks of kiwifruit.

Bees fly freely through and/or beneath canopies of kiwifruit grown on either T-bar or pergolas which are not so dense as to prevent some sunlight from filtering through. However, in very dense canopy situations where little light penetrates (i.e., mature vines on pergolas) the bees usually fly over the top of the canopy and/or freely through it to forage on the flowers. Therefore, beehives need not be placed beneath dense pergolas but should be placed in sunny locations as the bees will fly over, under or through the canopy depending on its denseness.

Bees were sometimes seen circling in the same general area of kiwifruit blocks (where there was no hive) as they did in an adjacent block where a hive (or group of hives) was located. Apparently, some bees become disoriented because of the overall similarity of adjacent blocks. This does not appear to be a major problem, however, as only a few bees are involved at any given time and most of them return to some hive or other.

Bees must not become 'fixed' onto flowers of only one sex.

Some bees remain in the orchards overnight away from their hives. When their hives are removed from the orchards, these bees return to the hive site and can be seen circling or clustering at or near the site previously occupied by the hives. Usually, too few bees are involved to make it worthwhile for a beekeeper to return to pick them up, so the orchard should be sprayed with insecticide late in the evening or early in the morning (while the bees are clustered) so that no person is injured through stings.

Counts of bees were done on male vines at two hour intervals (0800–1800 hours, daylight saving time) to determine their daily activity cycle on kiwifruit. Although a few bees visited the flowers at 0800 and 1800 hours, most of the bees were active on the flowers between 0900 and 1400 hours with peak activity occurring at 1200 hours.

While bee counts were being made on male flowers between 0800 and 1800 hours their location on the vines was also recorded. It was observed that the bees gradually moved around the vines from the east to the west side as the day progressed indicating that they preferred the warm sunny sides of the vines. These observations should be considered in relation to bee activity in shady areas near windbreaks and the placement of hives in open sunny sites.

Individual bees were followed under both T-bar and pergola systems. Within orchards grown on T-bars, 79 per cent of the bees we followed moved along the rows (21 per cent between rows) while within orchards grown on pergolas 64 per cent moved along the rows (36 per cent between rows). The pegolas in this study had canopies that were about 20 per cent open. These results suggest that male vines should be grown in *each* row where bees are responsible for pollination. Because of the important implications of these observations, they should be repeated and extended.

Bee behaviour in relation to kiwifruit flowers

Almost every bee that visited male or female flowers attempted to collect pollen from them, and 96 per cent of the bees we observed carried pollen in their "baskets".

Bees visited a mean of 7.5 flowers per male vine and spent a mean of 18.6 seconds per flower (including flying time). They visited a mean of 7.7 flowers per female vine and spent a mean of 19.5 seconds per flower (including flying time). Thus a bee visits at least 100 flowers per hour when time to fly to and from the hive is also considered.

Of some 3000 bees observed, 99 per cent landed on the anthers of female flowers along side the stigmas. Only 2 per cent of the bees crossed ▷

over the stigmas as they collected pollen from the flowers. However, they were observed to "scrabble" for pollen around the antherial ring and to frequently brush against the stigmas as they did so.

The proportion of the antherial ring traversed by the bees was as follows: 52 per cent – ¼ of the ring; 41 per cent – ½; 6 per cent – ¾; 1 per cent – full circle. Most of the bees also retraced their route around the ring within the areas indicated above. If the bees carry viable male pollen, likely some of it would be transferred to the stigmas as they brush the sides of the stigmatic cluster.

Some bees foraged on male flowers only *or* on female flowers only and thus contributed little to the pollination of kiwifruit.

Analysis of pollen collected from pollen traps

We observed that male and female pollen differs in colour when packed in the "pollen baskets" of honey bees or when taken from pollen traps. This is a useful tool for monitoring the progress of male and female bloom, analysing the foraging activity of bees on "foreign" crops, ascertaining the degree of "cross-overs" between male and female flowers, etc. Microscopic examination of pollen loads, in combination with pollen staining techniques, can be used to verify field observations.

Preliminary analysis of pollen trap samples, collected at various times of day over several days, indicate the following:

- The number of male pollen loads decreased in the afternoon while female loads increased.
- Dried loads of male pollen were heavier than dried loads of female pollen; both types of loads weighed less in the afternoon.
- In most orchards the number of male loads decreased over time while female loads increased.
- In general, the number of mixed pollen loads (i.e. containing both male and female pollen) increased over time within any given orchard. This appears to be a good indicator of "cross-overs" of bees between the two sexes of flowers and hence their value as pollinators. Usually more mixed pollen loads were collected from mature pergola orchards where perhaps a greater overlap of male and female flowers occurs and hence the chance of a bee changing from one floral type to another may be enhanced.
- About *three-quarters* of the loads collected in pollen traps from *all* orchards contained *some* male pollen – an indication of the degree of "cross-overs" that occur between the two sexes of flowers by the bees.

Counts of pollen-collecting bees were done throughout the day as they returned to their hives. These counts showed that most of the kiwifruit pollen is collected between 0900 and 1600 hours (daylight saving time) with a peak at 1200 hours (25 per cent).

The loads of clover pollen in the traps showed that it is collected primarily in the afternoon. The amounts were as follows: 1200 hours – 9 per cent; 1400 hours – 52 per cent; 1600 hours – 33 per cent. A similar pattern was also evident when all "foreign" pollens (excluding clover) were weighed together.

When intermittent cloudy and rainy weather occurred during a day, the amount of kiwifruit pollen in the traps increased and exceeded the clover pollen collected – an indication that the bees were foraging close to their hives.

The common pattern of pollen collection by bees (after hives are moved into an orchard where clover and other plants are nearby) is that the amount of kiwifruit pollen increases for the first two to three days and then decreases because it is being replaced gradually by clover and/or other "foreign" pollens. This is an indication that the bees are foraging further afield.

Conclusions

It appears that the numbers of pure (or mixed) loads of male and female pollen that are collected in pollen traps depend primarily on the numbers of male and female flowers (as well as their proximity) that are available to the bees at any given time. This is not a static condition as floral numbers of both sexes may change and/or may not be wholly synchronised over time. The ratio of male to female vines, as well as the pruning system used, may also affect (indirectly) the number of mixed loads found in the traps.

Based on the observations outlined above, the *time* when hives of bees are brought into orchards, and the *number* of hives that are required to pollinate a given number of vines, is critical. Sufficient numbers of *both* male and female flowers must be blooming when the hives are brought into an orchard to allow for "cross-overs" to occur between the two sexes and to reduce the number of bees that may become "fixed" to whichever flowers are blooming first within an orchard.

As additional female flowers come into bloom, and/or the bees are attracted away from an orchard by competitive crops (e.g. clover), it may be necessary to bring additional hives into the orchard so that populations of bees are in "balance" with floral populations. This is what is sometimes called the "sequentral addition of hives" and is an extremely important pollination technique.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the financial support of the New Zealand Kiwifruit Authority for this project, Arataki Honey Limited for providing hives of bees for this study, various kiwifruit growers who made their orchards available to us, and the many individuals within the NZKA, DSIR and MAF and the beekeeping industry who loaned us equipment and who gave so freely of their time for discussions and to become our friends. We are particularly indebted to T. Bryant and M. Reid for arranging our trip to New Zealand and to R. Berry, D. Barrow, P. Clinch, and R.H. Wilson for assisting us in so many ways.

Honeybee dispersal studies in kiwifruit orchards

by Doreen and Cameron Jay, University of Manitoba, Canada.

A STUDY of honey bee dispersal was suggested to us by a committee consisting of orchardists, beekeepers, and personnel from DSIR, MAF and the NZKA, and took place in 1982 within kiwifruit orchards located in the Bay of Plenty area. The main purpose of the study was to ascertain how quickly and evenly honey bees disperse throughout blocks of kiwifruit from single hives and from small groups of hives.

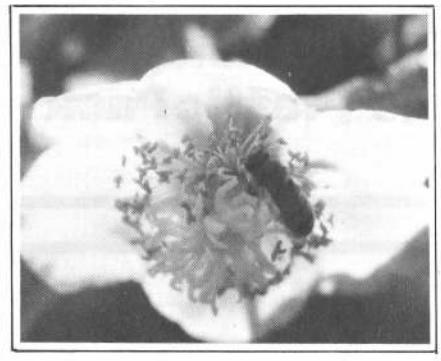
Most orchardists and beekeepers we interviewed agreed that it would be more convenient to situate small groups of hives at the ends of blocks rather than place single hives along side the blocks or beneath the vines, providing that the bees disperse quite evenly over the blocks they are to service.

Experiments were done in four kiwifruit orchards where the male and female varieties were Matua and Hayward respectively. The large number of hives required for the trials were supplied by Arataki Honey Limited from one area and were managed, fed, and handled in a similar way; thus the variation that might have occurred between hives, if they had come from various beekeepers, was reduced.

A "standardised" system was devised for counting bees that visited flowers of individual vines. This system allowed for direct comparisons to be made between numbers of bees visiting vines in kiwifruit blocks at various times of day, and at various distances from the hives. Counts of bees were made within blocks the day before the hives were moved into the experimental orchards and were considered in the results. In experiments two, three, and four (described below) bee counts were done at two-hour intervals (0800–1800 hours inclusive) on selected male vines. Male vines were used because they were in bloom early enough to provide the replication of experiments we required. We also used fluorescent dyes, which the bees picked up on their bodies as they left their hives, to show that the bees on the vines were from our experimental hives.

Our first study was done in a 65-acre kiwifruit orchard with vines eight to 13 years old grown on T-bars. The owners agreed not to place hives within this orchard so that we could determine the degree of dispersal of bees from about 300 hives that had been moved into the orchards surrounding this property.

Bee counts were made on three separate days on four male vines located in the centre block of the property and in each of four blocks located mid-way between the centre block and the north, south, east, and west property boundaries.



As expected, bee counts in these five blocks were as high or higher than any we recorded in other orchards in the Bay of Plenty area. This is a fine example of honey bee dispersal. This phenomenon has often been noticed by orchardists whenever one of their neighbours moves hives into his orchard before they do. Some of the bees fly to the orchard that has no hives and thus become a "shared resource".

In a second experiment two groups of four hives each were placed at the north end of four adjacent blocks mid-way between the two centre blocks. The vines were five years old, grown on T-bars, with each block about 2.3 acres in size. Counts of bees were done on two centrally located male vines in each block for the first two days after the hives were moved into place and again after five days.

A third experiment, involving three groups of three blocks each, was done in a five year old orchard where the vines were grown on pergolas. Each block was about 1 acre in size. Three hives were spaced evenly along the west side of the centre block of one group of three blocks, three were placed underneath male vines in the centre block of a second group of three blocks, and three were placed together at the south end of the centre block of the third group of three blocks. Two blocks, situated between each of the above groups of three blocks, received no hives.

Over the next two days after the hives were moved into place and again after five days counts of bees were made on four male vines within each of the nine blocks, two vines at the one-third point along the block and two vines at the two-thirds point.

A fourth experiment was similar to the third one described above except that the vines were grown on T-bars, each block was about 1.6 acres in size and the trial, where the hives were placed beneath the vines, was omitted from the experiment.

It was obvious from the first two or three counts of bees done on the first morning after the hives were moved into the orchards that the bees were dispersing quickly and evenly over each of the blocks in each of the experimental orchards. A statistical analysis of bee counts in experiments two, three, and four showed that within each experiment there was no significant difference in total numbers of bees counted within blocks regardless of which system of hive placement was used. Although total bee counts were similar, there appeared to be differences in the pattern of bee counts over the day.

We conclude, from these trials, that hives can be located in small groups at the ends of blocks and that the bees from them will disperse rapidly and evenly throughout the neighbouring blocks. This result should make palletising of hives by beekeepers feasible. Further, we predict that future research will demonstrate that the bees from larger groups of hives, placed strategically throughout a kiwifruit orchard (or even throughout groups of neighbouring orchards) will also disperse quickly and evenly throughout a larger number of neighbouring blocks. Thus more efficient use of bees, hive transportation equipment, and beekeepers' time and energy will result from such information.

by David Williams

Random thoughts for the festive season

DECEMBER BEING a nice, relaxed time, one in which all we amateurs sit back and watch the bees doing all the work, I thought we might adopt an equally relaxed approach for this issue of The NZ Beekeeper and come up with a few random jottings.

I recently had the pleasure of giving a short talk on Trees For Bees to the extension officers of the New Zealand Forest Service. A proposed ten minute presentation turned into what one bemused member of the audience described as a thirty minute rave, which is an accurate description of my usual speaking style.

But, as I said to them, they had had thirty years of forestry and I had only minutes to de-programme them and re-orientate them to Trees For Bees.

I had little warning of this appearance so the notes issued were a little hurried, but my seven page introduction was quickly augmented by various excerpts from several authorities who know more and write better than I do. Those who want a full copy, please let me know. Part read:

Plantings for bees

Plantings for bees have to take note of the realities of the situation. It could be said that bees do not need help and encouragement in summer. If there is not enough feed for them then they should not be on that site and the apiarist will soon remove them if they do not store an adequate surplus in any average season.

What is needed is that invaluable early feed. Spring is crisis point in any colony.

There is little point in recommending the natives even though the bees are enthusiastic about rewarewa, rata, pohutakawa, kamahi, cabbage tree, tea tree, hebe, and a host of others. The best we can hope for is that present areas be retained, large or small. Nor is there hope for an extension of barberry hedges, excellent bee-fodder but definitely anti-social with its spines – a danger to man and beast – while gorse is valuable to bees but disliked by most other land users. The list would be a long one.

Nor can we here consider what we might call the garden species, the bottlebrushes, holly (which the bees will work from dawn til dusk day after day), lonicera, phebalium, the escallonias, the grevilleas, cotoneaster – among the best, quince, japonica, plum, camellias, citrus, raspberries. The list is endless on these, right down to the succulents in the rockery, mint, lavender . . .

Our criteria for planting must be rigorous:

- Provides early nectar and, particularly pollen
- Must be a tree or at best a shrub
- Must have fast growth
- Must mature and flower young
- Must establish and grow on wide range of sites
- Must be attractive in itself
- Must be readily and economically available
- Must not be a danger to stock or humans – or bees
- Growing to only moderate height with foliage and flower over most of height

On these criteria the list would be a short one. In my personal opinion the selected species should be one of the following:

The willows: The spring nectar (a little) and pollen (a lot) producer: beekeeping would be impossible in many areas of New Zealand without it.

Acacia: The early-flowering acacias can make the hillsides yellow from July on – be warned – not all acacias flower at this time – correct choice is essential.

Eucalypt: It used to be claimed that the world record honey crop was from eucalypt forests in Australia where the bees were even observed working by moonlight. The garden variety, known as 'ficifolia', is excellent, but all are useful if unreliable.

Lime: *Tilia* spp. John Smith, apicultural advisory officer in Christchurch, came back from a study tour in Poland and was going to talk the whole of New Zealand into lining the streets and valleys of New Zealand with lime trees as the Poles do.

Robinia: An excellent producer but not quite early enough.

It always aids ones purpose to have a list of references readily available to dip into – the following is to help you in your tree planting programme.

Growing Your Own Food Bearing Plants by Selby Gouldstone; Macmillan. 1983.

Tree Farming And Bees by R.H. Tane; NZ Tree Grower 8/82.

List of nectar bearing plants from Beekeeping In New Zealand by T.S. Winter, MAF.

Bee Trees in Farm Forestry (sorry – my xerox has neither author nor date).

Nectar And Pollen Sources Of New Zealand by R.S. Walsh ▷

revised (with many spelling and typographical errors) and published by National Beekeepers Association 1978. Contains recommendations on plantings p. 49 et seq.

Multipurpose Plants For South Canterbury And North Otago by Kerry Simpson, MAF, Oamaru.

Nectar And Pollen Sources In The Bay Of Plenty in Starting With Bees by Trevor Bryant, MAF, Tauranga.

Willows For Bees by C.W.S. van Kraayenoord in Tree Crops 5/79.

Information leaflets from Queensland and Tasmania.

And talking of the gathering of information, I happened to have a few minutes spare in town so called in to the enquiries counter at the Department of Agriculture offices and asked for any free pamphlets they had on bees and beekeeping. In a couple of minutes I had the following AgLinks:

FPP 124 American Brood Disease in Honeybees; significance and control
FPP 372 Honey Bees: Establishment and management
FPP 392 Honey Bees: Swarms and feral colonies
FPP 428 Honey Bees: Overseas pests and diseases; features and potential damage
FPP 529 Beekeeping: Nectar and pollen sources; summer/autumn/early winter
FPP 530 Beekeeping: ditto; winter/spring/early summer
FPP 532 Beekeeping: Pollen production; collecting and processing
FPP 533 Beekeeping: ditto; pollen trap design
FPP 534 Beekeeping: Beeswax; production and processing
FPP 535 Beekeeping: Apiary sites; how to prevent drifting
FPP 536 Beekeeping: Wax moths; life history and control
FPP 537 Beekeeping: Apiary sites; selection and planning
FPP 538 Beekeeping: Urban areas; management to prevent nuisance

And now away from information sources to the talk of problems: There seems to be some vague feeling that this column should be a disaster area, listing all the things that go wrong with bees and beekeepers. That is certainly one of my functions. The other side of the coin is more positive. Beekeeping is the most interesting and most rewarding of all hobbies and I retain the right to say this as often and as loudly as possible.

On the subject of disasters in general and swarm prevention in particular, one of the most intriguing ideas for this I've come across lately was in Bill Carlile's Timely Chats (American Bee Journal, May 1983) where a correspondent of his prevents swarms by literally turning the brood chambers over as required. This apparently disorientates the larvae in the queen cells vis-a-vis the royal jelly and it dies.

I suppose if the NZ apiarist simply goes along turning 'em over every weekend through October and November then half his troubles are over. It is an intriguing possibility, but I would have to pack my Langstroths with 10 frames instead of the nine I use now, them boxes are pretty heavy and, sure as fate, all those frames would fall out on my feet just as I was all set to put 'em back down. I await a progress report from the American Bee Journal with more than eager interest.

But, talking of disasters, let me revert to an earlier discussion and ask again if you think the objective of beekeeping is honey production? Nonsense! As an amateur beekeeper your priority must be, not production, but survival. Not of you – humans are expendable and biodegradable – but of your colony or colonies.

Obvious, you say. Naturally, you say. In which case you have missed the point. There is nothing deader than a dead beehive, nothing messier, nothing sadder.

I have had a certain amount of feedback, a certain amount of discussion generated, by suggestions that an amateur beekeeper should know exactly what the state of his colonies is at all times. I will go further and say that colonies are at risk for ten months of the year.

This means that there are really only two months of the lunar year (or even less) when the amateur, having done everything else right, can sit back and relax and let the bees get on with it with a reasonable expectation that they will come out the other end unscathed. These two months are the duration of the honeyflow.

At all other times colonies are at risk – from natural attrition, accident, Acts Of God, genetic disaster and, above all, neglect and mismanagement – and of these two the last is at least as hostile as the first.

Water is one of the major factors in colony well being, particularly at the time of maximum brood rearing in spring when a source of clean, safe water is greatly appreciated. It should be continuously available in such a way that bees may take it without the danger of drowning. It should be non-chlorinated where this is possible.

Water is used by the bees for climate control and for mixing with the brood food. There are numerous suggestions as to how this supply should be achieved without putting up signposts to the nearest neighbourhood swimming pool.

One suggestion is to have a hessian-covered inclined board with water trickling down it. Another is to have wood or plastic floaters in a vat of water. Yet another has a boardman feeder in the entrance to each hive.

To my mind the best system is a tub of damp sand. This is easy to supply and easy to maintain. The sand gives the bees a firm surface to grip with their furry little feet and they can suck moisture from the sand quite easily. The sand bed can be either at ground level or in some sort of surround or container. A cut down 44-gallon drum is quite suitable, as is a concrete trough, while even plastic dustbins may fit in with the decor, perhaps sunk part-depth in the lawn.

This resource should be in full sunlight – the surface will not get too hot as long as it is damp; at a distance of at least 15 metres from the hive(s); this seems a comfortable distance for location and use; closer and it is not so effective; with continuous supply from hose, tap or tank and at least a drainage hole in the bottom.

Four colonies in one palletised hive

by Uncle Buzzy

Sometimes it is as useful to know what doesn't work, as what does work.

ONE DAY I loaded by hand a 7-tonne articulated truck to capacity with two-storey standard hives. I drove them 200 miles and unloaded them all by myself the same night. Would you be surprised to know I then went to bed, exhausted?

When I eventually awoke I decided there had to be a better way. I am not a little guy, but even so my arms will just straddle a two-storey hive and my hands just reach the bottom boards sufficiently for a good grip. They are heavy darn things to carry even when light with stores and it is really a two-man job. But two men on one truck seemed uneconomic and it looked as if a loader was a 'must'. Also, there *was* no other man!

So I reasoned if one needed a loader to lift one hive, why not get one to load a pallet of four? Hives in blocks of four sustain less stock damage in congested apiaries. It allows more room for cattle to graze between the hives and the hives appear to occupy less space than the same number spaced evenly. Farmers seem to like that.

Besides, time lost through fiddling about getting a loader ready for use at the apiary can be regained if four hives could be shifted at a time.

Two-queen systems were in vogue at the time, the theory being that one two-queen colony was supposed to produce more honey than two single-queen hives.

Statistics now indicate little if any advantage in the two-queen system (except for rapid production and build-up of top-splits with little extra equipment needed). However at the time I thought there may be more honey produced by the idea and if so why not improve on it and make a four-queen hive in one hive body on one pallet?

I made one and used it for five years. It was 3 feet square; a good size. For modbods that is 900 mm x 900 mm (provided your eyes are good enough to actually see a mm among five lines all the same length on a metric rule. This article is really intended for all those sensible guys who rushed down the road and bought all the imperial rules in the shops the moment metrication was announced).

There were no problems making the hive (with an imperial rule). It was cheaper than four separate hives. Each broodnest was provided with a queen excluder and supers were added above. When hardboard mats (standard size) were placed on top, the four colonies could be made independent of each other; but when the mats were removed and the big lid set in place on top, all the bees from the four colonies could intermingle (except the queens held below the excluders).

Everyone has noticed that some colonies in an apiary can be chock-a-block with honey and bees hanging outside the entrance like a swarm while other hives can be half-full. It seemed to me that if one colony gained extra strength through drifting or a 'super' queen or in spite of indifferent management then the overflow of bees would spill into one of the weaker colonies? No doubt it did happen that way. Drifting was no problem. If one colony was weak and another strong it was a simple matter to turn the big hive round (like a gramophone record) with one hand. That worked like a charm. So much for the good bits.

For five years I kept careful notes of the crop produced by the big hive and related that to the average of the other standard hives in the apiary. Alas, there was no difference. Another worry was AFB. What if one of the colonies picked up the disease? I had no disease in my hives (of course!). But what if the silly-bees did bring some home from naughty neighbours? Then the loss sustained would be four-fold in the four-queen hive. Bad news indeed.

Finally; there was an unexpected complication (there usually is). When one of the four queens died for any reason, that colony made no attempt to supercede her. They went queenless. It happened several times. Possibly the queenless colony was getting queen-substance from the other three queens?

In the end I could see no advantage in the four-queen hive so I cut it up into standard gear; which reminds me – about that time too, I considered there was a lot wrong with the standard NZ beehive. I set about trying several alternatives with a view to designing a better one. It was only after considerable amount of effort and trial and error that I came to realise how good our standard hive really is! It is not ideal in every respect but it is perhaps the ultimate in compromises.

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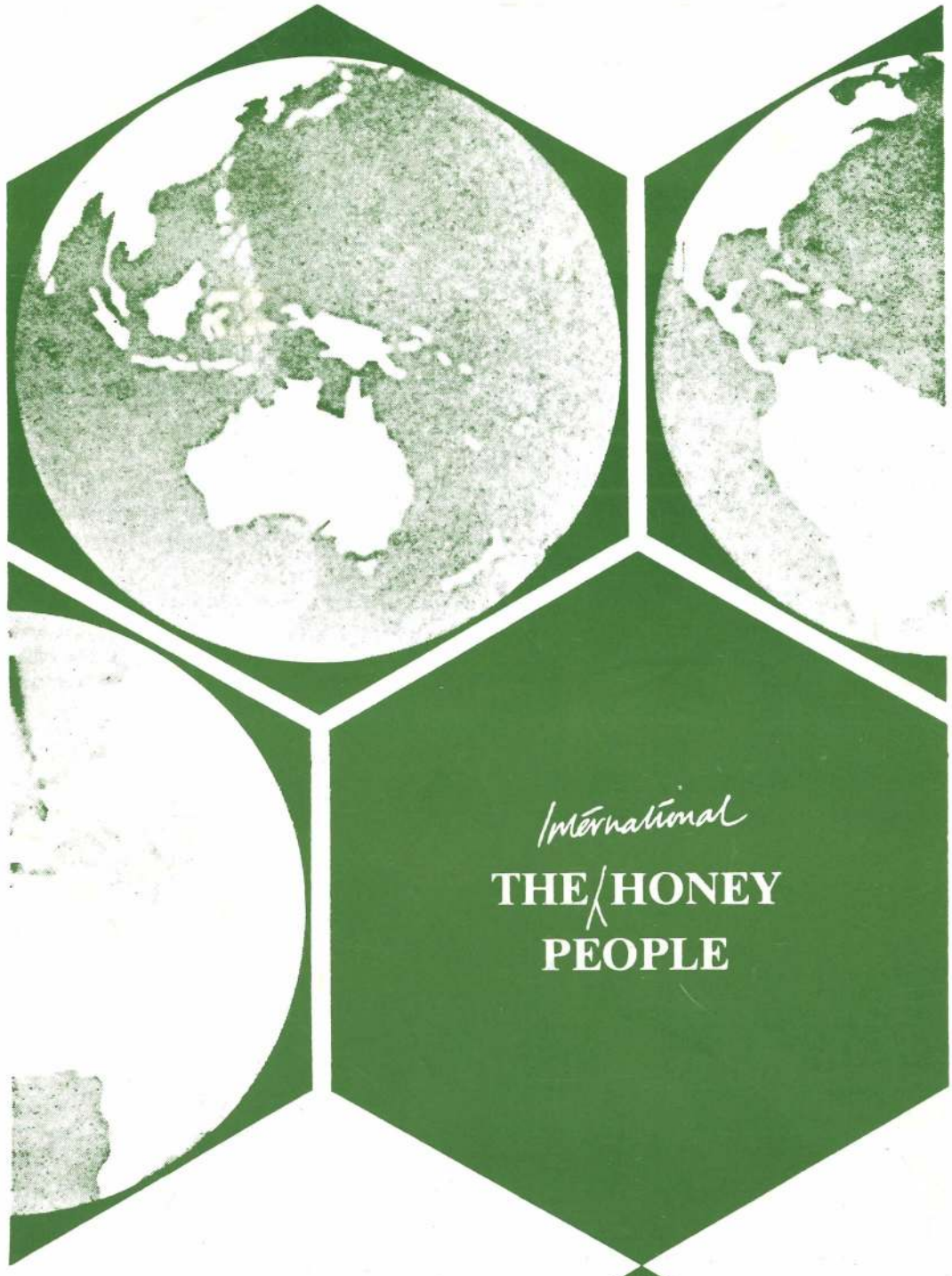

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