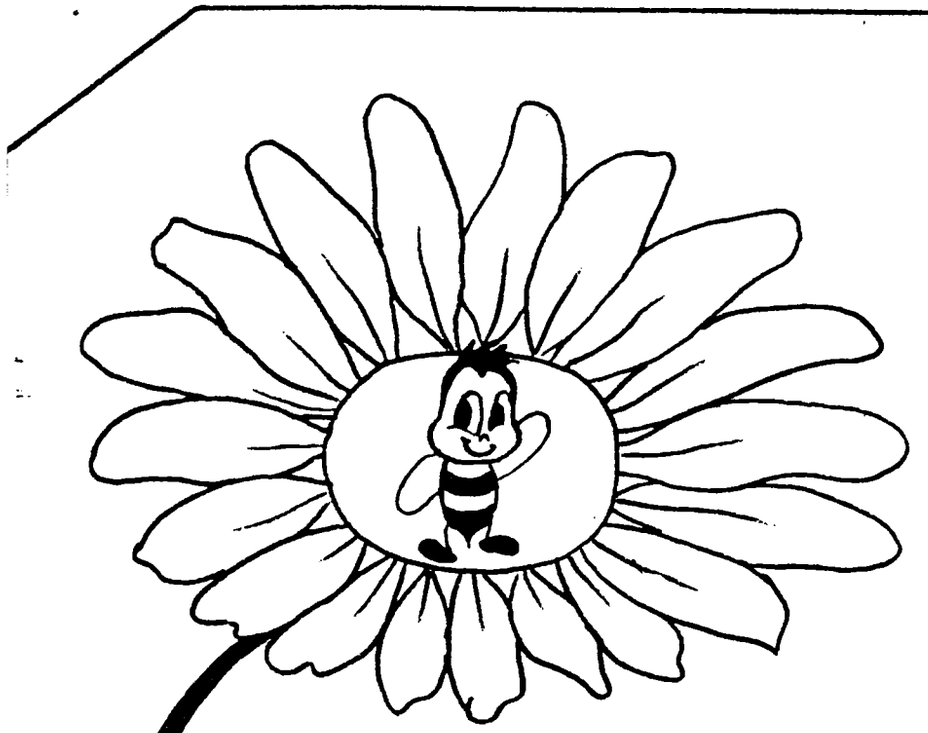

waikato bee notes

NO. 29
December 1986

* Season's news
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* Kiwifruit pollination - Mark Goodwin
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Ministry of Agriculture & Fisheries

I'm sorry I didn't get a spring issue of Bee Notes out to you. Events seemed to catch up with me and I ran out of time before leaving for the States and Canada. I'll make up an index and send that out with an issue early next year. I've not looked in too many hives since I returned from overseas but what I have seen and early reports seem encouraging - at least in the warmer parts of the Waikato. Here's a summary of what beekeepers are telling me.

* "Some hives have more honey on them now than all of last year."

* "Many hives that went to kiwifruit orchards in the BOP got very hungry."

* "I've never fed my bees so late as this year."

* "We had some pesticide losses in orchards."

* "The early season prices being offered by Wilson Neil - Hororata look great!"

* "Some person inspected my hives and cut the straps without telling me."

* "We've never had such a profitable year as the last one. Here's hoping for another good one this season." I guess we can all say amen to that.

KIWIFRUIT POLLINATION - "or what's been did and what's been hid"

Association meetings next year will have a lot of serious issues to grapple with following this year's performance. Some of the problems do not have an easy solution but we should discuss:

* number of hives needed and available for 87/88. We could be really short of good quality colonies.

* hive standards and commitment to these standards. We saw some pretty woeful hives in orchards this year.

* carrying, and using screen covers. At least one group of three trucks was spotted at a breakdown in daylight with loads of bees on board and no screens over the hives.

* securing hives properly. I've heard of three lots of gear being found on roadsides ranging from a lid, to boxes, to remnants of a whole hive.

* A few growers have been up to their old tricks of shifting hives within and between orchards which doesn't impress beekeepers too much at 2.00 am in the morning when they can't find their hives.

* the use of grower-beekeeper contracts. Some growers are refusing to pay accounts until they get an independent report on the condition of the hives in their orchards. In other cases beekeepers are ripping the growers off with terrible hives. We're calling these "MOHs" - made 'orrible hives!

* strapping of hives. Please use straps that can be undone by inspectors (see Waikato Bee Notes No 25 pages 11-12 for a way to tie plastic straps). Hives are likely to be inspected for disease (by MAF) or for condition (by MAF or other people, either in the employ of the beekeepers or the growers). If straps have to be cut I would expect the person responsible to let the beekeeper know. Many hives on pallets are brought out to the gate by the orchardist and if any hives are dislodged off the pallet someone is going to get severely stung.

* Spray damage and use of the orchard/apiary location maps at Fruit Fed offices. We had some spray damage reported but no doubt there was more than we realise. How did the reporting to Fruit Fed go? I hope you all did the right thing. It's in your own interests when all is said and done.

Meetings are always held to discuss problems which would never arise if we had fewer meetings!

COLLECTING KIWIFRUIT POLLEN - a bee's point of view

Those of you who were at conference or one of the MAF seminars in Hamilton and Tauranga heard Mark Goodwin, from Auckland University, talk about his findings on kiwifruit pollination.

Mark has made some interesting observations on pollen collection by bees.

<u>When do Bees Start Collecting Pollen</u>?

Because kiwifruit pollen is collected mainly in the morning, we've made extra efforts to get pollination colonies foraging as soon as possible. Ways of achieving this have included placing hives where they get the morning sun, lifting them up onto bins or pallets where it's a few degrees warmer, and putting sugar syrup out in the open at 6.30 in the morning.

But bees can't collect kiwifruit pollen until it's ready and waiting on the flower, so Mark Goodwin first looked at when the pollen becomes available for collection.

Pollen is produced in parts of the flowers called anthers, and isn't available to bees (or anything else) until the anthers have split open - a process called dehiscence. This takes place after the flower has opened.

Male flowers that are going to open on any particular day mostly do so by about 7 am. However, no pollen is available to bees until the anthers have split, and this doesn't happen until later. The anthers split between 8.25 and 11.00 in the morning on the day the flower opens. On each of the two following days the anthers don't split open any more, but they do shed more pollen at about the same time in the morning.

Anthers on female flowers (which honey bees visit for pollen too) also split open in the morning and release pollen, and each subsequent morning split open a little more and make more pollen available to bees. This goes on for five mornings, until the anther is completely open and all the pollen made available.

So we know that kiwifruit pollen usually becomes available to bees in the morning - from about 8.30 am onwards. There's not a lot of use getting the bees to forage much earlier than that in an orchard well stocked with bees, because there's simply no kiwifruit pollen available. As a public servant I can only admire the honey bee's ingenuity in this matter!

OK, so now we know why the bees begin to collect pollen in the morning, but what makes them stop in the afternoon?

The Afternoon Decline

You can see how bees knock off in the afternoon when working kiwifruit, simply by trapping pollen throughout the day. Kiwifruit pollen starts appearing in the morning (usually by about 8.30 - 9.30 am), rises rapidly in the morning to reach a peak just after midday, and drops off rapidly in the afternoon.

Some people have suggested this decline is caused by the pollen becoming dry and difficult to work. Mark Goodwin's results put forward another reason - that the supply of kiwifruit pollen simply runs out in the afternoon. In other words, in a well-stocked orchard without serious floral competition, bees are removing about all the pollen that is available.

Although the anthers split open around 9.30 am, pollen is still being liberated through the morning. The pollen liberation peaks about midday, and drops off in the afternoon. Sounds familiar doesn't it?

If the pollen is not removed, it just accumulates during the day so more and more is on the flower. But in fact pollen is removed in a well-managed orchard, by a high density of honey bees. In that case the amount of pollen available increases during the morning, peaks in the middle of the day, and drops off in the afternoon.

The foraging pattern of honey bees in a kiwifruit orchard is influenced by the availability of pollen. When it becomes less abundant, colonies move to foraging on other plants. Honey bees have a very efficient foraging system. Their dance language means that foragers are only sent out to work flowers that are worthwhile. When flowers become less productive, as kiwifruit usually does in the afternoon, foragers dance less to direct bees onto that crop and more to send them elsewhere.

Mark Goodwin tested this theory at how much kiwifruit pollen was available in an orchard with lots of bees, and also in one with few bees. With few bees in the orchard, pollen just keeps accumulating during the day. In a well-stocked orchard, pollen becomes more abundant in the morning as it's continuously released by the anthers, but there is less in the afternoons as it is removed by bees and not replaced.

What This Means for Pollination

- There may be no need to get bees out of bed before 8 o'clock. Don't take that as an excuse for being slack about hive placement: any colonies that don't get sun until mid-morning could still miss out on a lot of valuable foraging time.

- It may be a good sign to see honey bees working kiwifruit in the morning. and then moving in the afternoon/evening to other plants. This could indicate that the orchard has more than enough bees. (There could be other reasons, though).

- Kiwifruit pollen is attractive to honey bees, and pollen-collecting bees readily visit the flowers when pollen is available. The efficiency of the honey bee's communication system means that visitation decreases rapidly when pollen becomes less available.

- The proportion of the total pollen collected by a colony that comes from kiwifruit depends on the time of day, and also the presence of competing pollen sources. Over the kiwifruit blossom period, kiwifruit pollen makes up anything from less than 20% to nearly 100% of total pollen collected by a colony.

For the Future

It might be possible in the future for growers to monitor their pollination on a daily basis. Too much pollen left in the kiwifruit flowers in the afternoon means there's not enough bee activity. That problem could be rectified by putting in more and/or better hives, also reducing floral competition.

At the moment to do this accurately you need a microscope and a special device called a haemocytometer. You can get a rough idea of pollen availability by shaking several male flowers over a shallow dish filled with water.

For now though, these results knock on the head the idea that kiwifruit flowers are unattractive to honey bees, and they don't like its pollen. In fact they collect the pollen until it's all gone, and go back next morning to ask for more.

References:

- Goodwin, R M, 1986. The afternoon decline in honey bee collection of kiwifruit pollen. Unpublished paper presented to the Entomoligical Society of New Zealand conference, Wellington, 19 May 1986.

- Goodwin, R M, 1986. Anther dehiscence and the daily collection of pollen from kiwifruit flowers by honey bees. New Zealand Journal of Experimental Agriculture 14 (in press)

- Matheson, A. Beelines No 28 1986.

POLLENPLAN

This is a new consultancy service, available to kiwifruit growers with a less than satisfactory performance in their orchards.

MAF experts will visit with the grower and examine his orchard records in some detail. We look at the packout records and all aspects of pollination. This includes male vine management, placement, and performance as well as female vine management.

We'll also look at hive placement, quantity and quality of hives plus artificial pollination if that is appropriate. And lastly we give a written report to the grower with practical recommendations.

And what does all this cost? This will vary of course depending on what charging rate is negotiated with the grower. One recommendation is for a minimum rate of $250 per sheltered hectare and $30 per hectare thereafter.

So, if you know of any grower who is consistently getting undersized fruit you might like to recommend that he contact his local horticultural or apicultural advisory officer and discuss "Pollenplan".

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"If your outgoing exceeds your income
your upkeep will be your downfall."

C Hindhaugh

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PLANNING YOUR NEXT OVERSEAS TRIP!

Two big events are coming up:

* Apimondia: Warsaw, Poland, August 19-25 1987. The general theme of this congress is "Bee and Protection of Nature" but as usual there will be papers and demonstrations on all sorts of topics. Kevin Ecroyd is putting together another tour so if you're interested give him a call.

* Brisbane: Australia 21-26 July 1988. This is the second Australasian and International Bee Congress with the theme "Beekeeping in the Year 1998." The Aussies are expecting over 700 locals and 300 international visitors to Brisbane so I'm sure it will be as successful as the last one. They have some "heavy weight" speakers coming from Europe and the States.

  The registration fee is A$200 and this includes admission to the venue, arranged tours, proceedings, congress dinner and name badge.

At this stage I am planning on organising a tour to go over to Brisbane and have had preliminary discussions with Ralph Levinson of Landmark Travel, Bruce White in Sydney and the NBA Executive. Our industry conference falls in July so my suggestion to the NBA was for our conference to be held in Auckland and in the week preceding the Brisbane Congress. I was thinking that beekeepers from the South Island could carry on to Queensland rather than return home after the conference.

A very tentative tour could look like this.

Wednesday 13 July 1988 - Pre-conference seminar, perhaps utilising some of the speakers being brought to Australia.

14-15 - Conference, Auckland

Saturday 16 - Morning: at leisure in Auckland or tour of tourist spots, Ceracells factory etc.
Afternoon: direct flight to Townsville

Sunday 17 - Tuesday 19 - Explore the NE coast and offshore islands in the Barrier Reef.

Wednesday 20 - Travel to Brisbane and register for congress.

Thursday 21 - Tuesday 26 - Attend Congress in Brisbane and arranged tours with possible side trips to Gold Coast.

Tuesday 26 - Evening flight back to Auckland

Incoming Tours

Vince Cook, former Apicultural Advisory Officer Oamaru, will be bringing a group of UK beekeepers to NZ in January next year. The BOP branch will be holding their field day on 25 January when the UK beekeepers will be joining them. The venue is the Katikati Bird Gardens at 10.30 am (if fine or the apiculture building BOP Community College if wet.) Tea and coffee supplied but BYO for everything else.

An Aussie group is scheduled to visit NZ March 1-14 1987 and if the tour goes ahead they will join us at our Waikato branch field day tentatively arranged at Tony and Jane Lorimer's; same venue as last year.

When I was in Canada I promoted the idea of a Canadian beekeepers tour of NZ for February-March 1988. A large number of beekeepers were interested so the promotional wheels are already in motion. With the current interest in our bee shipments to that country it is very opportune for them to visit us and learn about our conditions and problems first hand.

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"If at first you don't succeed,
destroy all evidence that you tried."

* * * * * * *

USA AND CANADA REVISTED

I haven't really had time to sit down and digest all that I learnt on my recent five week visit to North America. I brought a heap of papers and documents back with me that I'll try and wade through over the holidays - and then on the other hand ...!

Highlights

So what were the highlights? They were many and most of then rather intangible. How do you put a value on personal contacts? I met a large number

"I'd like to go somewhere near my luggage please."

of scientists and caught up on their unpublished research work but more importantly I met the regulatory people in APHIS, USDA and Ag Canada who I have been dealing with over the years regarding our exports of queen bees and packages.

Negotiations

I was able to negotiate an easier system of permits for transitting the USA and also entry to Canada. The USDA have been testing some NZ queen bees for two years now and I have persuaded them to examine some of our package bees this coming export season. If they check out OK then I will have done my bit to gain access to the US market. The rest will be up to our exporters to find potential clients in the US who can apply for the permits to import.

Other valuable contacts made were with fellow apicultural advisory officers and industry people at meetings of the Canadian Association of Professional Apiculturists and the Canadian Honey Council at Charlottetown. These two powerful bodies make policy decisions for government to act on.

Canadian Industry

This large country has many beekeepers with vested interests all pushing and pulling in different directions. Sounds just like NZ of a few years ago doesn't it? What were the issues of the day?

* the likelihood of closing the western provincial borders to US stock was just beneath the surface. At the moment 17 counties within California plus six other states that are free of acarine can send bees to Canada under permit. Some beekeepers want the border closed now, others say it would ruin them.

* the movement to wintering (wrapping or sheds) is progressing slowly but it is an expensive operation and many beekeepers can't afford to change at the moment.

* wintering losses will need to be replaced from somewhere; NZ and British Columbia are not seen as the total solution.

* honey prices are depressed and the American loan programme is expected to affect sales even more. Beekeepers in Canada can produce newspaper ads for cut-price honey just as we do here!

  Sales to West Germany have run into problems following pollen analyses. The Canadians were asking for development of an alternative method to pollen counts for determining floral origin; the very project Seng To Tan is working on at Waikato University. Officials are now charging a $50 minimum fee to grade honey and C$25 per hour thereafter.

  They also were having problems with residues in honey especially sulphur (from drugs fed for foulbrood control) and phenol (used in cleaner boards).

* bears seem to be on the increase and causing a lot of hive losses each year. Gallagher electric fences are popular and work well provided someone doesn't steal the batteries or shoot up the solar charger!

* loss of nectar sources to maize is a big worry to beekeepers in Ontario and Quebec.

* chalkbrood seems to be everywhere and is the number one disease according to some commercial operators. Others say it is more a nuisance.

* information on the effects of the trachael mite are confusing. Some observations in Florida report that hives with the mites produced more honey than those without. However, on average my feeling is that most reports are either non-committal as yet or are suggesting the mites are causing economic losses. I was taught the technique of examining bees for the mites and some I looked at were 92% infected, ie 92 out of 100 bees tested had mites and each bee itself was loaded. It was hard to see how the bees could still breathe. I don't know if the trachaea or air tubes of bees are sensitive or not but it must be uncomfortable for the bees to have all those mites inside scritch scratching away and chomping on their vitals!

* Reports on our queen bees and packages were a mixed bag. Some beekeepers were very pleased with our stock with respect to temper and production but had doubts on their ability to overwinter. Others had had all sorts of problems and were not keen to repeat them. Unfortunately there was no easy solution to the problems. Some were no doubt due to
  - transport stress
  - beekeeper introduction techniques
  - hard candy
  - too long in queen banks
  - susceptibility to diseases such as chalkbrood and halfmoon disorder.

* Canada is considering applications from a number of other countries to export queen bees or packages. Australia has received very favourable consideration and may be able to export hives within a season or two.

* The African bee was a topic in every conversation. There is a lot of political wrangling and infighting going on in the US between personnel from the USDA, universities, APHIS, state governors, American and Mexican officials and beekeepers. The federal government is getting a lot of mixed signals so may end up doing nothing.

  There is a so called Barrier Plan that calls for placing 30-40 000 hives in a small isthmus in Mexico. This will cost around US$8 million to set up and about US$2 million per year to operate. Some wag tried to coin the term BRA or Barrier Research Area for the project but the official title is Bee Regulated Zone or BRZ!

  As well as all this some people are saying the African bees will be no problem when they reach the US, "we can handle them." Others are saying, "we'll be legislated and sued out of business."

  The Canadians can see an opportunity to sell non-Africanised bees back to the Americans, and no one knows what the effect will be on pollination. California, for example, has around 500 000 hives and another 120 000 come in from other states each year. A good percentage of these hives would be used to pollinate almonds, lucerne, kiwifruit and other crops.

* Canada still can't fill two scientist positions and one provincial apiarist position. They are being affected by budget cut backs and freezes on staff appointments. They are also talking about user pays more and more as we are doing here.

* Pesticides for grasshopper control caused a lot of damage in southern Alberta this season and the one before. This was a rather emotional issue at the Edmonton Conference. Egg counts suggest another bad season is coming up next year as well.

* However, all was not total gloom and doom. Some beekeepers appear to be doing well and even drive cadillacs, 100-150 kg/hive crops are still being produced and a number thought Canada II would beat KZ7, silly fellows.

"It doesn't matter if you win or lose,
until you lose."

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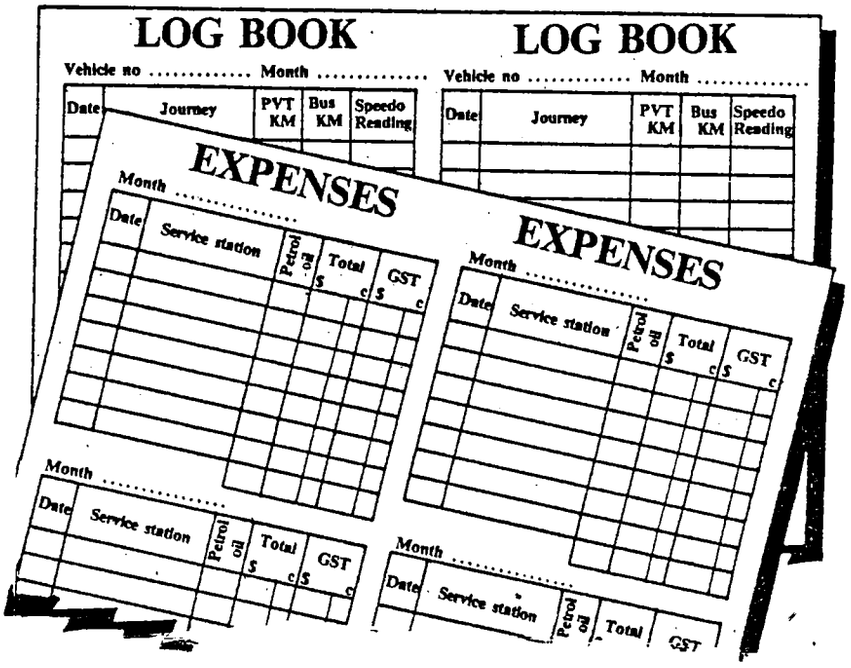
VEHICLE LOG BOOKS: 1 April 1986

These are now required in all vehicles that are not used "solely" for business if you wish to claim more than 25% of the expenses against business use.



Some Points to Note

* You need to record distances for both business and private.

* You don't send the log books to the IRD, but your accountant may wish to see them, and you will need them for audit purposes.

* A detailed record must be kept of the expenses for each vehicle (you'll see why in a minute). This includes fuel, registration, repairs and so on.

- the expenses for a "mixed-use" vehicle are allocated according to the relative amounts of business and private use. For instance:

Utility:
Business - 18 000 km (75%)
Private - 6 000 km (25%)

Total 24 000 km

Expenses total $15,840 (both direct running costs and depreciation). These are divided - 75% to the business and 25% to private use.

Business - $11,880
Private - $3,960

Total $15,840

So far, so good, but this calculation won't be possible unless you do some recording. The bills you get from the garage won't be divided up according to vehicle type - you'll just get accounts for "Fuel - $1,800, Oil $100" and so on.

You'll have to record against each vehicle as you make purchases. Fortunately, there are log books now being sold for this purpose by commercial stationers.

And one for the worker bees!

"Women's faults are many
men have only two.
Everything they say,
and everything they do!"

* * * * * * *

TRADE TABLE

* Hamilton Sheltered Workshops are still alive and well in their new premises at the end of Sunshine Ave (off Te Rapa Road). Dereck Oldfield would like to quote on any work you may have. They'll even consider making boxes or frames out of your timber, phone Hamilton 493 840.

* Lynne and Ken Perkinson of Mahurangi Hive Ware make excellent bee equipment. You saw their display at Conference. Their address is 3 RD, Warkworth, phone Puhoi (084620) 890 evenings.

* Cheapest "Metalex" I know - only it's not called Metalex but rather "BTB Brush On Wood Preservative". However, it's still copper naphthenate just the same as metalex. You can buy this from Chemica BTB Ltd of River Road, Tuakau, PO Box 160, Tuakau or phone Tuakau 68165, after hours Auckland 299 6123. The following prices are the latest I have and are ex-factory.

  20 litre pail $58.00 + GST
  60 litre drum $133.00 + GST
  209 litre drum $425 + GST

  You dilute the BTB solution with kero or turps to give a 1% copper solution.

* Honey refractometer for sale: Try Joseph Lane at Taupo (074) 89 002 Bus. I don't think he's sold it yet.

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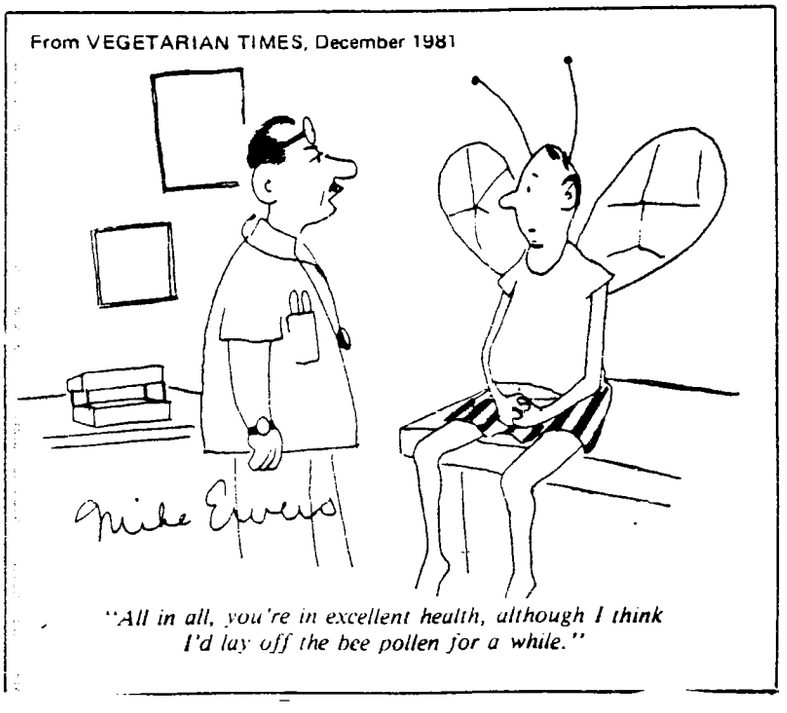


"All in all, you're in excellent health, although I think I'd lay off the bee pollen for a while."

Did you know that researchers in the States have found 113 yeasts in pollen collected from almond flowers, from pollen pellets, from traps, and from bee bread. Others have reported 71 insect and 27 mite families in pollen from traps. As well as these there are bacteria fungi and other greeblies. And they claim pollen is a health food!

References: Gilliam, M, 1979. Microbiology of pollen, bee bread: the yeasts. Apidologie 10(1) 43-53

Leonard, F W et al. 1983. Pollen Importation - a possible route for pest introduction. Apidologie 14(4): 303-307.

"Never in the history of human credit has so much been owed."

* * * * * * *

EXECUTIVE NEWS AND OTHER MAF BITS AND PIECES

* John Scott, one of the Deputy Directors of Advisory Services Division (and a hobbyist beekeeper) has recently retired. John attended a number of our conferences particularly the last one held in Nelson where his address to the participants at the seminar proved somewhat memorable to say the least!

* Another Deputy Director (and hobbyist beekeeper) Gordon Morrison retires early next year. I will miss the "beekeeping" presence in Head Office.

* Executive had a number of recipe pamphlets printed but woe, alack, alas, a significant printing error was noticed. We will have to see what the printer proposes to do about it.

* "Bee Legal ... Bee Registered" posters have gone out to a whole bunch of you. I hope you've put them up in your local libraries, council buildings, Post Offices etc. You haven't! Well, how about making it one of your top new year resolutions then.

* The story of Mrs Hild Hislop and her pot of imported honey, first run in Air New Zealand's Pacific Way magazine and also in the Qantas magazine, has been reprinted. Your branch secretary will have copies of these. We want you to use them for talks and put them up on public notice boards. Some of the reprints are plastic coated for use in honey houses.

  It's hard to know how many new registrations came in as a result of your radio, newspaper, Listener and poster campaign, but we detected a slight surge here in Hamilton.

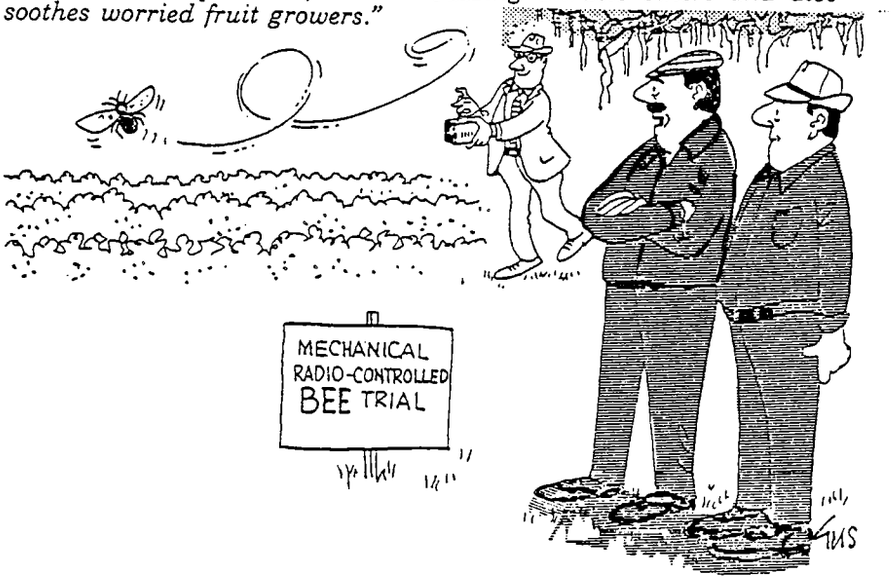
* Charging a Registration Fee
  The MAF proposal to charge <u>all</u> beekeepers a $15.00 per year fee for maintaining the apiary register is winding its way through the legal machine. When will it emerge as law? Yes. Please note this is <u>not</u> a per hive fee but a per beekeeper fee.

* Apiculture research position. Progress on getting funding for a scientist position is progressing most satisfactorily. The Kiwifruit Authority, The Trustees and Ruakura have come to a joint agreement on most of the major issues. We should be able to appoint a scientist some time in the first quarter of next year.

* Tertiary Bursary for Telford: These have been recently granted by the Minister of Education and will go a long way towards enabling beekeeping students to attend the 12 month course. If you have a son who would benefit from a year "away from home" then talk to Ian Lyttle, the Principal of Telford (0299) 81 550 or write Telford Farm Institute, Private Bag, Balclutha.

* Lynfield bee diagnostic service: You would have received a flyer about this service with your statement of inspection. Like most chargeable services - if it's not used and therefore earning some income the service may well be withdrawn. So if in doubt on any disease specimen send it to Lynfield, PO Box 41, Auckland.

"His bee won't pollinate, but the buzzing attracts others and also soothes worried fruit growers."



MARKET NEWS

This is how we have performed so far for the perid July 86 to October 1986.

Type	No. Countries	Quantity (Tonnes)	FOB NZ$
Bulk	4	179.4	490 161
Retail	17	47	184 935
Comb	7	142	732 845
Honeydew	1	2-1.5	430 850
Wax	5	20	137 576

What's happening overseas? The situation is very fluid and not all that clear. However, some major influences that will affect our sales:

* The Argentinian crop is expected to be back to normal this season, ie around 42 000 tonnes exported. The export tax has been reduced from 24.5 to 15.5%.

* Australian prices are up, mainly due to a decrease in the $A.

* Canada'a crop is up slightly on their average, but they normally export around 80% of their honey to the USA. These exports are expected to be down due to the American loan scheme. This extra honey will probably be pushed onto the European markets where it is currently selling for around NZ$1.80-1.90 per kg. Last season, by comparison, NZ white honey sold for $2.20-2.25 per kg C and F. At current exchange rates, against the West German mark, this same honey would have been worth NZ$2.45-2.50. I can't see exporters wanting to open with bids like that and indeed Wilson-Neil - Hororata have put out a price list from $1.70-1.85 in the tank for 0-35 mm depending on the floral source.

Canada is experiencing some resistance from the European buyers because of pollen analysis problems and granulation (from rape seed honey). This should help our sales somewhat.

* The US price support scheme means their beekeepers can sell their top grade honey for around NZ$2.85 kg to the government then buy it back for $1.87 kg. Some of this subsidised honey will no doubt be exported to Europe as their currencies continue to strengthen against the US dollar. Some sales have been reported at around NZ$1.90 kg.

* China is still increasing her production of hives (target by 1990 8 million) and honey (target 180 000 tonnes). China eats less than half her annual production.

* Europe: I don't have any further information on the buying patterns of the big importers such as West Germany, the Netherlands and Belgium after the nuclear accident, but I expect them to look west rather than east for honey.

* So, what does all this mean? Packers will probably compete for early sales so they have contracts to quote on overseas. You can expect to get different deals offered, as has already happened, so direct $/kg will take some sorting out.

  Take care you understand what is being offered in the price. Are you getting drums and freight paid which could be worth 18-19¢ kg extra, who pays for the pollen analyses, is the contract for cash and so on. In short, you'll have to work things out for yourself.

* Can I finish by making a plea on behalf of the exporters I guess. They are business men and have to make a profit just like you. If you commit your honey at a certain price then hear your neighbour got a better one for the same type of honey, put it down to experience - yours. Don't bad mouth the exporter. There's no rules that say they have to pay everyone the same!

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It's Christmas time and a time for giving presents, so remember "an unbreakable toy is useful for breaking other toys!" Anyway, I hope you can take a few days off and I'll see you in the New Year?

Bye for now.

Murray.

(G M Reid)
Apicultural Advisory Officer