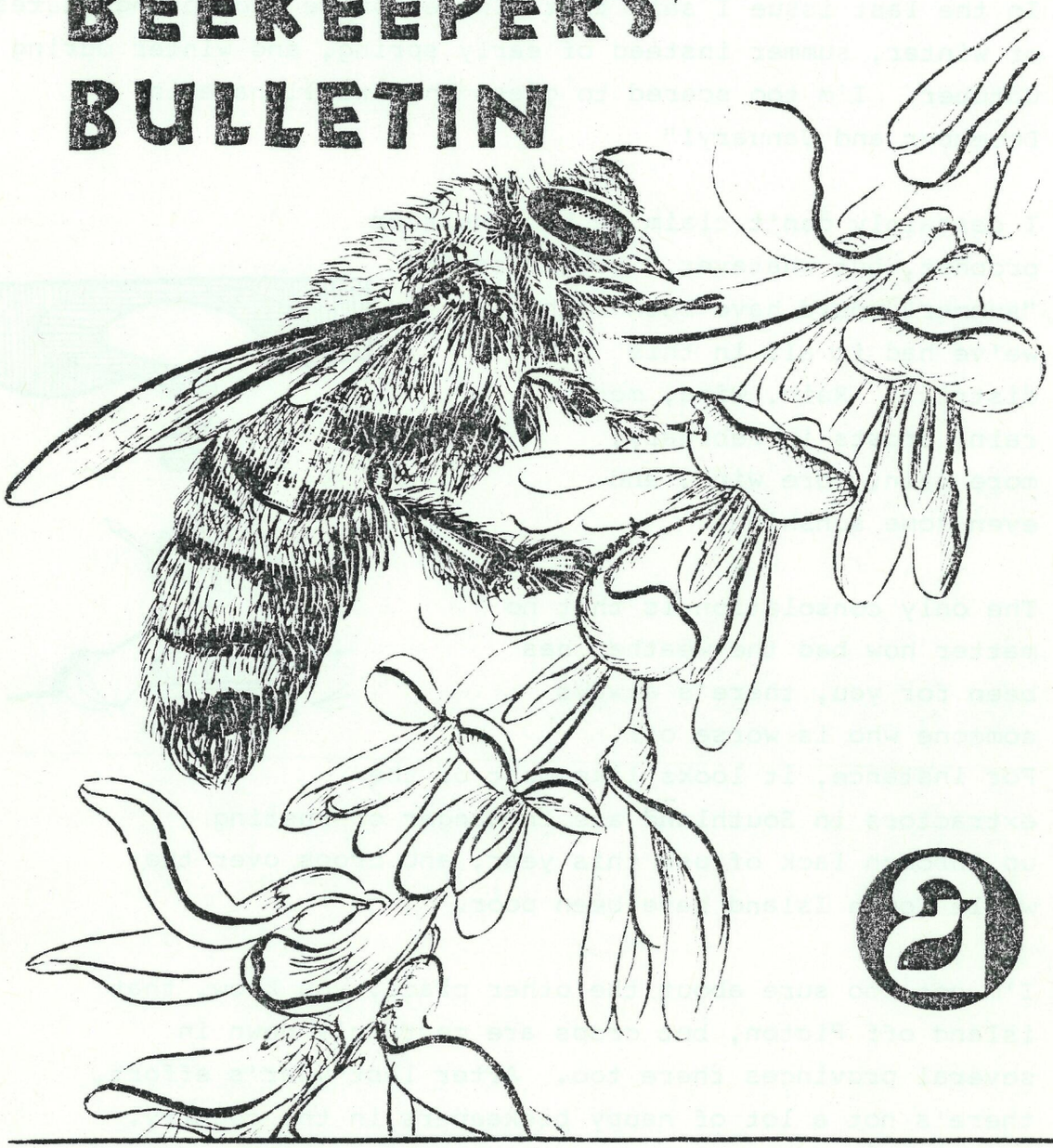
THE BEEKEEPERS' BULLETIN



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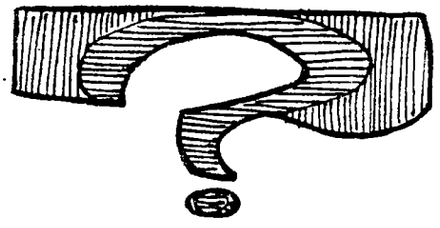
In the last issue I said that "in Nelson we had spring instead of winter, summer instead of early spring, and winter during October. I'm too scared to guess what we'll have in December and January!"

I certainly don't claim to be a weather prophet, but whatever I suggested for "summer" would have been right - we've had it all in this district. Rain, wind, more rain, frosts in February, more rain, more wind, and even some sunshine.



The only consolation is that no matter how bad the weather has been for you, there's always someone who is worse off. For instance, it looks like most of the extractors in Southland are in danger of rusting up through lack of use this year, and crops over the whole South Island have been poor.

I'm not too sure about the other place, you know, that island off Picton, but crops are certainly down in several provinces there too. After last year's effort, there's not a lot of happy beekeepers in the country.

In this issue; some interesting new nectar sources, comb honey fumigation, frosting of packed honey, a new honey packer, solar wax melters - how good are they?, more on kiwifruit pollination, how many bees can you fit on your kitchen scales?, and the latest in self-detonating cow pats.

NEW NECTAR SOURCES

While at Lincoln in December I saw an experimental plot of sainfoin. Sainfoin is a perennial pasture legume that looks like a tall, bushy version of lucerne, up to a metre high.

The pink flowers are borne on spikes several inches long. They open progressively from the bottom, to give an extended flowering period. A paddock of flowering sainfoin is covered with bees, and according to overseas reports the honey is white and sweet, like white clover honey.

There is at least one farmer in Marlborough growing sainfoin, and its use could increase over the next few years. Sainfoin, pronounced san-foyn, is French for "healthy hay".

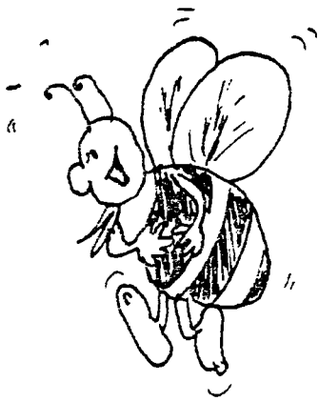
A similar plant is also being tried out in New Zealand. It's called sulla (Medysarum coronarium), or sweetvetch, French honey suckle, or Italian sainfoin. It is used widely for hay, silage and greenfeed in dry areas of the Central and Western Mediterranean region.

In this country sulla is being used for oversowing on eroded hill country, hydroseeding onto road cuttings, and for stock forage and hay.

Flowers come densely packed in spikes (racemes), and are deep red or occasionally white.

Sulla is very attractive to bees, and has a summer flowering period. I don't know what the honey is like, but would imagine it to be light and delicately flavoured.

Watson, M.J. 1982. Medysarum coronarium - a legume with potential for soil conservation and forage. New Zealand Agricultural Science 16 (4): 189-193.



There was this Irish passenger on a plane who had been bugging the captain with foolish questions on how to fly the plane and how to navigate. Finally the captain grew tired of trying to explain things and said "See the left wing out the window; it's got a red light on it", "Yes", said the Irishman. "I can see that", "Good", said the captain, "Now on the right wing is a green light. Well, we're going to try and fly between them".

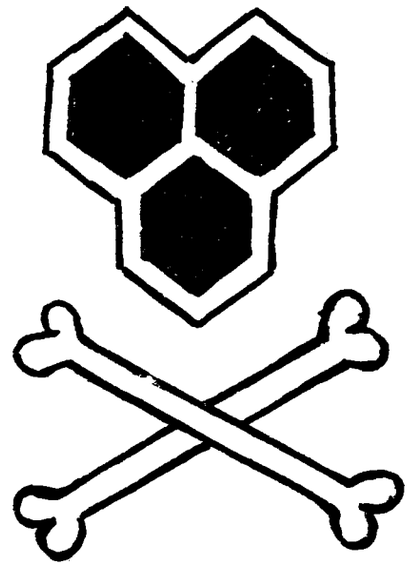
From Murray Reid

COMB HONEY FUMIGATION

This continues to be a confused issue. Beekeepers have traditionally used 100% methyl bromide (Me Br) in small cylinders, but that is increasingly difficult to get. While there are still other users of 100% MeBr, such as the MAF quarantine stations, gas companies aren't really interested in supplying a few kilograms to a whole host of different beekeepers around the country.

I have talked before about the laws concerning sale and use of MeBr and other fumigants (see the May 1980 "Beekeepers' Bulletin"). Briefly, sale of registered poisons is governed by the Poisons Act and beekeepers, as commercial producers, are able to buy MeBr.

Use of these chemicals is controlled by the Fumigation Regulations, which require that users are registered operators. There is an exemption for commercial producers, which is generally held to include full-time beekeepers. The problem with this is that some offices of the Health Department, who administer these regulations, are saying that this exemption does not apply to beekeepers. They are making beekeepers sit for their tickets to become registered operators.



Chemicals used on wax moth do not have to be registered for that use, because they are not defined as an agricultural chemical. The only restriction on the chemicals is at the residue end. If there's a limit set for the maximum chemical residue that can be found in a food, then that must be complied with. If there's no limit set, then there is a zero tolerance - no chemical can be found.

Of course these residue regulations vary between countries, so the chemical used will depend on your market. In New Zealand the only possible wax moth fumigant that has a tolerance is methyl bromide at 50 parts per million (but none for chloropicrin please note).

Have you got all that? I did say that it was a confused issue. And just to confuse the issue further, the whole situation is going to change shortly, probably this year.

The Pesticides Bill went before parliament a few years ago, but has been a long time in the pipeline. When it finally becomes law, which could be this year, any pesticide will have to be registered for a particular use.

That means that you will only be able to use (legally) any wax moth chemical that is registered for comb fumigation. It will be up to the manufacturers to apply to the Pesticides Board to get their product registered, and they will have a 12 month period of grace for that after the regulations come into force.

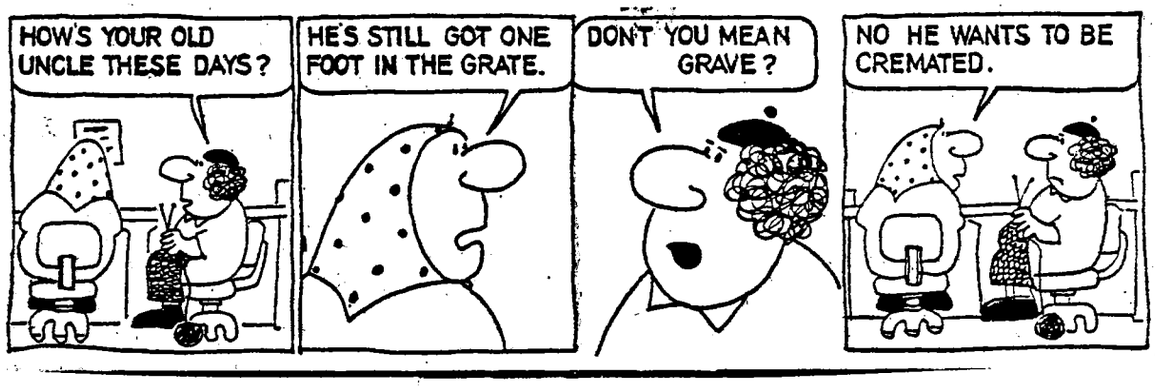
It will also be up to the manufacturers to apply to the Health Department to establish a residue tolerance for honey, if they want their product to be used on comb honey.

The next two years promises to be even more confused as the Pesticides Act comes into force and there is a "shakedown" period with new fumigants being registered. I'll keep you posted with developments.

USING PHOSTOXIN FOR WAX MOTH CONTROL

The chemical Phostoxin is being marketed by one company as being an alternative fumigant for wax moth control. Phostoxin is a brand name for phosphine or hydrogen phosphide, which is effective in killing wax moth, although the fumigation period would have to be several days.

Phosphine is also extremely effective at killing people. The maximum permitted exposure levels according to the U.K. Health and Safety Regulations make it about 170 times as dangerous as ethylene oxide, 50 times more than methyl bromide, and even 30 times as dangerous as cyanide.



Phosphine is sold as Degesch fumigation strips or plates, where the chemical is bound up in a wax plate. This is sealed with plastic, and perfectly safe to handle. To use the plates the plastic coating is torn off and the plates put under polythene sheets of a fumigation stack. The phosphine is given off slowly as the plate reacts with moisture in the air, and the fumigation stack is left for 6-10 days. High phosphine concentrations are present when the polythene sheets are taken off the stack of boxes.

Phosphine can probably only be used by registered operators under existing laws, and there is currently no residue tolerance set by the Health Department.

Again, I'll notify any developments with this product.

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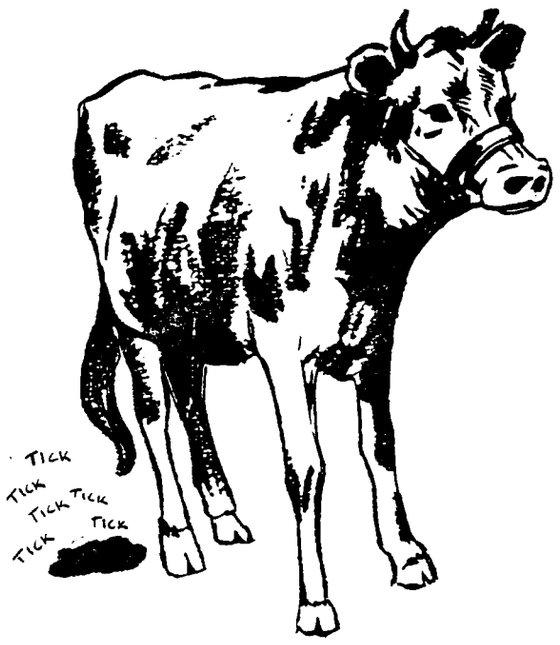
GREAT JUMPING COW PATS!

Animals spread a lot of good organic fertiliser around the farm, but it tends to be concentrated in small spots. Research is continuing in Australia on ways of getting these nutrients spread out onto the soil quickly.

Scientists at CSIRO, the Aussie equivalent of our DSIR, have come up with a method that involves feeding cattle with slow release pellets of gallium arsenide. The pellets are coated with an ultra-violet light inhibitor to make them safe before being fed to the cows.



Once inside the cows' tum, the UV inhibitor is dissolved off and the gallium arsenide is released into the digestive system. It moves out with the cow pat, and once out in Aussie's bright sun it is exposed to UV light and soon explodes. Problem solved, the fertiliser is no longer concentrated in small patches.

The researchers conclude their report by saying that cows soon become conditioned to the sound of exploding cow pats. The report comes from Australia, not Ireland, and I swear it's not dated 1st April.

(Soil and Water 1982 (1): 25)

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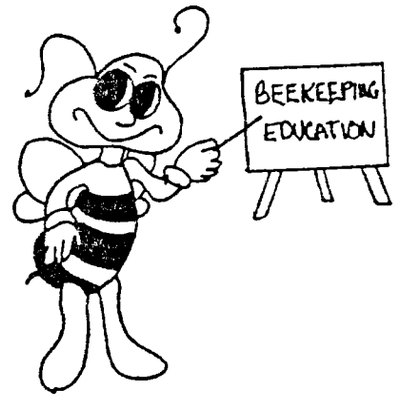
BEEKEEPING COURSES

If you want to be considered for any of the beekeeping short courses being offered this year then you'd better move fast or else you'll miss out.

Applications to:

The Registrar
Telford Farm Training Institute
Private Bag
Balclutha.

The courses this year are:



Raising your own queen bees:
Monday 21 March (1 pm) -
Thursday 24 March (noon).
A course for the established or new commercial beekeeper who wishes to raise more or better queens.

Expanding into commercial beekeeping:
Tuesday 28 June (1 pm) - Friday 1 July (12 noon)
This very successful course is designed for those currently involved in the agonies of setting up a commercial beekeeping business. Hive management, extraction, marketing options, business management and a whole host of other subjects are offered.

Introduction to beekeeping:
Monday 14 November (1 pm) - Thursday 17 November (12 noon)
A first-time course for hobbyists, run by MAF tutors. Covers colony management, hive equipment, disease control, small-scale honey processing.

If you intend driving down, scout around and make up a car load. Telford does help nearer the time by sending out lists of those attending. Telford is also reachable from Dunedin airport, and Telford may be able to lay on ground transport.

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THE LATEST IN AGLINKS

Newest Aglink out is FPP 533 Pollen trap design. It outlines principles of trap construction and discusses various trap designs. A companion aglink is FPP 532 pollen collection and processing. Both are available from any MAF office.

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HOW MANY BEES?

How do you estimate the population of a hive? Count the number of legs and divide by 6, I often answer. Weighing bees is perhaps an easier solution, especially when estimating populations of swarms or packages. With the increasing use of packages people are talking more in weights, but how accurate are the figures used?

If you pick up a book like the ABC and XYZ you'll find the often-quoted figure of 3000-3500 workers per pound, or 6600-7700 per kilogram in modern terms. The weight of a bee varies with its age, strain, cell size, and most importantly, how full its honey sac is, so there's no reason to think that the weights of bees in a swarm can be used to estimate package populations.

A scientist from Cornell University in New York has recently looked at this, and come up with the following answers:

- newly emerged bees	9 900 per kg
- workers of foraging age	11 000 per kg
- workers in a swarm (with full honey sacs)	7 700 per kg

(Otis, G.W. 1982. Weights of worker honeybees in swarms. Journal of Apicultural Research 21 (2): 88-92.)

"Well - huh - I'm really not sure HOW much money I make, 'per bee' - huh —"

FROM MY DIARY

- LEAFCUTTING BEE WORKSHOP

The Director of DSIR's Entomology Division has asked MAF to take over the extension (advisory) work connected with lucerne leafcutting bees. The leafcutting bee work is now moving from a research project to an ordinary farming practice requiring extension work.

The first stage in this changeover was a workshop at DSIR Lincoln last December, attended by myself and four other AAOs. This will be followed up by working with DSIR staff in the field over the next 2-3 seasons.

- FLOCK HOUSE QUEEN PRODUCTION COURSE

A week-long queen-rearing course at Flock House earlier this month was over-subscribed, as all beekeeping courses are. This time there were at least twice as many applicants as there were places.

Those who did go to the course judged it real success. A very similar programme will be held at Telford in March. Details are elsewhere in this issue.

- DR CAM JAY

New Zealand is very fortunate to have had Dr Cam Jay, a Canadian entomologist, doing research here for 6 or 7 months over summer. I've been quite amazed at the amount of detailed study he's been able to fit in to a very tight schedule.

Cam Jay was in Nelson briefly in the middle of February, and spoke at a kiwifruit growers' meeting in Motueka. He will be writing articles for the N.Z. Orchardist and N.Z. Beekeeper in due course.

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FROSTING OF HONEY

Nothing looks worse than badly frosted honey especially, in glass jars. It happens at this time of the year, every year, and yet few packers do anything about stopping it. I can only presume they don't know what causes it.

Well, in case you don't want to show your ignorance let's look at a bit of honey chemistry, or is it physics? Whatever, honey for creaming should be cooled down to around 15-18°C before adding the starter or seed honey. The packing tank should be maintained at 14°C, or thereabouts while the primary stages of granulation occur, and this should take 1-3 days at this time of year.

After packing, the honey should be held at 10-14°C in a cool room. Below 10° the formation of sugar crystals (especially glucose crystals) slows down and below 4°C it almost stops. In fact honey can be kept in a freezer to stop it granulating.

Now, while the honey is granulating it is contracting. This contraction is greatest at the surface and sides of the honey but will also eventually occur throughout the mass. Contraction of the honey begins almost immediately after the starter is added and is most rapid up to 21 days, after which the rate of contraction levels off.

This contraction creates air spaces and it is the growth of very small glucose crystals, which are white in colour, in these air spaces that causes frosting.

Tiny air bubbles in honey are also associated with frosting. They create larger air spaces once the honey begins contracting and they also provide "centres" on which the glucose crystals can grow.

So now we know the cause, what's the cure? It's all to do with time and temperature. Never leave packed honey in the cool room (10-14°C) longer than five days. Once you've taken it out of the cool room then you MUST keep it at 18-21°C. This is where so many packers slip up. They take honey out of the cool room after 4-5 days then stack it in an unheated room, or wharehouse, when the temperatures will fall below 18°C.

Presenting a consistent fine grained honey pack summer and winter is an art and a science. It is all to do with the type of honey, with temperatures, the amount of starter honey added, stirring, and the moisture content of the honey. Most packers seem to know about and understand these finer points. Now if you can just do something about frosting .... !

Perhaps I'll review the finer points of preparing liquid honey in my next newsletter.

From Murray Reid's "Waikato Bee Notes"

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CINDERELLA?

Do you ever feel that beekeeping is the Cinderella sector of agriculture? In these years of stagnation in the farming sector, remember this next time you're talking to a cocky:

> "In the last five years, since 1977, the number of productive units (beehives) have increased at an average rate of 4.2% per year, a growth rate exceeding that of most other areas of agriculture in New Zealand."

Advisory Services Division annual report
NBA conference 1982

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APIELECTRONIC HONEY PACKER

There has been some interest in the district in this neat honey packer, which is made by E ts Thomas in France. Murray Reid tells me that Stephen Mahon (Ceracell Products, Warkworth) now has some on order, at $2800 plus $400 duty.

The packing machine is a little beauty. It is all stainless steel, self-priming, and is easy to dismantle for cleaning. It weighs only 13 kg. It comes complete with a control box, and after it is attached to a tank, the weight of honey dispensed is altered simply by turning a dial. From 25 g to several kg can be packed.

It has two nozzles, one for creamed honey and one for liquid. The motor runs at 140 rpm, and can pump 500 kg of honey per hour with continuous running. It can be mounted vertically or horizontally, and can even be unhooked from the tank and used to pump syrup or liquid honey.

The makers of this machine also put out a very attractive catalogue, packed with colour photos of some quite exotic (by N.Z. standards) gear. For a booklet full of pipedreams, write to:

Ets Thomas
86 Rue Abbe Georges Thomas
B.P. No 2
45 450 Fay Aux Loges
France.

Unless your forth-form French is a lot less rusty than mine, you might find it useful to ask for an English language edition.

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BEES AND INSECTICIDES

In Nelson we're all familiar with the problems of bees getting too much insecticide. But in Brazil they have the reverse problem. There's a large-scale DDT programme underway along the Ituxi River, to control malarial mosquitoes.

A bee by the name of Eufriesia purpurata is irresistibly attracted to the DDT, and spends hours industriously collecting it from the walls of treated houses.

Laboratory tests with the bees have found that they can absorb over 2000 micrograms each and remain healthy, whereas 6 micrograms per honey bee will kill 50% of the population.

Perhaps we could cross the Brazilian bee with Nelson honey bees and have a DDT-resistant honey gatherer!

("The bees that can't resist DDT". New Scientist, 13 May 1982)

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THE WAX DEBATE CONTINUES

For beekeepers with no wax plant at all, the solar wax melter is ideal for processing small amounts of light wax. Everybody recognises that a solar melter leaves wax behind when melting old combs.

But how much does it leave behind? Two scientists from Cornell University have recently looked into this question. They put old, dark combs through the solar wax melter, and later pressed the slumgum under water for more than 6 hours, to get every last drop of wax out.

They showed that if you chuck a whole lot of old combs in the melter and leave it for a couple of days, you'll get about a third of the wax out. If you add the combs in several lots, so there's never more than one layer in the melter, then you'll get half the wax out. With new combs the wax recovery is nearly 80%.

The decision to invest in wax plant has to be made very carefully. If you are building up hive numbers then it has to take a very low priority. In the meantime a solar wax melter, which will cost you next to nothing to build, may be the simplest answer.

(Lesher, C.; Morse, R.A. 1982. The efficiency of solar wax extractors. American Bee Journal 121 (12): 820-821.)

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This cartoon is doing the rounds of advisers' newsletters at the moment. Perhaps it should be the official emblem of the South Island Independence Movement.

TOP OF THE SOUTH FIELD DAY : 18-20 MARCH

In March beekeepers will be converging on Lake Rotoiti from Nelson, Marlborough, Canterbury, hopefully the West Coast, and even Wellington (they'll be made honorary mainlanders for the weekend, so they're allowed to enter).

The "field day" is really a weekend, held at the Lake Rotoiti Lodge, an outdoor education facility. It starts on Friday night with an informal social, and on Saturday there are talks, seminars, practical hive work, an evening slide show and a panel discussion. Sunday morning features optional seminars and a gadget competition.

It's not all business - Lake Rotoiti is one of the scenic gems of New Zealand, with plenty of recreational activities available.

Dates: 18-20 March 1983
Further information: John Moffitt, Pigeon Valley,
Wakefield, Nelson
Phone Nelson 28143.

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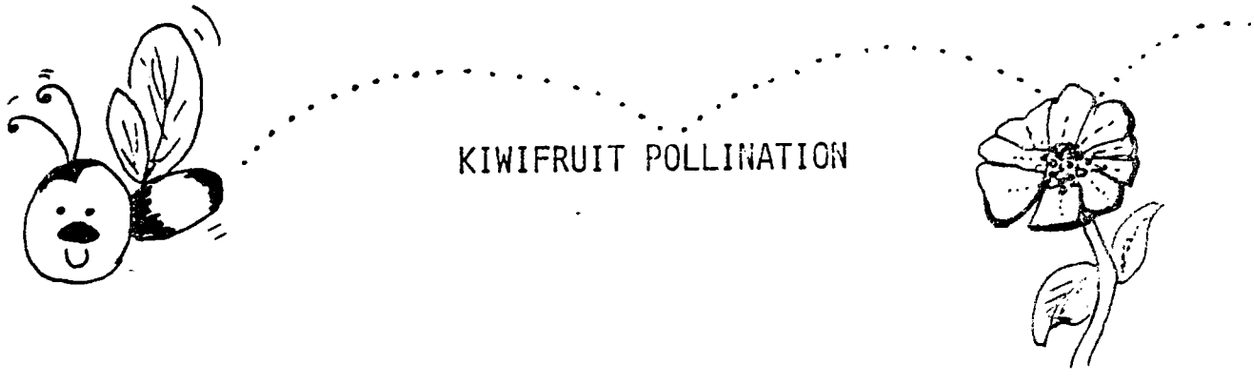
A NEW USE FOR MOTUEKA'S FINEST

Still smoking the evil weed? Here's something that might help persuade you to give up. Tobacco smoke has a fairly rapid effect on certain honey bee parasites, especially the Varroa mite and the small fly Braula coeca or "bee louse".

Blowing tobacco smoke into a hive starts the mites walking all over the surface of the bee, and shortly they fall onto the hive floorboard and die. An easy way to examine a hive for mites is to load up a bee smoker with a bunch of your good tailor-mades, smoke the hive, and later examine the floorboard for dead mites.

Scientists in Europe are developing the method as a diagnostic tool.

(De Ruijter, A. 1982. Tobacco smoke can kill varroa mites. Bee World 63 (3): 138.)



KIWIFRUIT POLLINATION, AGAIN

Over the past year or so it's been difficult to read a horticulture or farming magazine, or even a daily newspaper, without seeing headlines like

"Shortage of beehives threatens kiwifruit industry"

"Humble bumble bee best bet?"

"Why the kiwifruit boom may go buzz"

Quite a few journalists (and scientists) have hung their hats on this tale of doom. But how well does it bear up under scrutiny?

One thing the proponents of this idea have forgotten is that the beekeeping industry is expanding too. It's expanding because it is a vital and viable industry in its own right, not simply because it is hanging onto kiwifruit's coat tails.

Numbers of hives owned by commercial beekeepers in the North Island are currently increasing by about 9% per year. If this continues there will be around 230 000 hives in the North Island by 1990, and if only half of these are available for kiwifruit pollination the predicted shortfall of 80 000 hives becomes a surplus of 10 000 instead.

The pollination boom is certainly going to put stress on the beekeeping industry, especially in terms of the shortage of permanent apiary sites in some areas and the demand for increased mechanisation and efficiency. But the industry is responding well to the demands being made at present, and it seems that beekeeping will be able to continue doing so for some time to come.

Information in this section is taken from a talk given by Trevor Bryant at the Hamilton and Tauranga kiwifruit seminars late last year. For a copy of the full proceedings, send $3 to:

Ministry of Agriculture and Fisheries
Private Bag
Tauranga.

STOP PRESS

More on Aglinks. This year's MAF publication "Rural Industry Incentives" has come out in aglink format. <u>You</u> may be missing out on something you're entitled to, so ask at a MAF office for:

FPP 670 Rural industry incentives 1982-83, subsidies

Gives details on disaster area loans, subsidies on emergency services, estate duty, motor vehicle fuel tax exemptions, road user charges and others.

FPP 671 Rural industry incentives 1982-83, education and training

Contains information on school boarding bursaries and transport assistance, and farm work training schemes.

FPP 672 Rural industry incentives 1982-83, farm development finance

Useful for the beekeeper - first year allowances for buildings, plants and machinery, Rural Bank seasonal finance, forestry encouragement grants, electricity concessions.

Andrew

A G Matheson
Apicultural Advisory Officer
Nelson.

FINAL STOP PRESS!

This is a stop-stop-press, if you can have such a thing. In fact it has stopped the presses so firmly that you won't be getting a Bulletin in May.

That's right - I'll be overseas for about three months this autumn. I have been granted a job in Jamaica on a United Nations apiculture development programme, and the MAF has kindly released me to take up this position.

The dates for this project have not been finalised, but I could be leaving at the end of the month. I won't be replaced in the Nelson office, so any normal inquiries for advice will have to wait until my return. If you have any urgent enquiries, especially regarding disease, contact the Nelson office and someone will deal with it. I expect to be back at the beginning of July.