SOUTHERN NORTH ISLAND BEEKEEPING GROUP INC

Nov /Dec 2018

Sorry, this Newsletter is late. I tried to get them out early in the month but I have been concentrating on my own bee work.

I have also been collecting information and talking to beekeepers on the ApiNZ proposed Commodity Levy.

I will be putting out a supplementary newsletter to cover this shortly. Its quite long hence the extra newsletter.

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What a spring. Most beekeepers have been splitting hives to stop them from swarming. Prospects for honey production look better than last year, however, with all this wet weather the bees are quickly chewing through any nectar they brought in earlier. Feeding raw sugar will hold a hive over but won't promote brood rearing. Place an amount on newspaper above the top super is one way if you do not have top feeders. Sprinkle a little water around the edge so the bees find it and start converting it into food. This is a lot of work for the bees so they only use what the need until nectar becomes available.

Already I'm seeing clover flowering amongst the buttercup. This is slightly earlier than normal. The same with Kanuka. This usually follows manuka but its flowering at the same time down here.

This will make it harder for beekeepers to produce a monofloral manuka.

John Wright from Auckland is a comb producer. You may have seen his article "honey not a gold rush for all".

"Membership is now over 150 thank you for joining"

In this issue

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Clover has always been the main stay for his cut comb honey, so John looks for paddocks of the slightly pink white clover as he believes this variety produced more nectar white Trifolium repins.

All this rain he believes, will wash away a lot of the nitrogen fertilizer farmers have been putting on to boost pasture production but this also suppresses clover, so perhaps clover will flower more than normal this year.

A hive can pollinate about 4 hectares of pasture. The varroa impact report produced just after varroa arrived here in 2000 estimated by 2035 for every bee hive per hectare will be providing the farmer with a gain of $910. It was expected hive numbers would fall and the farmers would have to re-seed pasture more often but we have seen the opposite thanks to manuka. At the same time some farmers have lost sight of the fact the bees provide an unpaid service for them and have been charging to have hives on their properties.

Farmers are now having to reduce nitrogen run off to protect our waterways. Perhaps they will have to look to clover to supply nitrogen to keep their pastures healthy. Hence the article in the NZ Beekeeper from Beef and Lamb about spelling land during summer to let the clover and pasture recover.

We have had twenty years of farmers putting on supplements. Urea gives and instant boost but gradually makes the ground harder. (It was initially used in WW2 to turn grass fields into airstrips as it make the ground go like concrete). If not broken up the grass can't get their roots way down into the soil so instead of a cow grazing, they sometimes rip out the plant all together damaging the pasture. We were told of one bailing contractor in Taranaki who has records going back more than 20 years and has noticed the production from some farms are now only produces half the number of bales.

Will it go back to the old days when farmers welcomed bee on to their land to pollinate the clover. Maybe but it will take a few years of adjustment yet.

Whatever happens, the future is never predictable.

Honey not a gold rush for all - John Wright.

IT SEEMS that nowadays, every few weeks, there is reference in the news media to honey as 'liquid gold' creating the impression that anybody with a few beehives is making a fortune.

However, you don't have to scratch the surface much to find this is not all true. Much of this is due to the mānuka honey 'gold rush'.

Why is this?
Originally, New Zealand top grade honey was based on South Island Clover.
The country's bee population was about 300,000 hives spread proportionally 50/50 between the North and South Islands.

NZ produced about 1000 tons more than we consumed and this 1000 odd tons was exported at international prices, which also set the price that NZ packers paid local producers.

Ten or more years ago, Professor Peter Molan of Waikato University was researching natural medicines and found that a small percentage of pure mānuka honey had medicinal properties.
This started a frenzy and - with good marketing - it seemed all the world wanted mānuka honey.
Suddenly honey (mānuka) that was once low priced was commanding prices of $20-$200kg. Our pasture honey, which was selling at $4-$5/kg climbed to $12-$14/kg in 2016, mainly owing to the practice of mixing it with mānuka honey and selling it as mānuka blend.

Then NZ's hive numbers climbed to almost 1 million - many owned by international companies. Competition for sites became intense with many local beekeepers being overwhelmed by large numbers of other hives, or by dirty tricks such as having their hives poisoned, burnt or stolen.
Overseas buyers became disillusioned at the quality of the mānuka honey they were receiving, to the point where they started to withdraw if from their shelves.

This prompted MPI to develop a scientific test to define the purity of mānuka. Now any honey exported from NZ, labelled as 'mānuka ' must be stamped on the label or drum as complying with the MPI test.

This means that only pure, certified mānuka can command a premium price and non-pure mānuka is rated along with all other honeys as table grade honey. This honey, which until the new MPI testing regime sold at $10-$14/kg is virtually unsaleable. Prices now are $5-$7/kg, but the packers are not buying. I have even heard of sales at $3/kg by desperate beekeepers.

There would be thousands of tons of last season's crop sitting in beekeepers' honey houses unsold and we are now at the start of the new season's production. There are beekeepers who will only place hives to get rated mānuka honey and will not place hives for pasture honey, as the prices offered make it unsuitable. The sad thing about this is that farmers are now encouraging beekeepers to place hives on their farms as they realise the importance of clover in view of the nitrogen caps being placed on them.
I believe the future of beekeeping will go back to pre-mānuka days, when surplus honey will be purchased by overseas buyers at international prices and will set the price paid for table grade honeys.

While this will clear NZ stocks, it will not be at a price many producers today - particularly those who have recently come into the industry - will be happy with.

Courtesy of Rural News 20th Nov 2018.

Next Meeting:

- 1st Dec Christmas Get Together at Gary's

- 1st Tuesday in Feb 2019

to be confirmed

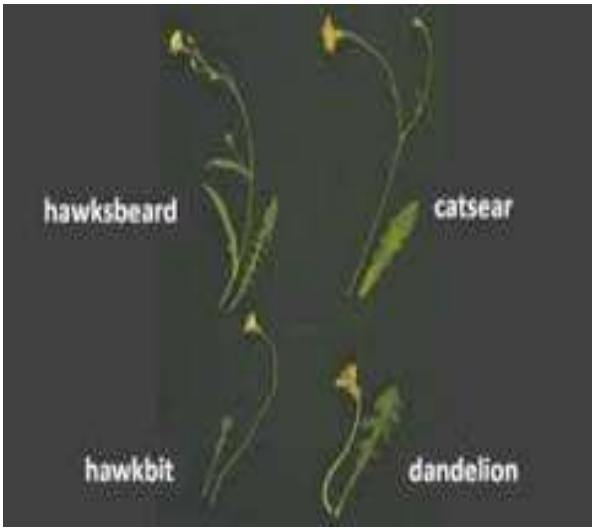
KNOWING WHAT YOU ARE LOOKING AT

We can get field guide books on New Zealand native trees and identify what's flowering but its not so easy with weeds and pasture species our bees collect nectar and pollen from.

I have a Readers Digest "Field Guide to the Wild Flowers of Britain" which is very helpful as most of our pasture plants emulated from Britain early on. Another is an old British Bee Plants issued by The Apis Club that came from the old MAF library when they got rid of a lot of their old books.

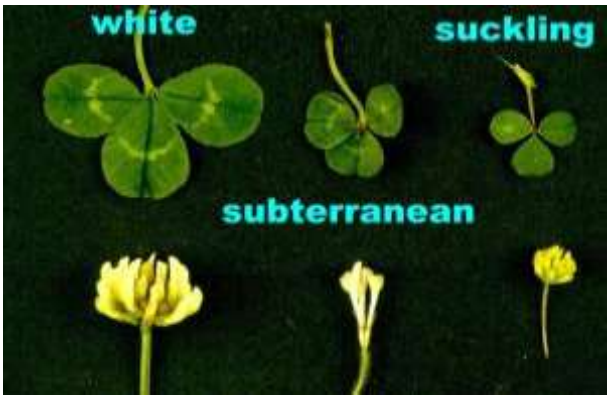
The Massey University has a good weed reference section which is helpful if you know the name. http://www.massey.ac.nz/massey/learning/colleges/college-of-sciences/clinics-and-services/weeds-database/weeds-database_home.cfm

The Dandelion family look the same but each is a little different.



Sorry this are not very large but give you the idea. You can look at them on Google .

"what's the difference between -----



There are numerous types in the clover and lotus family. Subterranean are usually the first to appear being sometimes a single floret flower followed by white Dutch clover.

Once the plants begin flowering, they are easier to tell apart. Hawkbit and dandelion stems are unbranched, whereas they are branched in catsear and hawksbeard. Catsear flower stems are not leafy, whereas hawksbeard leaves always have some leaves up the steam

Further down south, there used to be sweet clover close to the Roxburgh dam.
This used to be a major honey source in the USA and Canada.

There are a number of lotus varieties in our pasture and wet areas. Overseas they are known as birds-foot trefoil as the seeds pods stick out at angles looking like a birds foot.

We mostly see lotus major in the wet, waste areas during summer.
It a light mild honey with a slightly yellow wax capping.

In an early country calendar programme on the Northland beekeeping, the beekeeper said look at that mānuka honey but the capping's were yellow instead of white so it must have been lotus major as its well distributed amongst the manuka in the swampy areas.

Its nice to take time out from working hives and just walk paddocks to see what the bees are visiting. A week ago I was walking through a paddock which is bounded by willows and natives following a stream in a circle. It flooded last year and was now full of buttercup. There was a bee every square metre and the air was full of the hum of bees. As I walked near a willow tree I suddenly saw a lot of drones chasing a queen. They flew very fast, swinging around the tree and then up over the top and out of sight. The hum of bees was actually coming from drones flying about four metres up. I had just discovered another drone congregating area. This is the first time I had actually seen a queen on her mating flight. At another congregating area I had seen a hawk flicking it's tail as it was being chased by drones but never a queen.

That's an excuse to go back on a nice still day with a camera and see if I can photograph it.

In the theme of knowing what you are looking at - From the Beef and Lamb Website.

Beef and Lamb country is now the only pasture that produces a clover crop for beekeepers.
Dairy unit's rotational grazing and over fertilise use of urea, mostly make this country now useless for honey production unless they leave pasture to go to seed.
Irrigation promotes growth but not nectar production unless the farmer allows the pasture to really dry out between soakings.

As beekeeper, we rely on farmer's pasture to produce a crop for us, we in turn provide pollination so that clover set seed to enhance the pasture.

We should also know a little bit about farming. Know what the soil types in the area is also useful. I've put a old AGLink on the SNI Beekeeping website. Soil types haven't changed much over the years but soils have been depleted in some nutrients over time.

According to Dr Doug Edmeades, hill country farmers have lost sight of what a good clover pasture looks like, e.g. 30% clover. All plants need 16 chemicals to grow and pastures growth is limited by nutrient limitation of one of these 16 elements or as he say's the weakest link. Plants are only concerned about the minimal amounts of these 16 nutrients to grow not the ratio of each.

Clover is the canary in the mine as to what is wrong with the farmers pasture.
If clover is not there then something is wrong. Certain leaf colours indicate different deficiencies.

Listen to a podcast: Using fertiliser 48 minutes

Dr Doug Edmeades:

Making the most of your fertiliser

https://beeflambnz.com/knowledge-hub/podcast/dr-doug-edmeades-making-most-your-fertiliser?_cldee=YmVlbGluZS1hcGlhcmllc0BmYXJtc2lkZS5jby5ueg%3d%3d&recipientid=contact-2cf25c256944e511b39700155d8fb2c5-21e468da7ceb4bb98b44692a074b16f8&esid=6bc8cd3b-fdcc-e811-8172-e0071b67aca1

Choosing a Good Apiary Site:

Some of the older beekeepers shake their heads in disbelief at where bees hives are being placed.

We know the basics; sun all day if possible, away from hollows where cold lies in winter, above the flood level of rivers, away from gates as this can restrict farming activity for a few hours after your visit, close to areas of rubbish plants can supply valuable pollen and especially, sheltered as bees won't fly if the air movement over the entrance of the hive more than 24 kph. Bees fly in higher winds if they can get airborne.

When choosing farm apiary site, look for the cattle dung areas. Cattle rest at night in the warm sheltered spots so tend to defecate there. Just put up a wire to protect your hives otherwise they could be pushed over during the night. Just make it high enough to allow sheep to graze around the hives.

On a sheep farm, site selection is much harder. It's easier to ask the farmer what's his best lambing paddock. Generally these are the warmer paddocks and then look for a sheltered area that gets morning sun, especially during the winter. Don't forget flooding. Our climate is changing. We are now seeing areas that get deluges with a hundred mls or more at one time and this can cause isolated flash flooding. Talk to land agents and farmers as to where it floods and when. You have put too much into bees to have them float off never to be seen again.

For the hobbyist it's much harder. As well as sunlight and wind, you have to consider flight paths. Bees evacuate their faeces on the way out or when they hit wind and if this is over the neighbours washing or windows there is no real way around this. Saying that they should put their washing out after 10am doesn't do it for most people but a pot of honey now and again might smooth the way.

Hive placement is important for you and for your neighbours sanity. Generally out of sight, out of mind works for a while but once a hive reaches a peak population of 60,000 bees in December or if it swarms, your neighbour will soon find out you have bees. Some people just don't like the thought of having stinging insects near them and over the fence is sometime too close. Doesn't matter that they can have a wasps nest in the garden and not notice it.

Hiding a hive behind a barrier is important as it gets bees flying up and once above head height, they generally don't bother anybody.

Another is a wave cloth structure mentioned in The Art & Adventure of Beekeeping by Ormond & Harry Aebi. "*This is a wooden cross piece wired to the top of a stake that provides support to hang a 3 foot square of cloth or burlap sac that flap about in the wind, that kept the bee accustomed to movement from people passing or other activities.*" (They also wrote volume 2 - Mastering the Art of Beekeeping).
Build a bean trellis which obscures the hives as the beans grows with the height of the hive or surround the hive with a high wind break cloth. Any movement around a hive can upset some bees

Rats and Mice.

It's a masting (flowering) year for our native beech trees. You may have noticed the browning at the end of the branches where the flowers and seeds are produced.

When there is a masting, the forest is full of seeds so naturally mice and rats numbers increase. A single mouse in the winter can easily destroy and contaminate a three honey box hive. A whole $90 to replace. Rats will eat their way into a super.

In the South Island, some beekeepers put a three inch wide piece of tin across the hive between the bottom super and the entrance. Rats will try to enlarge the entrance but can't because of the tin. Some will try to enlarge the hole in my crown board. I find the aluminium foil packaging from a bayvarol® strips pushed into the hole they have started, will discourage them. It's the minute electrical current that is generate between the foil and their teeth - try it, its uncomfortable. If you are closing a small gap in a shed, you can also use stainless steel pot scrubs. These can be purchased from the $2 shop in packets of six or eight.

Put bait stations in your apiaries now to reduce rodent numbers before they start breeding. I use white plastic soda stream concentrate bottles placed under the edge of the pallets, with three of those storm cereal baits to a bottle, every six metres as a mice's range is short. Wear rubber gloves so your human scent doesn't discourage them from eating the baits.

I have to force the storm baits through the neck of the container so are equally hard for them to remove. Another method is to wire them into a wide mouth bottle so the baits can't be removed and must be consumed on site.

Mice eat at them in the bottle. Rats will attempt to take them away, bottle and all. If the bait bottle has been moved a metre, you have rats in the vicinity so will need more baits until they are eliminated.

Photo's by

Sinkinson Family

Gary had to move an apiary of very populous hives off a farm so the farmer could spray. The move seemed to upset the bees and over a few days 11 of the 22 hives swarmed, some without leaving queen cells. One was high in a pine tree well out of reach but ingenuity came to the rescue. Two poles attached to the tractor forks and a fitted bed sheet were used to make a net and the swarm was rescued.

Dee Lusty is well known for promoting small cell size to help control varroa. Some don't believe this has any effect, followers of Dee do.

This is a long article off the internet. I have known of this technique for years as have some commercial beekeepers in New Zealand. Some things I have encountered, the last one I haven't.

This may also help to explain why bees are reluctant to draw out plastic comb and why plastic frames should be restricted to the honey boxes to get drawn.

"Housel Positioning" – How I View Its Importance To Beekeeping!

By Dee A. Lusby
Commercial Beekeeper
Tucson, Arizona
21-22 Sep 02

Just a few weeks before this meeting, in discussion with Michael Housel, of Orlando, Florida, I received information concerning proper positioning of wild feral combs built by honeybees he had been monitoring and observing in his local area hanging on limbs of trees.

Intrigued by, and recognising the value of the information concerning the positioning of the wild feral combs, my husband and I immediately started incorporating the information into our field management program, by resequencing close to 35,000 frames in our colonies, to match their positioning.

So just what is this proper positioning of feral combs Michael Housel told me about?

It concerns understanding the "Y" formation of the pyramids formed at the base of the wild combs, and in manufactured beeswax foundation at the base of the cell imprints, that beekeepers place into their colonies, to help domesticated honeybees replicate wild feral combs.

Foundation used by beekeepers is basic to field management. It is used to stimulate domesticated honey bees to build both brood and honey combs, using beeswax secreted from glands on the worker bee's body. It was originally copied from wild combs in the 1800s.

The "Y" formation has been there since the beginning in the making of beeswax foundations. It's in understanding it, and it's proper positioning and placement that Michael Housel has recognized, and we just resequenced our colonies to duplicate, that I hope others here today listening and learning about it, will want to duplicate also, in their own beekeeping operations.

If you copy something exactly to use, which is the purpose of our foundations, and then you don't use it as originally designed and placed by the bees themselves, how can beekeepers blame bees for building and doing things wrong within a beehive? For then in actually, it's man's improper alignments and positioning of manufactured foundations, contrary to original natural design, that could then be causing much of today's bee's internal problems relative to working and drawing combs.

How can scientists do research even, with improper positioning of foundations, not relative to actual positions in the wild? Is science, science, if based upon an artificial world of enlargeness, and improperly positioned combs at the same time, that matches nothing in a real world? How do you know if the research you are doing is good or bad for what it is supposed to relate to, if the combs in

the domesticated colonies being reviewed do not match the positioning of wild combs

The “Y” formation

A “Y” is formed where lozenge-shaped rhombic plates come together to form a Y impression at the bottoms of cells on beeswax foundation. The formation of the “Y” is also seen in wild combs at their cell bases.

There is a right and left side to each foundation and comb when viewed, whether in a man-made colony, or hanging down from a limb.

The right and left sides for facing foundation and drawn combs in a beekeepers hive are determined by the top or bottom positioning of the “Y” formation.

This changes by either being right or left of an imaginary centre line in domesticated hives. In the wild there is one special centre comb hanging down from a limb. In our man-made hives which we call colonies this does not occur, and so an imaginary line must be drawn and used, for positioning right or left of centre, and up or down, of the “Y” formation.

Beekeepers can easily turn a wild comb and see this. Likewise beekeepers can turn a man-made frame or piece of foundation and see this formation also.

When wild combs are cut down, should not they be positioned in alignment like those obtained from the wild colony, to aid the now domesticated bees placed into a man-made hive, to continue to grow and properly expand?

If you have not seen or noticed this before, take a sheet of foundation and put it in front of you on a flat spot to look at.

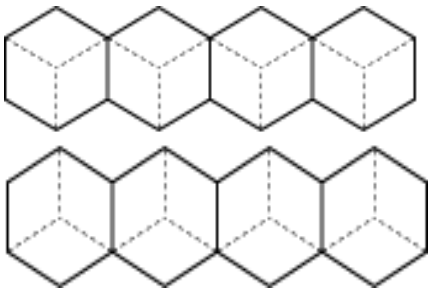
Then with the rectangle sheet of foundation with long-ways on top and bottom, and short ways on sides, carefully look at it.

There are two ways to rotate a sheet or comb (in frame) when looking at it to observe the “Y” formed at the bottom of the cells.

Most beekeepers are taught early on to carefully rotate a sheet or frame with bees, from top to bottom (vertically up and down), with a twist of the fingers and wrist, so as to disturb the bees on the comb as little as possible, to observe the broodnest for conditions relative to disease, mites, egg laying, and larva size, applicable for grafting.

When beekeepers rotate a frame this way, no change to the eye takes place, though you rotate to see both inside the top and bottom of the cells. Beekeepers are taught this motion to observe bees for various fouls, and mite fecal for evidence of varroa present.

Next, with the sheet of foundation in front of you, turn the sheet NOT VERTICALLY, BUT INSTEAD FROM LEFT TO RIGHT HORIZONTALLY!

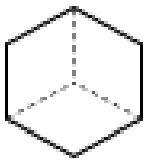


Now, when you look at the cell bottoms with the “Y” formation it should change from top to bottom, every time you turn the sheet over.

Explaining “Housel Positioning”

In the wild, there is one centre frame that is first drawn when honey bees swarm onto a limb. In spring or following normal swarming the first comb built is worker (exception being more towards fall, following the summer solstice and longest day, when bees swarming can sometimes want to build drone/honey comb first to obtain stores for winter and then once a certain amount is drawn and realized, they then start worker combs).

Now this comb is built with the “Y” inverted and upside down on both sides of the comb. So I now type “^I^” to show the inverted “Y” on both sides of the comb. There is only one of these combs made.



For hives that normally swarm, wanting worker larva for continuation of species, bees need optimum cells for worker brood immediately, especially in areas of short flows. Hence, this specially drawn first comb.

This starts the wild nest with a centre comb expressly designed for maximum production of worker bees, that are needed immediately for continued rearing of new brood and collection of stores, as the field force dies off.

Each comb then, on each side of the centre comb follows position, for continued maximum rearing of brood, and then collection of stores of pollen and honey, as comb building progresses and expands the nest.

From here, the “Y” formation stays inverted first, facing centre with the “^” down. This continues formation of a slanting ledge the larva rest on, allowing for maximum field bees to be used for gathering stores of nectar needed for comb production, with lesser numbers of nurse bees required.

I now type “^” to show the inverted “Y” for side facing centre comb (or centre of imaginary line in centre of man-made colony) with slanted ledge.

On the other side of the comb the “Y” formation faces up, and helps to form a slanted roof, to help once the bees manage to build enough comb, to protect larva and stores gathered from sun, rain, etc. I now type “Y” to show the “Y” right side up with roof, for side facing away from the centre comb.

What beekeepers end up with then, is all foundation or combs in colony with the “^” down formation facing towards centre, and all foundation or combs in colony with “Y” up formation, facing towards the sides of the boxes/supers, away from an imaginary centre line. I now type ^IY to show this.

Now, the combs in the centre on frames are the smallest and are worker cells, and only at the periphery of the worker cell brood nest change into drone cells.

This can be done two ways.

On either side of a good drawn worker comb you can have periphery drone cells, including the bottoms.

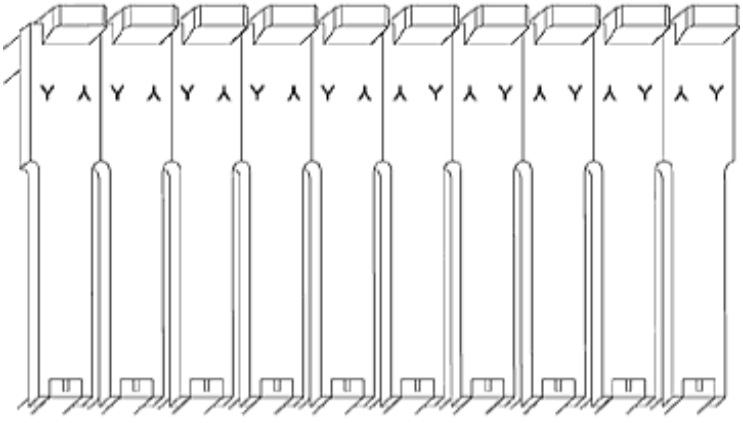
Once an average of four or so worker combs are drawn on each side of the centre worker comb, beekeepers will find the next combs built a combination of drone/honey combs. So what you are looking at in brood boxes/ supers then is:

YI^,YI^,YI^,YI^,YI^,^IY,^IY,^IY,^IY,^IY

What you are looking at in wild combs hanging is:

YI^,YI^,YI^,YI^,^I^,^IY,^IY,^IY,^IY

This transition to larger starts slow but gets more pronounced the closer to the outside of the brood nest you go across the first



worker cell combs built from the centre main comb or imaginary line.
On good flows, beyond this, especially in wild colonies, you can get combs drawn with cells even bigger then drone cells, but rarely seen except in exceptional years.
Now, the placement of these bigger combs/drone combs on the outside periphery, is to protect the worker combs from damage. Animals attacking a feral hanging nest will pull off the outside larger combs for food and many times go on after eating their fill. Wind if strong, along with rain will knock or blow/rip down these outside combs. They are weaker combs with less wax cell walls, and thus more easily tear loose. But, they serve to protect the inside combs, by their side alignment and positioning, from both the elements and animals. This then leaves the smaller worker combs safe, which can and often do, contain honey besides pollen, as the active year progresses and brooding cuts back, and are the strongest combs with maximum wax for strength.
The positioning of the combs in man's domestic hives should follow the above for drone/honey cell positioning relative to worker/pollen/honey cell positioning.
All good drawn-out worker combs should be placed to centre, then frames/combs with peripheries of drone cells (not more then 10% kept), then lastly badly drawn-out transition combs. This way, beekeepers end up with 4 good worker combs in the centre of brood boxes, and the three on each side for combinations of combs containing worker/drone, pollen/honey storage, and only the Immediate outside frame position, for absolute hodge-podged transition cull comb, until the beekeeper can work it up and out during routine field work, for taking back to the honey house for extracting and recycling by melting down.

Importance of "Housel Positioning to Field Beekeeping Management

As I said earlier, intrigued by, and recognizing the value of the "Housel Positioning" relative to wild feral combs, we have resequenced close to 35,000 frames in our colonies and will do more as we continue to work our bees. By resequencing our combs to match wild comb positioning, final internal colony problems relative to our honeybees drawing-out of foundation and how the bees work the combs, appear to be lessening or stopping altogether. Much stress seems to have been eliminated.

My husband and I manage our hives using 4.9mm small cell beeswax foundation, with unlimited broodnest management of 2-3 deep boxes, with 1-2 deep supers for honey production, with an overall average colony size of 4-5 deeps. We see no problems in using 4.9mm foundation in conjunction with "Housel Positioning", as all this does, is copy wild naturally small honeybee comb positioning found hanging from a limb on a tree. This way, we end up with field management program that is biologically harmonious to wild honeybees, in both comb size and positioning, but under man's control for production.

At the same time, by not having to use various treatments of chemicals, drugs, essential oils, FGMO and acids for parasitic mite control, accompanying secondary diseases and miscellaneous bee pests, we also gain clean products of the hive to sell, and bees harmonious with Nature again that live.
Final internal colony problems lessening or stopped by proper "Housel Positioning" following resequencing of combs have been:

1. Queens not laying in inserted drawn combs placed into the brood nest. Many times beekeepers, as a part of field management throughout the active beekeeping year, insert drawn

combs into the brood nest for their queens to lay in, as a means of producing more honeybees for production of products they sell.
These combs can be dry combs or extracted wet combs. But on subsequent hive checks, that can be days and even weeks later, the beekeeper comes back to find the comb not used, but the combs on either side being utilized and laid in. Loss to build-up of worker bees, necessary for production, is then the loss of brood that could have been generated, for each 21 day brood cycle of worker bees, not laid by the queen.

2. Excessively bulged/drawn-out honey combs with the next frame either burred or hardly drawn. It is not uncommon for beekeepers to find bulged/drawn-out honey combs with newly drawn-out comb 2-3 inches thick in supers with new foundations, while the adjoining new frame of foundation next to it is hardly touched or is burred in pattern.

Transporting such honey combs home can be trying as bumps are driven over, that cause the frames to knock and rub together, causing the honey to run out the bottoms of stacks of supers, before reaching the honey house and creating messes that then need to be cleaned up.
Through observation, we now know that the foundation/frame positioning in the super was wrong, and that the frame that was either burred or hardly touched, next to the bulged overdrawn-out honeycomb, was backwards in position to other combs in the honey super relative to positioning of wild combs.

3. Bees refuse to move up into next higher box/super of either drawn frames or new foundation. While this does not happen too often on good honey flows, on average to poor honey flows this can be a problem with bees showing reluctance to expand up into the next higher box/super, to either fill empty combs there, or draw-out foundation. This found happening in a few hives can lessen worker brood raised and honey stores gathered. Once frames are repositioned according to the way the “Y” formation is facing, the bees move up and continue to expand and work.

4. Odd frames of foundation not drawn and/or bees side-winding. From time to time beekeepers place a new frame of foundation into a brood box or super of drawn combs only to have their bees ignore it. Or they may have 2-3 frames of either new foundation or drawn empty combs or combination of these, the bees seem to ignore in a brood box/super. Through observation, we now know the “Y” positioning of the new frame or frames was probably faced wrong, causing the bees to go around the improper sequencing and positioning relative to wild combs.

5. Burred foundation or overlaid foundation. From time to time beekeepers find frames of new foundation that has been overlaid with sections of either bigger or smaller combs drawn out. We have seen bigger drone/honey combs overlaid on frames positioned with the “Y” formation inserted backwards. We have also seen worker/pollen combs overlaid on frames positioned with the “Y” formation inserted backwards. When looking at the overlaid comb, interesting to note, is the fact that the bees in overlaying the pattern, seem to be reworking the facing of the “Y” formation.

Many places of overlay face the same way as the foundation is placed, yet in other areas on the overlaid face, the bees it seems, are actually trying to reverse it's positioning to that of the foundation which was improperly positioned. Each burr overlaid formation tells it's own little story of the bees working it, trying to adapt the "Y" formation. This leads to much transition comb if these frames are allowed to be continued. Our combs are more evenly smaller now, because our bees are more uniformly maintained and bred, so we mainly see our bees trying to determine which way to face the "Y" formation now. Various sizes of differing transitional burr combs are not so prevalent with cells sizes strikingly different to the eyes.

6. Transitional combs containing various cell sizes are built. Similar to overlaid combs built upon new sheets of foundation, beekeepers can find transitional combs being built by honeybees containing numerous cell sizes. These cells are normally built by colonies upon foundations with "Y" formations positioned wrong and can range up to .2mm to .3mm bigger on average.

7. Queens are suddenly raised at wrong times of the active year causing swarming problems. Beekeepers in adding empty drawn combs or freshly extracted wet combs into the brood nest sometimes go back and find hives requeening at odd times of the active year. Beekeepers can also add odd frames of new foundation into the broodnest to be drawn-out and end up with a few queens being raised along with worker larva. They can also have changed nothing from the previous year in the broodnest, but all of a sudden requeening starts even though they know the queen they have is young and this should not be happening. This can be especially frustrating when a honey flow is coming on or in progress, or they actively follow breeding programs trying to requeen their colonies yearly to avoid this. Why would colonies want to requeen more then once throughout the active beekeeping year?

From what we have seen in our colonies, it is a comb positioning problem with the frames in backwards. With the comb positioned backwards and thus out of alignment with other combs in proper sequence, beekeepers can trigger spontaneous requeening in colonies by failing to note which way the "Y" formation is facing. Beekeepers must take note and remember one way the formation of the "Y" faces is inverted and down "^", creating a ledge for larva to lay upon that honeybees use for fast build-up following swarming, etc.

On the other side of the comb and/or foundation, the "Y" formation faces up and helps to form a slanted roof, to protect larva and stores gathered from sun, rain, etc. But, the slanted roof of the "Y" formation facing up has another purpose in a colony! For it is only on the side where the "Y" formation faces up, and helps to form this slanted roof, that honeybees raise "queen cells" that face downward for requeening.

Therefore, beekeepers not positioning foundation and drawn combs properly can spontaneously trigger superceding, and thus swarming in their colonies. With hives under stress already from disease, pests (beetles), and predators (mites), besides often on programs of various treatments for same, improper positioning then takes less effort to trigger problems, one of which can be spontaneous requeening.

Whose fault is it then! The bees or the beekeepers, for not following proper "Housel Positioning" for sequencing of managed colony combs, relative to proper positioning of wild combs?

One last note, in going back to colonies that were resequenced with proper "Housel Positioning" of frames, the disposition of the bees was noticed to be gentler then before.

COMMENT -
Beekeeping in New Zealand has hit a perfect storm.

Years of good marketing white and bush honeys have been undone through short sightedness and greed by both the packers and the beekeepers putting everything into marketing just mānuka. This hasn't been helped with MPI forecasting we can reach a billions in honey sales by 2025 without looking at whether this is sustainable or not with today's modern farming management. Unless of course you factory farm bees.

MPI was forced to step in with mānuka regulations to protect consumer interests, to stop what is fraud against the codex alimentarius; the world standards state that a honey must contain at least 51% of a floral honey to be called a floral varietal honey.

The change has been fast. Mānuka honey is all over the USA TV some swearing by it. However numerous testing of our honey overseas has found a proportion do not meet the standard stated on the label. Only two of five mānuka sampled in the USA in an August survey by ABC TV were true to label.
Who does the consumer trust? We have so many small players supplying the overseas market, not a bad thing as far as we are concerned but confusing for the overseas shopper.

Commercial beekeepers have stock piles of honey unsold from last year. Perhaps they want too much money for the honey as their cost of production is high. Basically there isn't a market for a lot of it now as we have lost a lot of markets because we didn't continue to supply and why would you if it could be added to mānuka. The wholesale price for honey has fallen dramatically. Some were quoting between $6 -$7.00 but lately we heard that only $3 per kg was offered to one beekeeper for good bush honey.

At this price everything is now out of kilter. Wages are too high for those with little knowledge and experience. 50% of both hobby and commercial beekeepers have less than three years experience. Land rentals are unsustainable for mānuka areas that are now producing honey that doesn't met the new mānuka standard.

Some who purchased land at a high price now find there is too much kanuka on their land so the honey now doesn't meet the standard.

We have other problems !!!

From the colony loss survey
Lower North Island: Colonies lost to queen problems as a proportion of all losses more than doubled from 21% to 55% between 2016 and 2017. Colonies lost to AFB as a proportion of all losses more than tripled from 0.4% of all losses to 1.1% of all losses.

We hear that some beekeepers are struggling financially. Some that entered the industry without sufficient knowledge now have stacks of dead hives. Hives left without bees won't last long when wax moth does its thing and some could potentially be an AFB problem.

Every country is now marketing high peroxide honey saying is as good as if not better than mānuka. Western Australia is spending $23,000,000 of government funding on the honey industry pushing Jara honey yet their forest service is cutting down their mature trees. In WA the forest service is sustained by milling timber on their own land.

We have pushed marketing for just one product because it was very successful, ignoring all our other unique honey.

We are about to start another honey production season. Will there be a market for everything we produce. Perhaps not unless there is a huge price correction.
It could take about 5 years for the industry to adjust to where we were pre the mānuka gold rush. While this is happening some of the newer beekeepers are going to get hurt.

The "corporate sector" is now finding out that honey production is very fickle.
Some have poured millions into beekeeping only to sustain high losses because their beekeepers don't have the knowledge or the commitment to look after their hives like somebody who has put their own money into their own business.

Yes, those that were in first put their money into research and have securing areas where there is high UMF honey and will continue to succeed but a lot will pull out as its too much of a gamble.

We are in beekeeping for the long run and it has to be sustainable in every way, financially for us and sustainable for the bees themselves.

The doubling of hive numbers beyond 500,000
I believe is unsustainable without artificial feeding.
Is this the way beekeeping should go?

Frank Lindsay

From Google

An email recently received from Randy Oliver. Randy has been to New Zealand several times and has shared his knowledge freely with beekeepers. All beekeepers are recommended to view his videos from the Rotorua conference (just Google: YouTube Randy Oliver)

I have changed some words to NZ English to make it easier to read.

In copying the email, I lost Randy's hidden programming that takes you directly to the articles so you will have to go via his website to access them.

Frank

Nine new articles posted to Scientific Beekeeping (www.scientificbeekeeping.com)

Hi Everyone

After almond pollination last year, I handed the chequebook for Golden West Bees over to my sons Eric and Ian, along with all the checks we'd received for almond pollination--with this advice: "Don't confuse cash flow with income!

I'm proud to say that "the boys" took that advice to heart, and this winter took more hives to almonds than we'd ever taken before, and at exceptional strength. They then broke our record for nuc sales, and not only ran the operation successfully for the year, but even made a slim profit to invest back into it.

My only condition for the handover was that I had access to as many hives as I needed for research projects. Since I'm now formally "retired," I can now devote myself completely to bee research. In that regard, I was perhaps overly ambitious--running 5 serious field trials this season, and have been working harder than ever. Two projects were on extended-release oxalic acid, one was to test a bee health product for a manufacturer (it didn't perform well), one to improve the formulation of pollen sub, and another is a very labour-intensive field experiment to better understand bee and varroa drift from collapsing colonies (the last two experiments are still underway).

You may have noticed that I hadn't uploaded any articles to ScientificBeekeeping for a while. My stumbling block was that the new editor at American Bee Journal and I have been learning how to work together. She feels that my articles could be better written, and sometimes does not agree with me on scientific interpretation. We've reached an agreement for her to simply put a disclaimer at the end of my articles, and allow me to write pretty much as I please, as I had long done when Joe Graham was editor.

Anyway, it meant that in order to post an article, that I needed to go back through each one and deal with all her edits--something that I just couldn't find the time to do--in part due to being on the road a great deal with speaking engagements. Finally, last week, during a cross-country flight, I just bit the bullet and did it at 30,000 feet. My web technician (Jane Gilpatric at gravitystation.com) has now uploaded my last 9 articles:

The following are now available at ScientificBeekeeping.com. You can click on the blue links below to take you to any of them directly. Happy reading!

Selective Breeding for Mite Resistance: 1000 hives, 100 hours In this article, I show how any large-scale queen producer can engage in a serious breeding program for mite resistance, and I kept track of the costs involved. I found that it only takes a hundred man hours of labour each season to do so--well within the reach of any producer. I'm walking the walk myself, reporting on successes as well as problems. One surprise--we found out that it is actually cost effective for us to perform a mite wash on every single hive in our operation in late spring!

An Objective Assessment of the Neonics I was asked by U.C. California to speak to the San Diego Master Gardeners on the neonics, and afterwards asked to write up a summary on this contentious topic.

The Varroa Problem 16a--Bee Drift and Mite Dispersal Following up on my article on breeding, I investigate what appears to be the large amount of mite immigration into some of my potential breeder hives in late summer.

The Varroa Problem 16b--Bee Drift and Mite Dispersal I continue the above. Since we have such a poor understanding of this phenomenon, I'm currently running a very elaborate field trial to give us some answers. **A teaser: we've already confirmed a substantial amount of bee drift to a yard a half mile distant, and some drift to one a full mile away.**

Modeling Nuc Buildup I've forced myself to learn how to use Excel in order to model bee and mite population dynamics. After noticing that some of our nucs build up much more quickly than others, I created a simple model in order to explain why. This article will be of interest to anyone who makes or purchases nucs.

The Varroa Problem: Part 17a — Treatment Free Beekeeping and Being Part of *The Solution* Rather Than Part of *The Problem* After investigating mite drift between hives, I came to realize that we beekeepers are creating a Monster--a symbiotic coevolution between varroa and DWV.

The Varroa Problem: Part 17b — The Evolution of Bees, Mites, and DWV Following up on the above, I look more deeply into how this evolutionary process is taking place, and how our current beekeeping practices are pushing it to become even more virulent each year.

The Varroa Problem: Part 17c Being Part of the Solution Unfortunately, many well-intentioned "treatment free" beekeepers are inadvertently contributing to The Problem. I discuss how they, and the rest of us, can instead be part of The Solution.

Determining the Relative Value of Hives for Almond Pollination I was reading agricultural extension advice to almond growers in Australia, and noticed that an old California study had been misinterpreted--as it has been in California. So I re-analysed the data myself to determine the actual value--as far as pollination work performed--of colonies of different strengths. My hope is for almond growers to realise that they shouldn't simply rent bee boxes, but rather pay for what's actually inside.

Extended-Release Oxalic Acid Progress Report — 2018 California Field Trial We beekeepers have a crying need for a midsummer varroa treatment that can be applied in hot weather, while the honey supers are still on. Extended-release oxalic acid looks to fit the bill. I'm currently working with USDA-ARS to submit data to the EPA for an additional approved application method for oxalic acid. Here's what I learned this summer from my beekeeper-supported research.

I now have every reason to believe that this application method is going to be a game-changer for our industry. I've also included, for those of you who live where this method is currently legal, the most

I direct my writing and research for North American beekeepers, but am appreciative beyond words to know that my articles are being read and utilized by beekeepers worldwide. To me, this is the highest calling for a human being--to expand human knowledge, and pass it on to future generations. We beekeepers worldwide are united by our craft and love of the honey bee--I consider us all to be brothers and sisters in beekeeping. I'm honoured to be a part of our common learning experience.

That's all for now. I'm still deeply involved in the ongoing pollen sub and mite drift experiments, and have a freezer full of bee samples to titrate for oxalic residues. I thank you all for your donations in support of my research--they've allowed me to hire an assistant (Brooke Molina), as well as cover the costs of materials and labour for my experiments and trials. I've got a number of others either already started, or in the works.

Happy beekeeping!
Randy.

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From the Field day

Nosema was covered by Hayley Pragert from MPI at our Whanganui October field day.

There are a lot of new beekeepers out there that don't know about nosema and its effects on honey bees. It's spread through faeces in water and from house bees cleaning the hive feeding larva.

Nosema is a serious disease caused by a tiny microsporidian (fungi) that eats out the bee's gut wall lining (epithelium) causing, in extreme case the adult bee to starve. Most bees have some level of Nosema in their gut. It caused spring dwindling and queen supersedure shortly introduction. It shortens the house bees and forager's life by up to a week and it has been said that a health hive will produce a super of honey more than one effect with a serious Nosema infection.

It's not apparent just looking at a bee but it is possible to check the gut of several bees visually by taking off the bee's head and removing the gut by carefully drawing out the stinger. Alone with it will come the entire crop and gut etc.. If the epithelium is swollen and clear, its a sign of Nosema. A normal one will show the wrinkles and will be the colour orange from the pollen inside.

Most laboratories offer this test but with 400 or 1000 power microscope, you can do it yourself. Randy Oliver (www.scientificbeekeeping.com) has developed an easy way to estimate the spore level using the eye piece only of the microscope

The more scientific way is to use a hemocytometer.

Attached is very old paper but is still relevant today on how to test for Nosema. To get a really good indication, the beekeeper needs to test bees collected off the landing board more than twice a year, especially if Nosema ceranae is involved; (all North Island areas above Wellington). N. ceranae spores build during the summer while N. apis is mainly associated with spring and autumn when there is poor nutrition.

Nosema apis is still in sections of the North Island and all the way through the South Island. Nosema ceranae doesn't seem to like the cold so at the moment is cut off at Cook Strait. It will be interesting to observe if N. ceranae moves south with North Island hive movements.

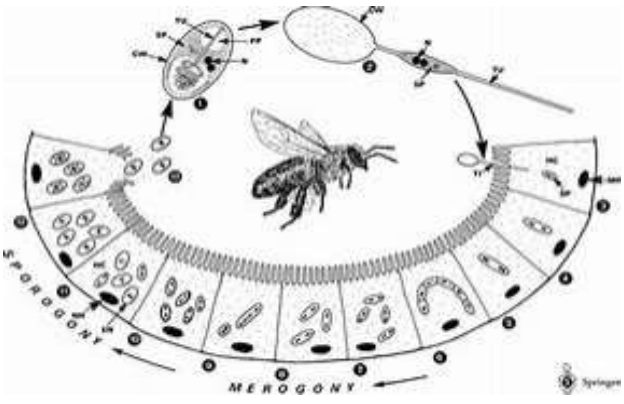
I used to have Nosema badly in my hives in the Wellington District during the 1980's because our changeable weather puts stress on our bees.

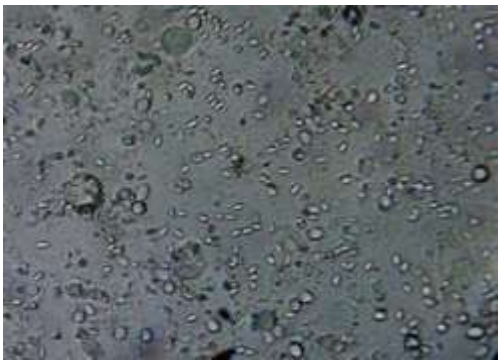
I found by breeding from hives that showed little nosema, I was able after a few years to change the type of bee I had. It's only in the last three years that I have seen a return of Nosema symptoms to a few hives: a pile of young looking bees dead out the from of a hive.

It can be treated with an antibiotic but this is not allowed in NZ or Europe.

Beekeepers can do a few things to help the bees with good hygiene. Change out a number of old black brood frames each year and replace them with foundation. Make sure the hive always has nectar and pollen around the brood nest. Feed if you need to. Some beekeepers are getting good results by feeding api-herb in the sugar syrup. In America, beekeepers are taught not to squash been when reassembling the hive after an inspection. Use the scraper end of the Kelly Type (paint scraper) hive tool to hold up the front of the super when placing the super back on the lower super. Puff a little smoke around the sides and front to move the bees back, then remove the hive tool and gently lowering the super.

For further reading there are lots on the internet. Download Nosema Disease part 2 by Michael Hornitzky from the Australian RIRDC site.





From Google

TESTING APIARIES FOR NOSEMA DISEASE

1. COLLECTING BEES IN THE APIARY

(i) Collect one bee from the entrance of each fourth hive. Collect a minimum of 20 bees from each apiary site.

(ii) Collect older foraging bees, do not collect young bees.

(iii) Place the bees in a small bottle of 70% alcohol or 70% methylated spirits.

(iv) Label the bottle with the site number and date of collection.

2. PREPARATION OF BEES FOR SPORE COUNTS

For each sample of 20 bees:-

(i) Select 10 bees from the sample and discard the remainder.

(ii) Place the 10 bees in the mortar, do not add the alcohol/methylated spirits.

(iii) Measure 10ml of tap water into the Measuring Cylinder and add to the 10 bees.

Note:- The procedure is based on 1 ml of water per 1 bee body. If you have fewer than 10 bees then add 1 ml of water for each bee in the sample. e.g. 8 bees, then add 8ml water.

(iv) Grind the bees with the pestle until only small pieces remain (about 30 seconds).

3. ADDING THE BEE MIXTURE TO THE HAEMOCYTOMETER

(i) The haemocytometer and its cover glass should be clean, that is, washed in water and wiped with a tissue soaked in alcohol or methylated spirits.

Wipe dry with a clean tissue.

(ii) Place the dry cover glass onto the dry haemocytometer so that the cover glass is evenly centered over the engraved middle section of the haemocytometer.

(iii) Dip the wire loop into the mortar so that the loop fills with liquid. Place the wire loop full of liquid up against one end of the cover glass. Continue until that end of the chamber is full of liquid. Do not overfill.

(iv) Repeat this procedure until the other end of the chamber has also been filled under the cover glass.

(v) If bubbles are present, clean the slide and cover glass and repeat steps (iii) and (iv).

(vi) Allow 2 to 3 minutes for the spores to settle before counting.

4. SETTING UP THE HAEMOCYTOMETER ON THE MICROSCOPE

(i) Place the haemocytometer under the objective lens of the compound microscope.

(ii) A magnification of between 400 and 600 is required. This is worked out by multiplying the magnification, written on the side, of the eye lens (usually x 10) and the magnification of the objective lens (usually x 40) to give a total of x 400 magnification.

for example:-

If the eyepiece is x 10 and the objective is x 50, total is x 500

If the eyepiece is x 10 and the objective is x 60, total is x 600

If the eyepiece is x 15 and the objective is x 30, total is x 450

(iii) Have the light set so that maximum light is obtained over the whole field of vision.

(iv) Move the haemocytometer under the objective lens until the ruled area is found.

(v) Adjust the focus until the lines are clearly visible.

(vi) Move the haemocytometer along the ruled lines until the squared areas come into view.

(vii) Adjust the haemocytometer until a group of 16 squares enclosed on all sides by double lines is seen in the field of view.

(viii) Adjust the focus until the Nosema spores are sharply defined. If they have not been allowed to settle, then spores will appear as the focus is raised and lowered.

Note:- spores are ellipsoid or fottbal shaped, opaque with a greenish tinge with a clearly defined outline.

spores are twice as long as they are wide

the length of one spore is about one quarter of the length of the side of one of the small squares

dark green spherical bodies of varying diameters are oil or fat globules

5. COUNTING THE SPORES

(i) Count the spores in the 16 squares bounded by double lines.

(ii) Count those spores which touch the left hand and upper line but not those touching the right hand and lower lines.

(iii) Write this number down beside the hive number.

(iv) Move the haemocytometer so that 5 groups of 16 squares are counted. It is usual to count the 4 corner groups and the centre group.

6. CALCULATING NOSEMA INCIDENCE

(i) Add the 5 numbers of spores counted in the 5 groups. If no spores are present for any count then write this down as a 0. This is the Total Number of Spores Counted.

(ii) Use the formulae:-

$$\frac{\text{Total Number of Spores Counted}}{\text{Number of Squares Counted}} \times 4 \times 10^6 = \text{Number of Spores per Bee}$$

Since 5 groups each of 16 squares were counted then, Number of Squares Counted = 5 x 16 = 80

Therefore, the formulae is:-

$$\frac{\text{Total Number of Spores Counted}}{80} \times 4 \times 10^6 = \text{Number of Spores per Bee}$$

Note:- $1 \times 10^6 = 1$ million
$0.1 \times 10^6 = 100,000$

7. INTERPRETING THE RESULTS

Based on current knowledge it is not possible to take a spot count of nosema spores and interpret the Nosema history of the hive - what has just occurred, what the count you have just taken means, and what is going to happen to the hive in the following few days or few weeks.

WHAT IS KNOWN

(i) Apiaries/hives with a zero or low count on one day may show an alarmingly high count a few days later. This is due to adult bees being sampled one day with low Nosema spore numbers in their bodies while the Nosema organism will have had time to multiply in those bees collected a few days later.

As well, apiaries/hives with a high count may show a low or zero count a few days later when sampled again, this situation occurs noticeably after a few days of very hot weather.

(ii) This means that monitoring apiaries/hives for Nosema has to be a continuing programme to determine the trend of Nosema infection within that apiary/hive. For example, high counts in autumn mean that a Nosema problem can be expected during the following spring build-up period.

EXPECTED FIELD EFFECTS

Information from the Minnesota Department of Agriculture, USA provides a guide only to the physical and economical effects which could be expected from various spore level counts.

Level of infection (in millions of spores/bee)	Probable consequences in an apiary
0	- no immediate concern
0.01 to 0.10	- watch apiary for further symptoms
0.11 to 1.0	- reduced honey yields
1.1 to 5.0	- reduced honey yields - probable winter and spring colony losses - supersedures
5.1 to 10.0	- significant reduction in honey yields - winter and early spring colony losses - supersedures and queen losses
10.1 or more	- significant reduction in honey yields - significant numbers of winter and spring colony losses - significant numbers of supersedures and queen losses

8. MANAGEMENT PRACTICES TO REDUCE NOSEMA PROBLEMS

(i) Abundant autumn pollen of high nutritional value.

(ii) Replacement of brood combs to reduce build-up of disease organisms - replace 2 or 3 of the oldest combs with foundation each year.

(iii) Annual re-queening to encourage cleaning of brood combs and maximum population numbers.

(iv) Avoidance of autumn/winter honey flows on pollen of low nutritional value.

(J. Rhodes)
21.6.1988

These circulars are provided by the courtesy of
HONEY CORPORATION OF AUSTRALIA LIMITED

On and off farms around Southland it's important to be responsible. Water blasters on the back of the beekeeping trucks to wash down between farms. Also useful for bringing down a swarm in the air.