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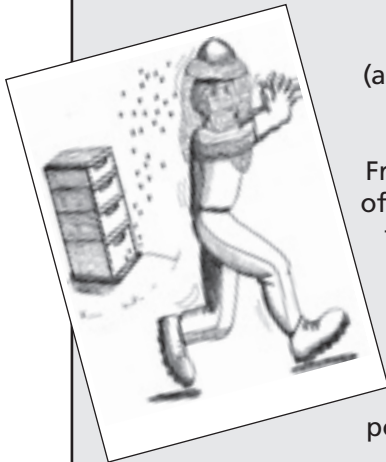
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Editor..... Heather Clay  
Design and Production ..... Rudy Gelderblom

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# HiveLights

May 2006 Vol 19 #2

*Check out Corey Bacon's article  
on the effect of converting even  
a small percentage of coffee  
drinkers to using honey instead of  
sugar in their coffee.*



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# Canadian Honey Council Activities

Heather Clay, National Coordinator CHC



## Annual Meeting

The January AGM for the Canadian Honey Council was hosted by the Québec Fédération des Apiculteurs in Quebec City. It was a beautiful location just outside the historic fortress city of Vieux Québec with its cobblestone streets, seventeenth century buildings and old world charm. The biggest winter carnival in the world, Carnaval de Québec, started as our meetings ended. Our delegates enjoyed watching the many festivities of ice sculptures, dog sled racing, ice skating and artisan displays. Some ventured out to the Plains of Abraham to sightsee and sample winter treats like hot maple syrup taffy rolled in snow on a popsicle stick. We offer a big merci to our Quebec hosts for a great meeting. The winter weather was hardly noticeable with the warm hospitality of the friendly Quebecers.

## Future of CHC

Thirty attendees met in Quebec City before our AGM for a one day facilitated meeting regarding the future of the Canadian Honey Council. The stakeholders, representing all facets of our industry, developed a resolution that was presented to the AGM. The resolution passed unanimously and the CHC has agreed to commit to forging a new direction, including restructuring the organization, to:

- build and promote a dynamic and prosperous Canadian Honeybee Industry,
- be the definitive unified national voice for the industry and
- act as the instrument for achieving a sustainable Canadian Honeybee Industry in the global economy.

This commitment will be undertaken through broadly representative working committees, appointed by the Board, to plan for implementation of the new direction considering the options outlined by the Stakeholders

Meeting; specifically to propose to the 2007 AGM:

- the new purpose and roles of the CHC,
- the future CHC membership and participation processes, and
- funding streams to support the revitalized organization

## Anti Dumping action

Action continues on the anti dumping complaint. The process is ongoing as it takes a great deal of time and energy to gather all the documentation required for such a large scale national initiative. Legal action is expensive and we need more donations to help us develop a strong case. In the event that no action is taken, the remainder of the donations that are not used will be returned to the donors. If you would like to contribute to this fund, all donations are gratefully accepted.

## On Farm Food Safety

The Canadian Honey Council has chosen to participate in developing an On Farm Food Safety program for the production of honey and products of the hive. This program is called the Canadian Bee Industry Safety Quality Traceability (C-BISQT) program. It has been developed by beekeepers for beekeepers, based on the internationally recognized Hazard Analysis and Critical Control Point approach. The C-BISQT committee is in the process of preparing a manual

of good production practices and a suitable record keeping system. Many of the requirements in the C-BISQT program are already in place by beekeepers and a great deal of the information is common practice. For most commercial beekeepers it will not be a big investment to upgrade to the C-BISQT standard.

## Web Site

The new CHC website is now live. It has been reorganized and improved to provide easier access to information and a more attractive presentation of current news and events. The Saskatchewan Beekeepers Association has agreed to let us host their website within the umbrella of the CHC. It can be found by clicking on their flag on the front page of the CHC site. We are hoping that other provincial beekeeper associations will follow the lead and let us maintain their pages within the CHC site. Visit us at [www.honeycouncil.ca](http://www.honeycouncil.ca).

## Honey Promotion

Karo Design has been working with the directors of the CHC to develop a honey promotion program. A pilot program is expected to be ready to run in early fall. The test market will be Winnipeg. There will be radio ads, posters on public transit, in-store promotion, rollout of our new 100% Canadian logo, along with our new mascot Pierre the Bear. Consumer awareness will be measured before and after the campaign. We are excited about the campaign and eager to make promotion a long term program. This will be possible if we move to a national commission with annual funding earmarked for research and promotion.

CHC - CCM  
Delegates 2006  
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## President's Report

Alain Moyen, Fédération des Apiculteurs du Québec, QC

After our annual meeting in Québec City, it is clear that there is a place for the Canadian Honey Council. No one voted to dissolve the CHC. Everyone agreed that we do need a national organization that will work for us now and into the future. There will be ongoing talks over the next year to restructure the Council. We have to position the organization on solid financial ground, hire more good personnel and expand the office to allow us to deal with the tasks ahead.

The CHC is still pursuing anti-dumping action against China and Argentina. I would encourage all those who have not yet contributed to the Anti-dumping fund to do so if we want this process to succeed. We are not "anti competition", just "fair competition". We have the right to protect our way of life. When we look at the surprise inspection that our American counterparts imposed on Canadian honey entering the U.S. in March, we see that we must be proactive too.

The Honey Council has launched a new web site to meet the needs of the industry today and well into the future. The new web site is set up to accommodate individual provinces. It will be more like a one stop shopping site for all Canadian industry information. It seems handy to have all that is related to beekeeping in Canada within one web site.

Beekeepers have confidence in their product. Now it is time to convince consumers. There is a need for labeling changes regarding the country of origin. Consumers know the best honey but can they find it quickly on the label? The average consumer will take 13 seconds to choose an item in the store but only 10% of consumers actually take the time to read the labels. Will they actually take the time to turn the container around and read the fine print indicating the origin of the product? I don't think we want to bog down our buyers with unclear wording. We want fairness and clarity in labeling so they may make an informed decision.

Have a great season !

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## **VARROA-NATOR SCREEN INSERT:**

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Jason Diehl, Dimo's Tool & Die Ltd. Winnipeg MB

The premise of the Varroa-nator screen insert is to allow for the physical separation of fallen mites from bees that are entering and exiting the hive.

The insert is designed to be placed on top of a traditional bottom board which has been reversed 180 degrees so that the old front opening is facing the back of the hive. The screen insert provides a new landing area and front opening for the bees to come and go. Instead of walking along the old solid surface bottom board, the bees walk along a screen floor and then up into the frames. Mites that are groomed off, or fall off during chemical treatment, pass through the screen onto the solid surface bottom board below. During chemical treatments, mites that fall are capable of surviving for hours to days, and may return to infest a bee if close contact occurs. The physical separation of mites and bees provided by the screen insert ensures that mites falling through are not given an opportunity to reattach themselves to passing bees. Mites that fall through the screen are poor climbers and usually die within days of dropping off the bees.

Monitoring hives for the presence of mites is becoming an increasingly important task for beekeepers to perform. Because of the opening under the screen at the rear of the insert, the Varroa-nator promotes such monitoring with greater ease than in the past. A sticky sub-board can be easily placed under the screen at the back of the insert while at the same time not disturbing entry and exit of the bees. This sticky sub-board can be removed at any time during the season and examined for presence or absence of mites without taking apart the hive.

The Varroa-nator screen insert is manufactured by Dimo's Tool & Die Ltd. in Winnipeg using an injection moulding process. The resulting part is made of impact resistant white plastic that will stand up to any environmental conditions it may encounter. The 8x8 squares per inch galvanized screen is moulded directly into the

frame of the insert. For beekeepers using formic acid treatments, stainless steel screen is also available. The screen insert can be screwed down to the existing bottom board using any of the holes (counter sunk) that are moulded into the upper surface of the frame. Upward protruding stabilizer fins are also present to help give side to side and front to back stability of the brood chamber and remaining hive components.

The Varroa-nator insert is currently being sold by the Manitoba Honey Co-operative in Winnipeg and

across western Canada. It can be ordered online through the BeeMaid beestore website [www.beemaidbeestore.com](http://www.beemaidbeestore.com). The 8x8 galvanized screen insert retails for \$12.95, the stainless steel one for \$16.95 and sticky boards can be purchased online for \$4.10.

If you have any questions or comments regarding the insert please feel free to contact Jason Diehl at Dimo's Tool & Die Ltd. (204)-772-6998.

## **VARROA-NATOR SCREEN INSERT**

**A new IPM tool  
for the battle against  
the Varroa mite.**

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- ▶ **Placed on traditional bottom board reversed 180 degrees.**
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# Provincial Reports

## Maritimes

The winter of 2005/06 has proved to be a non event in the Maritimes. There was very little snow fall and above normal temperatures throughout the winter months allowing the bees many cleansing flights. While this has made for easy living for beekeepers how have our bees made out? Early reports are encouraging however there are concerns of hives being short of feed and high on mites due to the mild weather.

Charlie Parker of Beamsville Ontario was the guest speaker at the Nova Scotia Beekeepers Association annual meeting. He addressed the commercial beekeepers during a session on Friday afternoon and the entire membership at the annual meeting on Saturday. Charlie told us about his beekeeping operation including pollination in Northern New Brunswick. His talk was informative and thought provoking. At the Nova Scotia Annual meeting a resolution was passed to negotiate a subscription rate with CHC so that all NSBA members

would become CHC members and receive the Hivelights.



Paul Kittilsen

Maine State Apiarist Tony Jadcak was the guest speaker at the New Brunswick Beekeepers Annual Meeting and his talk was focused on beekeeping in Maine and the

increasing problems with bee pests in the USA.

Till next time wishing you all the best for a productive spring season.

## QUÉBEC

The latest talk is "commission" and how we can collect from our beekeepers. When we compare with Saskatchewan and Alberta, we realize we do not have the hive count to collect on a per hive basis. There are approx 35000 hives in Québec today. Things are becoming quite clear that the old associations don't work anymore. One of the constraints from other beekeepers is the fear of a quota system. In the past a commission was tried but failed because it was based



Alain Moyen

on a collective retail system for the province, therefore beekeepers would have lost their personal identity. We still have a lot of homework left to do.

One issue that is now being discussed is the Gaucho or Poncho. Hives are dwindling away with no apparent reasons. I wonder if we will have the same experience the French beekeepers from France have had with eventually a ban of all Imidacloprid products. This is going to be a subject we won't let stand idly by.

This winter the Québec beekeepers have been approached by the Ontario Beekeepers to hold joint meetings in the future. At first I thought this would be rejected by Québec beekeepers, but no ! They realize that we have a lot of common ground. This could be a good way of exchanging ideas and may be break the language barrier.

The Québec Federation is now working on a new service to meet the needs of the beekeepers. In the past we had a club that was supposed to keep beekeepers informed but like anything else things change and our needs change. Following our heavy losses of colonies in 2003, we succeeded to raise the awareness and

the importance of bees for pollination.

## Ontario

Most of Ontario experienced a warmer than usual winter. In the south we had a very warm January, February was more seasonal, a lot of areas north of the 401 got quite a bit of snow fall. We in the Golden Horseshoe area however have pretty much been able to drive right into our beeyards all winter.

While it was handy for checking if lids have blown off, there really is no point to going into the yards at that time of year.



John van Alten

I've been told that the tech transfer team has finished their beekeeping and queen rearing manuals, and they are available through the OBA office. They seem to be selling well so get your order in early before they are sold out.

We will be holding our spring meeting in the London area on April 5. We will be touring the facilities at Clovermead Apiaries near Aylmer Ontario. They are a second generation beekeeping family with several innovative marketing strategies. It promises to be an informative tour.



# Plants for bees



Doug Clay, Research Scientist, Calgary, AB

**Common Name:** True clover  
species common in Canada: red, white, and  
alsike clover

**Scientific Name:** *Trifolium* spp. L.  
*Trifolium pratense* L.  
*Trifolium repens* L.  
*Trifolium hybridum* L.

## Native Range:

The true clovers or *Trifolium* genus contains nearly 250 species in the Fabaceae (pea) family. The major genetic sources of this large genus are Eurasia, southern Africa, and the Americas. The three species commonly grown in Canada and the USA are all exotic imports. Although their main commercial value is as forage, they have ecological importance for soil conservation. As

legumes, the clovers fix elemental nitrogen in the soil. It has been suggested that red clover has had a greater influence on civilisation than the potato through the benefits of crop rotation.

It is believed the origin of the word “clover” may be from the Dutch word for clubs which is “klaver” - representing the three leaflets of clover plant. The term “clover” is also used as the common name of other legumes such as the sweet clovers, *Melilotus* spp., which are not true clovers.

Red clover, *Trifolium pratense* L., is an introduced biennial or short-lived perennial that grows as one of two



Red clover blossom

types: early flowering (double-cut) or late flowering (single-cut), this latter is sometimes called mammoth. Red clover is believed to have originated in Britain, and is sometimes referred to as meadow honeysuckle.

White clover or Dutch white clover, *Trifolium repens* L., originated as a cool season perennial legume of the Mediterranean. It has become one of the most widely distributed legumes on earth. The three general types of white clover usually recognized are large, intermediate, and small.

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It is too early at the time of writing this piece to know how the bees wintered, but initial observations of flight activity would indicate that most colonies are at least alive.

This spring holds a special place in our (Dutchman's Gold) operation as it marks the 25th anniversary of being involved in this industry. Time flies when you're having fun.

### Manitoba

The end of March brings with lengthening days the optimism that this year will be better than the last. While it is still too early to examine outdoor colonies, several beekeepers who winter indoors have reported that their bees look good for this time of the year. In preparation for taking their colonies out of the wintering room many beekeepers have been busy clearing away large amounts of snow from access roads leading into their spring locations with snow blowers and front end loaders.

Depressed honey prices continue to be a major concern for every producer. A few beekeepers are holding a large inventory of last years honey crop in anticipation that the price will rise to meet their cost of production. It is thought that having duties assessed on Argentine and Chinese

honey should bring prices back up to a reasonable level.

Manitoba Agriculture and the Manitoba Beekeepers Association will continue working together, for the second season, on a cost-sharing basis to provide disease inspection and laboratory services for the beekeepers of Manitoba. This beneficial program has worked well to provide disease detection and educational services for the beekeepers of Manitoba. Recently, the program has confirmed rAFB in several operations and is now providing ongoing support to these producers to achieve control of this situation.



Ron Rudiak

Our extension office organized a varroa treatment workshop and demonstrations in the use of formic and oxalic acid. Bill Ruzicka, David

VanderDussen, Ted Scheuneman and Ron Rudiak provided information on their respective methods of formic acid treatments. Janet Tam (Ont. Tech. Transfer program) provided research information on oxalic acid treatments and precautions in its use and handling. Workshops were well attended in both the Winnipeg and Brandon locations. Our industry wants to continue to produce top quality products and reduce

dependence on traditional hard chemicals.

### Saskatchewan

The Saskatchewan representatives left the facilitated meeting of industry stakeholders at the Quebec City Annual General Meeting feeling optimistic and fairly positive about the discussions and future implementation of the new direction for the CHC. Of those stakeholders in attendance it was a wide felt view that while the CHC accomplished a lot in the past, with very little, we needed changes to move forward. One of the most pressing changes that needs made is funding. Without proper funding, running a national organization going forward will not be a reality. A strong voice representing our industry in Ottawa is a must.

Saskatchewan held another successful convention the first week in February. This year we had an all Canadian line up of presenters, which was received extremely well. We were hoping to finalize implementation of our commission during this convention. This did not happen. Two days before the convention our board finally received the draft document for final review from the Saskatchewan Government. It has been received and returned to Saskatchewan legal for some minor changes. There is still a slight possibility that we will have it in place

for this year if we can have it ratified at the annual SBA field day in June. The commission costs for beekeepers will likely be a \$25 administration fee and a per hive charge of likely between \$0.50 and \$1.00 per colony. The fees are still to be decided by members and is reviewed each year. The commission fees will be mandatory for all beekeepers with 100 or more colonies. However, those with fewer than 100 colonies can still participate on a voluntary basis. The moneys due are refundable to members, if they wish, at their request. However, with over 93% support for the formation of this commission and the obvious



Corey Bacon

positive results this funding can achieve, as being seen at "Saskatraz", refund requests will likely be at a minimum. Albert Robertson presented the results of the SBA "Saskatraz" Breeding Program at the AHPA meeting in Houston in January, at the CHC AGM in Quebec City in January and again at the SBA convention in Saskatoon. Great interest in "Saskatraz" genetics were expressed at each of those meetings. The goal of this research project is to select traits related to the tolerance/resistance of mites, but at the same time ensuring other desirable traits (honey production, gentleness, etc.) are also achieved. Molecular marker analysis will be ► pg 18

Alsike clover, *Trifolium hybridum* L., is a short-lived (often only 2 years) perennial legume that is often treated as a biennial. It is believed to have originated in Sweden, and records show it was cultivated there as early as 1750.

#### Canadian Distribution:

Red clover can be found throughout the moist boreal forest regions of Canada. It is not found in the central prairies. The longer days of early summer, at least 14 hours, are required for flowering of the early variety, while the late variety requires 16 to 18 hour days.

White clover has been used as a forage in North America since colonial times. It was noted as early as 1746 and has since spread into northern regions of Canada. It grows best in moist temperate areas with fertile soil and does not tolerate the droughts of the prairies or saline, alkaline, or acid soils.

Alsike clover was introduced into England and Scotland about 1830 and into the United States by 1840. Alsike clover is widely distributed throughout Canada. It is the 'tough one' of the clovers, often found along roadsides, railroads, in fallow fields, and in wastelands. It is also extensively cultivated as a forage crop. Although not as nutritious as the previous two species, its ability to utilize poor conditions make it a common crop in regions where not all conditions are ideal for agricultural crops. It is mainly distributed in the cool temperate zones and because it is frost tolerant it can be found north to the sub-arctic.

#### Description:

*T. pratense* grows erect from the crown, with hollow, hairy stems and branches. Stem lengths of early and late varieties average 45 cm and 60 to 75 cm, respectively. The early type has about 4 branches per stem; the late flowering has 6. The large leaves consist of a slender stalk bearing 3 leaflets, usually with a horseshoe shaped mark. Flowers are borne in compact clusters with approximately 125

florets, usually rose pink. Seedpods are small containing kidney-shaped seeds that vary in color from yellow to deep violet. Late flowering red clover recovers more slowly from harvesting, usually permitting only one crop a season. The taproot of red clover is extensively branched.

*T. repens* grows along the ground. Leaves and roots develop along the stolon at the nodes. The leaves are composed of three leaflets, which sometimes have a "crescent" or "water mark" on the upper surface. The flower heads (with 40 to 100 florets) are borne on long stalks from the leaf axils. Florets are white but may have a pink hue. The large type is two to four times larger than the common white clover.

The alsike is a true species and not a hybrid as the name implies. *T. hybridum's* smooth stems and leaves emerge from a basal crown, reaching a height of 30 to 90 cm. Trifoliate leaves have leaflets with toothed margins and no leaflet markings as found on the other clovers. The plant tends to lodge unless companion plants hold the stem upright. Flowers range from pink to white, and are borne along the length of the stem, becoming brown and shriveled after cross-pollination by honey bees. The flower heads are much smaller than red clover, and the stems do not terminate in a flower. Flowering is usually in mid summer; the racemes bear 30 to 50 florets. Flowers arise from each leaf axis; thus the flowers are oldest near the base of the stem. The taproot has many lateral branches.

#### Ecology:

Red clover is quick growing and tolerant of shade, a characteristic that enables growth under taller plants such as flowering shrubs (eg. chokecherry (*Prunus virginiana* L.)). *T. pratense* cannot withstand being cut back to ground level, at least 5 cm of growth should be left after each harvest to encourage re-growth. The early varieties tend not to be as winter hardy as the late cultivars. The later the seeding the higher the risks of

## Interesting Facts and Neat Stuff about the True Clovers

The three 'leaves' of the Irish "shamrock" are considered to represent the Christian trinity. However the lucky four-leaf clover pre-dates Christianity; when the Druids (Celtic priests) had influence across Ireland and much of western Europe. They elevated the four leaf clover to a Celtic charm to protect against malevolent spirits. The four leaves represent faith, hope, luck, and love. Nowadays modern marketers have found a substitute 'four leaf clover', the *Oxalis deppei*, - not a true clover (and maybe not even lucky) but always with four leaves.

In the late 1890s, beekeepers made attempts to select superior red clover honey-producing bees but failed. However, it was later concluded that breeding clover to suit the bees would be more profitable than breeding bees to fit the clover.

Some agronomists believe that red clover will regain popularity with the predicted return to natural agriculture. The decline of the use occurred when farmers switched to high-priced cash crops, infrequent crop rotation to replenish the soil and synthetic fertilizers.

Alsike clover can cause bloat problems to livestock under some conditions.

Dutch white is best suited for lawn-type use. It tolerates low mowing, stays green through periods of drought and especially important — it tolerates pet urine.

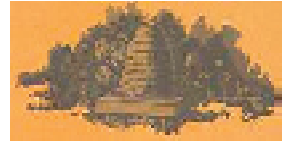
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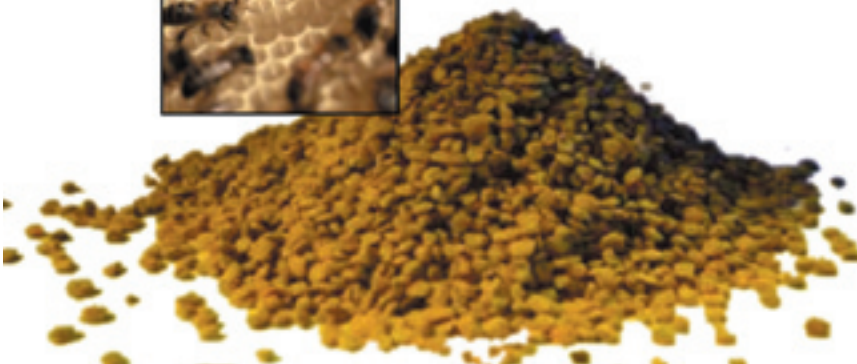
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# Mite-Away II

A Proven Sustainable

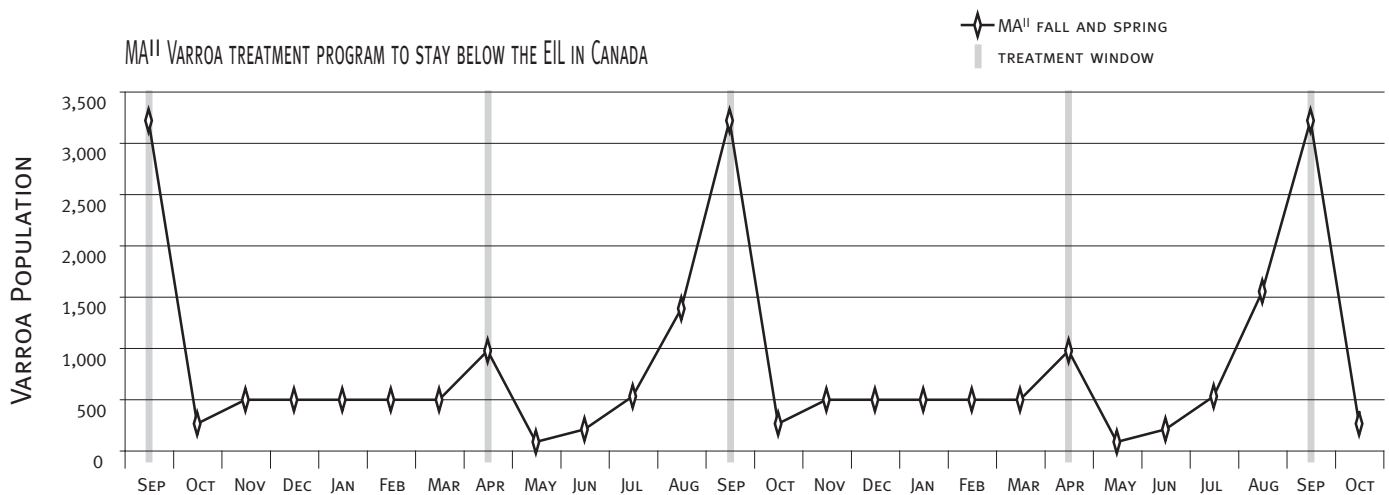
Mite Treatment Regimen for Canada.

David VanderDussen, NOD Apiary Products, Sterling, Ontario

In the face of resistance to Apistan® and the potential loss of CheckMite+™ Canadian beekeepers need to have an effective, economical varroa treatment program at their fingertips. This article is about a proven treatment regimen using Mite-AwayII™ Single Application formic acid pads (MAII).

model” description of how the varroa population builds, see the article in the *American Bee Journal* called Varroa Doubling Info: Understanding the BOOM and Assessing your Varroa Treatment “time purchase” (VanderDussen, D. in press, ABJ, scheduled for May).

To protect itself when phoretic (outside the brood cell) the varroa mite wedges itself under the layers of the bees’ abdomen (sclerites), making it difficult to be groomed off. The mite reproduces under the capped cell, so it is protected during the reproductive stage. So critical is the cap for protection that when the cap is removed, the male mite and immature females die. Varroa do not appear to reproduce very well in winter raised brood. The reason is



In Canada the varroa and tracheal mite treatment windows are defined by winter and the start and end of the harvestable honey flows. Southern coastal BC is the exception, and will be addressed on its own, further in the article. So to keep varroa and tracheal mites below the economic injury level (EIL) treat spring and fall as laid out in the graph below (graph 1 above).

## Why the MAII program works.

Like most living creatures honey bees and the varroa mites have two main goals in life: protection and reproduction. The honey bee protects itself in a variety of ways: hoards food for times of dearth, lives in a cavity for protection from the elements and predators, clusters to preserve heat, and, of course, stings. To reproduce the individual bees the colony raises offspring, to reproduce the colony unit it will swarm.

The varroa has the same goals. Varroa mite reproduction is tied directly to honey bee brood. It will reproduce itself to a point where it will kill off the host colony. For the “jar

not yet clear, but the high humidity in the winter cluster may be a factor. Multiple adult varroa, up to nine in one cell, have been uncovered by researchers, apparently not trying to reproduce, just seeking a refuge.

As well as within the colony the varroa mite reproduces and protects itself by dispersal. Mites spread by hitchhiking on adult bees as they move between colonies.

Another way the honey bee colony protects itself is to produce two entirely different types of worker bees. A “winter” bee is produced at the end of the summer and into the fall. It may never see a blossom. It is physiologically different than the summer bee, with a different hemolymph (blood) protein profile than the summer bee. A winter bee will live much longer than a summer bee, and can perform colony tasks at different ages. Its sole purpose is to get the colony through until the next spring.

A “summer” bee is tightly programmed to perform tasks by age. Becoming a field bee, gathering the nectar and pollen that will be the food for the colony and provide the reserves for the colony’s survival through the winter, is a crucial

task a winter bee may never have to perform. The bee population will naturally drop in the fall as the summer bees die off, to be replaced by the smaller winter cluster, as the colony prepares for the long winter months ahead. Spring dwindling is a well documented phenomenon that occurs as the winter bees die off and the replacement summer bee population has not yet surged ahead.

With a “soft” chemical treatment product like MAII, treatments need to be applied to protect each cycle of bees. The spring treatment will get the colony through the honey crop and into the fall in good shape, the late summer/early fall treatment gets the bees through the winter. It is important for the colony to raise at least one cycle of brood after the fall treatment is applied, to make sure enough healthy bees are in the colony to take it through the winter. Fortunately, a MAII treatment appears to stimulate the colony to raise at least a cycle of brood after the treatment is applied in the early fall.

**Oxalic Acid:**

With the oxalic acid treatment, performed when there is little to no brood in the colony late fall, it is too late for the bees to raise a healthy cycle of brood for winter bees. Oxalic acid treatments in the fall will not give enough control to skip a spring MAII treatment. An oxalic acid treatment early spring, before the colonies have capped brood, may be adequate to keep populations in check until the early fall treatment window, but the author is unaware of the results of any spring trials run in Canada. Results in Europe showed that, although significant varroa drops were achieved, spring treated colonies had the same varroa loads as the non-treated controls come fall.

So, what is the role of oxalic acid? If, for some reason, a colony has high varroa loads going into winter late fall, the phoretic varroa may stress the colony enough to affect its survival. Whether or not that stress is greater than the stress caused by the oxalic acid treatment is unknown.



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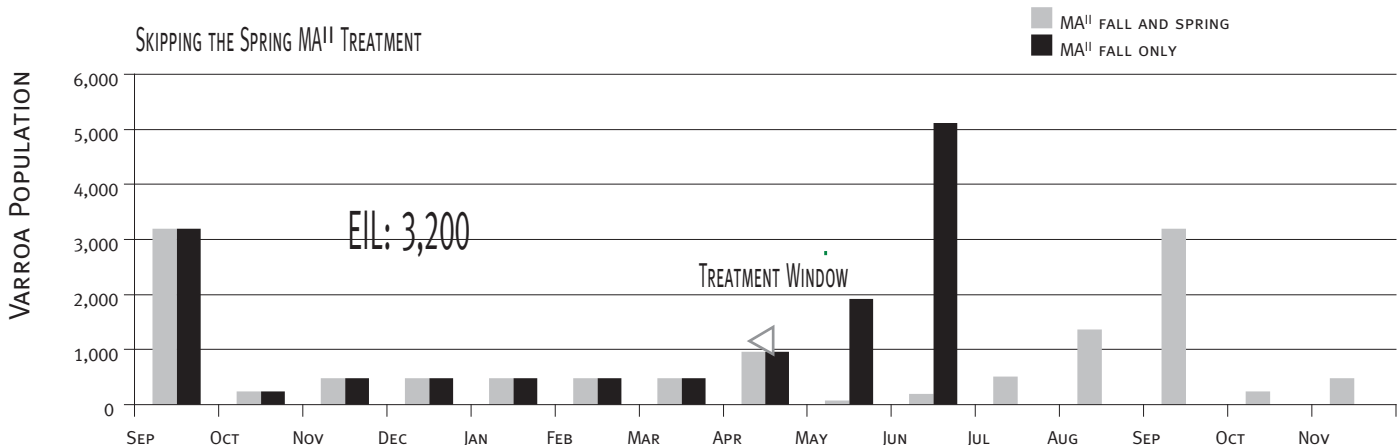
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**The Risk of Skipping the Spring MAII treatment:**

The need for a spring treatment is easy to miss because the bee population is growing so fast the danger is hidden. Come the end of July, the varroa population can be over the economic injury level (EIL), as shown in below in graph 2, putting the colony and crop at risk. ► pg 16



# Honey as Canada's Sustainable and Ethical Sweetener

by Andony Melathopoulos, Agriculture Agri-Food Canada, Beaverlodge, AB ToH oCo

Research from Sweden provides a compelling reason for choosing honey over other sweeteners: honey is environmentally friendly.

Annika Carlsson-Kanyama and her colleagues demonstrated that locally produced honey had less impact on the environment than any other sweetener. To compare the impact of different sweeteners the researchers used Life Cycle Analysis. This method traces the energy costs for sweeteners from the time they are grown to the moment it lands in your mouth. Their calculations included the energy value of all farm inputs, of harvesting and drying crops, processing, storage and transportation up to the retailer.

Their analysis revealed that the energy required to make a pound of chocolate is equivalent to the energy embodied in an equal weight of gasoline (see figure below). Sugar and jam are not

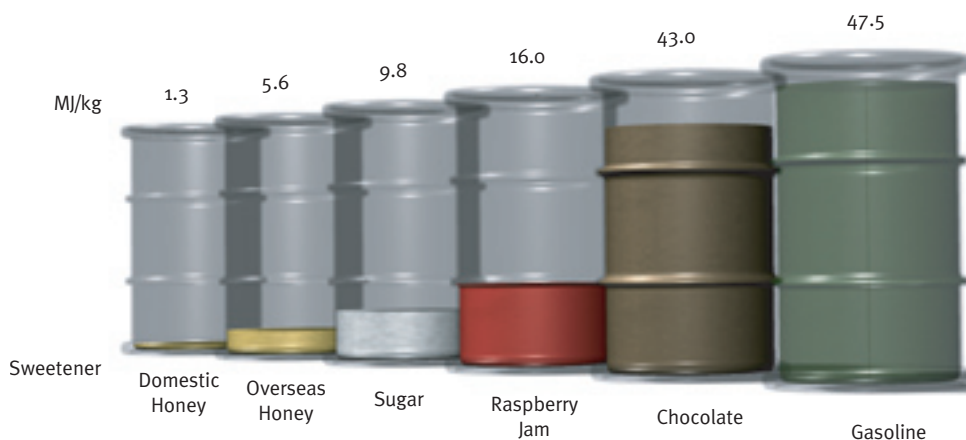
far behind. Sweets, as it turns out, are the gas-guzzlers, the SUVs, of the food world. In fact, the researchers point out that sweets, snacks and drinks contributed up to a third of total energy inputs of the average Swede's diet.

Locally produced honey, however, proved to be the exception. It took far less energy to make and deliver a pound of local honey to Swedish consumers than any other sweetener.

It is not difficult to understand why other sweeteners take more energy to produce than honey. Cane, corn and beets are among the greediest cultivated plants on the planet, demanding more fertilizer, pesticides and irrigation than any other field

crops. Growing these crops not only takes a lot of energy, but it can be hard on the land. U.S. corn production, for example, erodes soil about 18 times faster than it can be reformed and uses more pesticides and herbicides than any other US crop. Cane sugar has similar impacts. Australian cane farmers, for example, use 40% of the total the irrigation water in Queensland. The resultant run-off has contributed to an annual discharge of 7,000 tonnes of nitrogen and 11,000 tonnes of phosphorous into the fragile Great Barrier Reef lagoon ecosystem.

Beekeepers, by contrast, leave virtually no trace on farm ecosystems. Honey is either a byproduct of cultivated crops or comes from unmanaged wildflowers. Our main floral sources are alfalfa and clover, both of which naturally fix nitrogen into our soil and reduce our reliance on fossil-fuel-based fertilizers. Our only major input is the sugar we feed our colonies for winter. This input, however is typically offset by the amount of honey we make; in Canada's prairie honey belt we typically produce three to four times the calories of honey compared to calories of sugar needed for winter. The difference is even wider among some of my thriftier beekeeping neighbors.



*Life cycle energy inputs for sweeteners ready to eat. The inputs used to calculate energy included energy value of all farm inputs, of harvesting and drying crops, processing, storage and transportation up to the retailer (Carlsson-Kanayama et al 2003). The energy density of gasoline is used for comparison and is derived from Manuela, C. 1961 Physics of High Energy Densities. Amsterdam: Academic Press.*



Honey also beats out other sweeteners when it comes to the energy associated with refining. Honey, in fact, has no refining step. We just spin the honey out of the frames and send it to be bottled. Honey extraction uses a miniscule amount of energy compared, for example, to the wet milling of corn for corn syrup. Wet milling is arguably the most energy intensive food-processing step in the world. Wet milling gobbles up 15% of the US food industry's total energy expenditure.

Not only does honey take less energy to produce and process than refined sweeteners, but it also travels the least distance to get to Canadian consumers. Travel is an important environmental issue because the energy costs of transporting food can rival that of costs of processing. These transportation costs are the primary reason for the five times higher embodied energy of honey imported into Sweden compared to domestic honey.

Refined sugar takes an incredible journey to reach Canadians. Canada imports 90% of its sugar. Approximately 1 million tons of raw sugar comes into Canada, primarily from Australia and Cuba and is refined by one of four Canadian companies. Domestic sugar production is tiny by comparison and is easily missed when driving through the heartland of Canada's sugar beet industry in southern Alberta.

Not only is honey Canada's most sustainable sweetener, but also it is arguably the most ethical. When Canadian's buy table sugar they not only buy an exported product, but also a sweetener produced by laborers toiling under the most terrible of working conditions.

Political privilege and inequity are way of life in the cane sugar industry. The exploitation of cane workers is severe across most developing countries but has also plagued immigrant workers in US cane fields. Conditions that verge on slavery have been reported among Haitian refugees working in the cane fields of the neighboring Dominican ▶ pg 17

## The Birth of an Idea

Jacques Benoit, President, Woofenstock inc. Rosemère, Quebec.

On the wholesale market, the price of honey is based on its color grade. Generally speaking, the lighter the color, the more expensive the honey. Moreover, in Canada at least, labelling legislation requires the color grade to be indicated on the front of the product. Therefore, it is most useful for beekeepers to be able to classify their honey into various grades before offering it to a honey packer or before packing it themselves.

The idea of a color chart came to me at our Odem offices. Being a graphic designer, I was often asked to give my opinion on the color grades of honey samples as given by Koehler Instruments' Pfund Scale. It seemed to me inconceivable that the Pfund Scale could give such diverging results according to users, and at a high price, at that.

This set me looking for a tool that would be both reliable and affordable. Affordable enough for the small- or medium-size beekeeping business, even for the amateur.

We graphic artists are used to working with color charts. I asked myself, If the principle works for ink, why not for honey? The idea was simple enough. Implementing it at an affordable price was not. In fact, without the help of modern computer technology, the preprinting and proofing costs of such a process would have been prohibitive.

A few problems needed to be solved.

First of all, honey being translucent, its color varies according to the quantity of it exposed to light. Therefore, I set out looking for a container that would allow to suppress undesirable light effects and present it in a uniform color.

Once this container was found, each of the various colors (there are more than 150) was determined in the following manner:

1. Liquefy the honey.
2. Eliminate its impurities.
3. Evaluate and calibrate its color by comparing it with that given by the Pfund Scale.
4. Reproduce this color and calibrate it for printing.
5. Send it to a printer for proofing.
6. Using the proofs, repeat steps 1 to 3, comparing with the results given by the Pfund Scale and the Hanna instrument.

The above steps were repeated for each color until all prints were deemed satisfactory. This process took over a year. Each color was doublechecked with as many honey varieties as possible. As a matter of fact, all this process would not have been possible without the particular circumstances at Odem: the meeting of a honey trader and a graphic artist. Only in such an environment could I have access to such a large quantity of honey samples.

What came out at the end was a reliable tool that is both easy to use and to carry, and can be used anywhere since it does not need electricity. A full-scale color grader at a price that is virtually unbeatable.



MiteAway from pg 13 ►

When the beekeeper discovers high mite loads mid summer due to skipping the spring treatment, the plan of action may be to pull off the honey and apply the MA<sup>II</sup> treatment early. This may not be adequate control, depending on the starting mite levels, and a second treatment may be required early fall to allow the bees to produce a healthy cluster for winter.

#### Environmental Varroa Pressures:

The label on the MA<sup>II</sup> pail instructs the beekeeper to treat all the colonies in the apiary at the same time to prevent cross infestation. It is tempting to not treat colonies the beekeeper thinks may be doomed, such as drone layers. However, these colonies can be major sources of varroa re-infestation. Other "environmental" sources such as feral colonies may keep varroa pressures high, so wherever you can knock down varroa populations it will help reduce the overall pressure in the area.

#### Southern Coastal BC:

The southern coastal BC area is a unique climate zone in Canada. The winters are not as harsh as the rest of Canada and brood is maintained in the hives for much more of the year. The article "Identifying Treatment Windows" available on the MA<sup>II</sup> website at [www.miteaway.com](http://www.miteaway.com) will help beekeepers identify treatment windows for their area. Because of the longer brood rearing season, three treatments a year may be required. Monitoring will be very important in determining soft treatment needs as the hard chemical treatments fail.

#### Cost of a MA<sup>II</sup> treatment program:

Two single application treatments a year are required. The 2006 pallet price (960 treatments) directly from the manufacturer is \$3028.80 or \$3.16 each treatment plus freight. The cost per year, to control both varroa and tracheal mites, is \$6.32. Individual pails (10 MA<sup>II</sup> pads) or pallets of MA<sup>II</sup> are available from bee suppliers across Canada. Ready to use MA<sup>II</sup> is the safest and quickest way possible to apply formic acid in a beehive. For more information call 866-483-2929 or go to [www.miteaway.com](http://www.miteaway.com).

Plants for bees from pg 9

winter kill. The flowers are mostly self-sterile and require insect pollination for seed set. Seed production occurs in the second and subsequent years.

Red clover prefers well-drained soil with adequate moisture. Loam, silt loam, and even fairly heavy soils are better than light sandy or gravelly soils. It grows on moderately acid soil, but better yields are obtained when calcium levels are adequate and the pH is above 5.5, better yet in the range of 6.6 to 7.6. Red clover is intolerant of drought and salinity.

Wet years can result in excessive vegetative growth and decreased flower production leading to a drop in honey production. Red clover should be planted in early spring, no later than the first week in July, when soil moisture conditions are adequate. Companion crops are not recommended, as red clover does not compete well.

White clover can be so successful that it may become invasive in some habitats displacing desirable vegetation. Under dry winter conditions winterkill is a risk. It thrives in cool moist climates being best adapted to clay and silt soils in humid and irrigated areas. It grows successfully on sandy soils with a high water table or irrigated droughty soils when adequately fertilized. White clover seldom roots

Jack's Scale from pg 15 ►

Of course, Jack's Scale is subject to the same constraints as other graders: the honey must be liquid and clean of impurities. And the result is dependent on the color perception and judgment of the user. What it offers, is a performance at least equal to that of the Pfund Scale at a fraction of the price. Which makes it a premium choice for all those looking for an affordable yet trustworthy tool.

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deeper than 60 cm, which makes it suited to shallow soils with adequate moisture.

On good agricultural land red and white clover almost always out produce alsike clover. Alsike is often grown in the cool climates of eastern Canada where it tolerates wetter more acid soils; it is also somewhat tolerant to alkaline soils. It can tolerate flooding for long periods and can be killed during prolonged droughts. Growth persists throughout hot weather with sufficient moisture.

Alsike prefers silty clay loam soil with a pH of at least 6.0. It does not do well under competition or under even moderate grazing, thus it is commonly used for hay production and conservation projects.

#### **Honey/Pollen Potential:**

In the past, the true clovers were among the most important honey

plants for the quantity and quality of honey produced. Beekeepers can often be paid to harvest honey from clover as pollination is needed for seed clover. However, if more attractive nectar-producing plants are in the vicinity (especially for red clover) or the colonies are too far from the crop, the pollination and the nectar harvest can be poor.

Red clover is still considered important for honey in some areas. It produces good quantities of nectar, but because its corolla tube is longer than the honeybees' tongue, the nectar is often unavailable to the bees. The corolla tube of late-season red clover is usually much shorter than at the first flowering. Although surplus red clover honey production is uncommon, beekeepers frequently report that bees work red clover late in the season. Honey production can range from 50 to 100 kg/ha, mostly from the second

and/or third crops of the year. The honey is mild and very light coloured.

White clover is more important as a honey plant than red clover. White clover honey is considered a premium product. In many areas it is the principle source of nectar for surplus honey. The best yields come in seasons following a year of excessive rainfall. In wet years the conditions favor the asexual rooting of thousands of new plants, which are ready to produce a crop of nectar the following summer. Honey production can range from 50 to 200 kg/ha. The smaller varieties are best for nectar availability for the bees. The honey is clear and a little more golden than that from red clover.

Alsike clover is the most reliable honey plant of the three species; it produces a honey claimed to be indistinguishable from white clover honey. The nectar production season is longer for alsike than either red or white clover. Honey ► pg 21

Honey from pg 15

Republic. The UN reports child labor is widely used in cane cultivation in Brazil, Central America, Africa and the Philippines. Cane cultivation in developing countries is largely manual, backbreaking and unsafe. Sugarcane workers labor in direct sunlight and use machetes and other sharp tools to harvest the crop, which results in high rates of injury to their arms, hands and legs.

Canadians buying domestic honey, by contrast, support a beekeeper who owns their own business and who abides by numerous health and safety regulations. Canadian beekeepers enjoy a high standard of living compared to workers in

developing countries. Furthermore, buying honey supports our ailing rural communities.

The case for buying Canadian honey seems like such a slam-dunk. Canadian honey has less impact on the environment, conforms to ethical labor practices and keeps our rural communities vibrant. It is for this reason that I get completely exasperated when I visit health food stores and see shelves stocked with cookies, chocolate and soda sweetened with organic cane syrup. Consumers buying these products firmly believe they are making a sustainable and ethical choice, but clearly this is not the case. Even conventionally produced

local honey has less impact on the environment than organic cane syrup. What is going on?

The plain and simple answer is that consumers who worry about the environment and social justice need to know how great Canadian honey is. This lack of consumer knowledge needs to be dealt with. A good start would be if beekeepers and packers start stating our case to consumers, but we need to go further. We need more facts and for this we must encourage environmental and food science researchers to look into the sustainability of Canadian honey. We should open our honey house doors to these scientists and

have them compare our honey to other sweeteners, including imported honey. This analysis will not only help sell more honey, but it will identify the areas where we can continue to reduce the environmental impact associated with putting honey on the table. Not only would this kind of research help sell our honey to consumers, but it will ultimately help us in our quest to make beekeeping in Canada more sustainable.

#### **Reference:**

Carlsson-Kanyama, A., M. P. Ekström and H. Shanahan. 2003. Food and life cycle energy inputs: consequences of diet and ways to increase efficiency. *Ecological Economics* 44: 293-307

used to try and correlate the selected traits. Colonies from Saskatchewan queen breeders and producers, including lines of Russian stock, as well as other promising stock from around the world were introduced into the isolated "Saskatraz" site for evaluation. The project is entering its third year and already there are some promising results

The board, after a board meeting and bear pit session with the SBA members, are currently establishing guidelines for the commercialization of this stock to ensure the preservation, integrity and reputation of the stock and its name is not abused. This should also ensure future resources for the continuation and growth of this project.

The SBA annual field day will be held June 17th at Hannigan Honey located at Shellbrook, Saskatchewan, located 30 minutes west of Prince Albert. It will showcase their newly constructed plant and their extracting line, unique to North America. Hannigan Honey is located 1.5 km from Shellbrook. The roads are paved right to the operation. Registration will begin at 10:00 a.m. and things will get under way at 11:00 a.m. Come and join us for this event. For more information contact the SBA or Murray and Ruby Hannigan at (306) 747-3299 -home, (306) 747-2329 plant..



Ron Greidanus

**Alberta**

The Beekeeper Workshop held in Edmonton in February was again a big success. This Integrated Pest Management event is organized annually by Alberta Beekeepers in co-operation with Medhat Nasr, Alberta's Provincial Apiculturist. It continues to attract a large number of beekeepers, commercial and hobby. High profile international scientists make this conference a must for any professional beekeeper. Mark it on your calendar for next year.

Alberta beekeepers have begun their first year operating as a commission. This new structure provides solid funding based on a hive checkoff. The move to a commission is an equitable solution to dealing with the many issues facing our industry. There will be a few problems as we get setup but we look forward to a productive future.

*Willy Baumgartner and Ursula (hidden by the figure on the left) take a shift at the Beekeeper's booth at Aggie days in Calgary. Cherie Andrews from Chinook Honey was instrumental in setting up the display. Somehow she was able to organize local beekeepers to man the booth. ABA and Medivet made displays available and beekeepers supplied various props. The booth was quite successful. It drew steady business throughout the five-day event.*

**British Columbia**

The BCHPA has agreed to host the next annual meeting of the Canadian Honey Council and the Canadian Association of Professional Apiculturists in 2007. The convention will be held in Langley, BC (20 minutes from Abbotsford and 40 minutes from Vancouver)



Ed Nowek

January 24-27, 2007 at the Coast Hotel and Casino. There will be guest speakers, hands on workshops, winery tour and information for all levels of beekeeping. Registration details are available on the CHC website



Barrie Termeer

BeeMaid is running a very successful "Good for You" honey promotion program and is pleased to announce that the promotion now has a link with the Running Room store chain, that sell gear and sportswear to outdoor enthusiasts, runners and walkers. This association is a natural fit for the healthy lifestyle image we feel honey consumption is a part of. Purchasers of BeeMaid honey will be able to visit the BeeMaid website, enter a contest using product numbers and have the chance to win Running Room items as well as the grand prize of a mountain holiday in western Canada.

As you will read elsewhere in Hivelights, BeeMaid is pleased to continue to support research in Canada with grants approved for several projects across Canada. Also BeeMaid will certainly support the work of CHC in developing a national promotion program with plans to run a pilot project in Winnipeg ► pg 20

**BeeMaid**

BeeMaid held its quarterly spring meetings on March 13th and 14th in Edmonton with board members and staff.





## News

### National

BeeMaid Honey 50th Anniversary Scholarships

"Feed Bee" available

Ontario beekeeping Manual

### International

Tylosin tartrate approved for honeybees in USA

Taiwan Finds 75% of Honey Products Fake

Honey Enhances Calcium Absorption

[More News](#)

## Classifieds

### Careers

Beekeeper Wanted (ON)

3 Beekeepers Needed

Beekeeping help wanted (SK)

Beekeeper wanted (AB)

Buy and Sell Strong Hives Fors Sale

Active Beekeeping Business For Sale

1000 Colonies For Sale

Experiences Beekeepers Wanted

[More Classifieds](#)

## Poll

What were your winter losses

- Less than 5%
- 5 to 15%
- 15 to 30%
- More than 30%

## CHC rolls out new website

The Canadian Honey Council rolled out its new website April 1st. The site is built on an updated Content Management System provided by Karo design some years ago. For those not familiar with the concept, sites featuring a CMS can be updated and maintained entirely through a web interface. Editors need not be able to compose html or be proficient with uploading files to servers and all those things that made it difficult in the past for a large section of the population to maintain a website. If you have basic internet skills and you can find your way around in a word processor, you are sufficiently competent to maintain a site with a CMS. You log into the site, make your changes, click "save" and the changes you made are live on the internet.

The reasons for the update were mostly technical, but in the process the site received a bit of a facelift as well; the way news headlines are displayed on the front page is a little different than before and they are joined by some classifieds headings and upcoming events. A web poll, currently collecting info on winter losses, shares information on current concerns among beekeepers.

There are differences in the way the information is organized as well. The old site was getting a little unwieldy in places with information hidden deeply within many nested headings. We have made an effort to reorganize the data and make it more accessible. The search engine now searches news articles as well which it didn't do before.

The main changes of the site are underneath the hood. It is now possible to host other distinct sites within the CHC site. With the CBISQT programme on the horizon this was desirable as a lot of information on beekeeping will be housed on the CBISQT site ([www.cbisqt.ca](http://www.cbisqt.ca)). Currently there is just some introductory material there, but in the coming months we hope to move a lot of the beekeeping manual now under development online.

It is also possible for other beekeeping organizations to obtain space within the CHC site while still maintaining their own identity and domain. The Saskatchewan Beekeepers Association is the first to take advantage of the opportunity. It allows them to offload the technical maintenance of the site, while still keeping as much control over content as they want. The CHC is developing different hosting packages for beekeeping organizations, from complete setup and maintenance to a setup which allows organizations to maintain



## Events

2006

April

6 OBA Bee Breeders

May

16 Census of Agriculture

June

23 Beaverlodge Field Day

July

24 Western Apiculture Society

31 Eastern Apiculture Society

[More events...](#)

in conjunction with KARO Design promotions in the upcoming year. As a major packer of pure Canadian honey in all our products and markets, we are pleased to be a strong supporter of the Canadian bee industry in these areas.

BeeMaid also offers an annual scholarship available to any child of its members and staff that are pursuing post secondary education. This year

we are pleased to present the award to two deserving young people, who submitted excellent applications and essays on selected industry related topics. The recipients are Katherine Bygarski of Brandon, Manitoba and Amanda Termeer of Rollyview, Alberta.

On the business side, BeeMaid continues to pursue emerging markets and new niches for honey

both in product development and new distribution networks. BeeMaid is proud to have achieved sales of packed product into China, and we look forward to further opportunities in the future. Our marketing efforts will be guided by stressing high quality production practices, high quality Canadian honey and quality packaging and service.

## Canadian Bee Research Fund Grants

The Canadian Bee Research Fund has announced the successful projects that have been awarded funding for 2006 research. A total of \$25,000 was awarded for five research projects to be completed in the current year. Four are renewals of longer term research.

### **Dr. Rob Currie, University of Manitoba, \$5,000**

Integrating Chemical Control and Host Resistance to Increase Treatment Thresholds for Varroa destructor.

### **Dr. Ernesto Guzman, University of Guelph, \$5,000**

Varroa mite resistance to current chemical treatments, alternative control products applied with different delivery methods, and chemical residues in honey.

### **Dr. Steve Pernal, Agriculture Agri-Food Canada, \$5,000**

Management of Honeybee Diseases Using Lysozyme.

### **Albert J Robertson, Saskatchewan Beekeepers Association, \$5,000**

Evaluation of Varroa and Tracheal Mite Tolerance in Selected Honeybee Lines and Attempted Correlation of Tolerance with DNA Markers

### **Medhat Nasr, Alberta Agriculture Food and Rural Development, \$5,000**

Study of Environmental Sources for Antibiotic Residues in Honey

The CBRF was established to support bee research in Canada. View research projects supported by the CBRF on the CHC website.

## Bee Maid Honey Supports Bee Research In Canada

Bee Maid Honey is proud to announce that they will be contributing financial assistance to the following research projects this coming year:

### **Dr. Stephen Pernal, Agriculture and Agri-Food Canada, Beaverlodge Research Station, Beaverlodge, Alberta**

Management of Honey Bee Diseases Using Lysozyme. Options for the control of the bacterial brood diseases of honey bees, American foulbrood and European foulbrood

and

### **Medhat Nasr, Alberta Provincial Apiculturist- Research Scientist Edmonton, Alberta**

Study of Environmental Sources for Antibiotic Residues in Honey

Bee Maid considered project proposals in the area of apiculture or pollination

research. Preference was given to the area of honey, and the production of pure quality honey in the Canadian beekeeping industry.

Bee Maid Honey is the marketing organization owned by the Alberta Honey Producers Cooperative Ltd. and the Manitoba Cooperative Honey Producers Ltd. Both member owned Cooperatives have led the beekeeping industry in their support for beekeeping research. All Bee Maid Coop members are supporting research through their Bee Maid contribution, Provincial Association and the Canadian Honey Council's; Canadian Bee Research Fund. Bee Maid and the membership of the two Coops recognize the importance of research and take pride in their leadership and urge all beekeepers to support their Provincial Associations and the Canadian Honey Council research projects.

production can range from 100 to 200 kg/ha.

All of these clover honeys tend to granulate quickly and have nectar with sugar contents of 54%, 51%, and 48% for red, alsike and white clover respectively. All the true clovers are classified as excellent sources of pollen.

**References:**

Elliott, C.R. and P.Pankiw. 1972. *Alsike Clover*. Publication 1264. Agriculture Canada. Ottawa, Canada. 15pp.

Fairey, D.T. 1985. *Red Clover*. Publication 1614/E. Agriculture Canada. Ottawa, Canada. 18pp.

Lovell, J.H. 1926. *Honey plants of North America*. A.I. Root Company. Medina, USA. 408pp.

McGregor, S.E. 1976. Chapter 3: *Clover and Some Relatives*. In: *Insect Pollination of Cultivated Crop Plants*. (On line: <http://gears.tucson.ars.ag.gov/book/>).

Ramsay, J. 1987. *Plants for Beekeeping in Canada and the northern USA*. IBRA, Cardiff, UK. 198pp.

USDA, NRCS. 2006. The PLANTS Database, 6 March 2006 (<http://plants.usda.gov>). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

# The "Coffee Cup Solution!"

Corey Bacon, B's Bee Ranch, Kinistino SK

## Currently low honey prices are affecting all honey producers in Canada. Cheap foreign honey, labeling

regulation issues, unequal processing regulations between producing countries, an underfunded national organization to defend our industry, increased production in the non industrialized countries, high retail prices relative to the producer price, and lack of awareness and education of our products and their benefits to the consumers by our industry all play a role. Some obviously much more than others.

I will propose a theoretical scenario called the "coffee cup solution!" in which I examine a scenario of increased honey consumption.

When comparing the annual consumption of sugar and honey in Canada and the United States, there is no real comparison. Honey is hardly on the radar screen when compared to sugar. Sugar plays a significant role, unhealthy as it may be, in our food consumption diet. Imagine the potential impact of doubling the consumption of honey in Canada alone. Instead of being a net export producing country, we would need to increase production or become a net importing country for honey.

I got thinking about this after returning from a supper out with my family. I watched several people enjoy a cup (usually more) of coffee. Many added a sugar sweetener. Honey was not really an option as it was not even on the table. Let's consider for a moment the scenario of increased consumption of honey in Canada, just using coffee as an example for the source for the increase.

In Canada there are approximately 32 million people. Let's estimate that two thirds of those are adults and according to Statistics Canada, two thirds drink coffee on a regular basis. This translates to 15 billion cups of coffee per year. According to Market Facts Canada 63% of coffee drinkers add a sweetener such as sugar. Some of the sweeteners may be artificial but it is a good guess that the majority uses sugar.

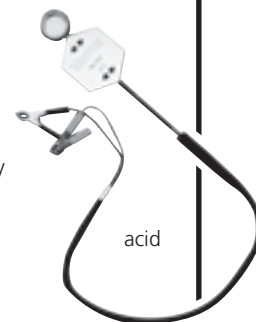
Let's estimate that 1/2 of those coffee drinkers use a sugar sweetener. That gives us 7.5 billion cups of coffee per year using a sugar sweetener. Assuming one teaspoon of sugar per cup (5g), this amounts to 37.5 million kg (82.5 million lb) sugar per year.

Now let's be forward positive thinkers and theorize that during a 10-year period, through promotion, awareness and increased health consciousness by consumers we could convert 1% every year until 10% (750 million cups) use honey as their preferred coffee sweetener. This conversion would increase honey consumption by 1 teaspoon (or 7.5 g) of honey per cup to 12.5 million pounds of honey by year ten.

If the conversion theory of the "coffee cup solution!" were to become a reality, after year one, new honey consumption would equal an extra 1.25 million lbs per year. This is using modest numbers. Imagine if we could convince 25% of those who sweeten their coffee to use honey. Consumption would be 32 million pounds of honey annually in ten years, which is equivalent to our total export of honey. What a great reason to promote

### Varrox® Vaporizer

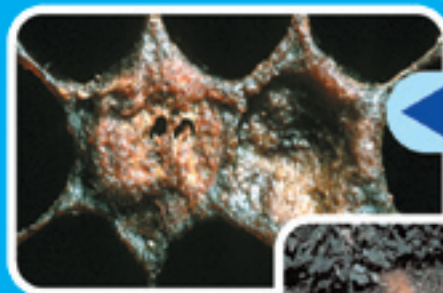
Oxalic acid (vaporization method) for treating beehives against varroa mites is inexpensive, effective in broodless colonies and well tolerated by honeybees. The Varrox® Vaporizer is easy to use, just insert it through the entrance with a 12 V battery hookup. The cost is \$145 plus 7% GST and shipping. For more information or to purchase the oxalic Varrox® Vaporizer contact Daniel or Beatrice Ficza, 902-675-3690 or [honeydew@pei.sympatico.ca](mailto:honeydew@pei.sympatico.ca)



EFB



AFB



## TREATMENT!

**European Foulbrood (EFB)** is a bacterial brood disease caused by several agents the main being the bacterium *Melissococcus pluton*. It occurs most

frequently in the spring or early summer during brood rearing and is thought to be caused by stress in the colony and lack of pollen. Symptoms can be variable which makes EFB difficult to identify with certainty; frequently disappearing once there is a nectar flow. But EFB can seriously affect brood development and needs to be identified in a colony as soon as possible.

**American Foulbrood (AFB)** is an infectious brood disease caused by the spore-forming bacterium *Paenibacillus larvae var larvae*. It is the most destructive and widespread of the honeybee brood diseases.

AFB disseminates rapidly through the colony and, if left unchecked, spreads quickly to other healthy colonies both in the same apiary and those nearby.



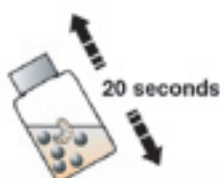
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# Feedbee: A new Diet for Bees

Abdul Saffari, University of Guelph, Guelph Ontario.

Honeybees, like any other animal, have their own unique nutritional requirements. Pollen, honey and nectar provide the necessary protein, carbohydrates, fats, vitamins and minerals for maintaining a healthy honeybee colony. Absence, shortage or even poor quality of pollen result in stunted growth, reduced weight gain of young bees and reduced longevity. Pollen influences the development of hypopharyngeal glands and supports the production of royal jelly. This in turn supports normal growth and development of larvae or egg production by the adult queen. A shortage of pollen translates into cessation of colony development and production.

Beekeepers often feed colonies of honeybees during the period of pollen shortage. They use either pollen substitute (with no pollen), pollen supplement (with pollen), or 100% raw pollen to boost the nutrition level of honeybees. There are disadvantages to pollen feeding. Pollen must be collected in advance or purchased from costly and potentially unsterile sources. Some of the diets on the market are not proven.

The ideal pollen substitute diet consists of feeds that are well accepted by bees year-round with sufficient nutrients to meet all their nutritional requirements, and at the same time be inexpensive.

The idea of formulating or balancing a diet for honeybees, by advanced science and technology of animal nutrition was initiated 12 years ago. The process to develop the best bee diet involved selection of nutritionally important plants and then testing each of them for suitability for bee feed.

The process involved ten steps.

1. Selecting 255 potential plant sources including seeds, roots, fruits, grains etc. that are known to be nutritious for humans and animals.
2. Feeding each plant source in dried form to honeybee colonies, in order to select the most palatable ones (liked by bees).
3. Determining the digestibility level of the nutrients in the selected feedstuffs.
4. Checking for the presence of any possible toxins, toxic sugars like Stachyos in Soya bean products or other beans.
5. Looking for any possible anti-nutritional factors (protease inhibitors like in beans products).
6. Examining the digestive tract of honeybees to figure out the way they ingest, and digest pollen; the period of digestion and absorption of pollen.
7. Considering a possible adaptation time for bees' digestive tract to a new source of nutrients other than pollen.
8. Noting the levels of nutrients in various pollen varieties.
9. Reviewing the nutritional requirements of honeybees, level of various nutrients in their body and royal jelly.
10. Studying almost all the feedstuffs that have been used as pollen substitutes for honeybees.

After careful testing we came up with some ingredients and made few formulations (different proportion of selected feedstuffs) to produce the new "Feedbee" diet. It is a nutritionally balanced diet that is:

- highly palatable,
- provides all honeybees nutritional requirements,
- can be fed all year round,

- doubles brood rearing,
- doubles bee population of the colony, and
- doubles honey production.

These results were achieved after testing the diet at university of Guelph and in commercial colonies in Ontario. Feedbee was compared to natural bee-collected pollen, Bee-Pro (a soy based diet from Mann Lake) and TLS (another soy based diet) in early spring and late fall.

The diet named "Feedbee" was tested independently by Dr. Pamela Gregory at USDA, Weslaco Texas. Tests were done on the effect of feeding a variety of pollen and pollen substitutes (Feedbee, Bee-Pro, Natural pollen, and old pollen) on the protein level of haemolymph, weight gain, longevity, of European and Africized honeybees. The results showed that Feedbee and natural pollen equally had significant effects on improving the quality of the colonies in all the said parameters. Her results were presented at the Texas Beekeepers Association Convention (2005), AHPA convention (2006), Professional Apiculturists Meeting (2006).

Feedbee was tested independently in Australia in comparison with pollen and Bee pol (mixture of pollen, soy, sugar). The results were again in favor of Feedbee and pollen. The official statistical results will soon be published.

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# Classifieds

## For Sale 74

Dakota Guinness model 200 uncapper with adjustable flaires, \$2000.00 or would trade on a Hubbard 80 frame SS extractor. Stinger Apiaries 306-862-3991.

## For Sale 75

Australian Queens (Carniolan, Italian - open mated F 1's). Early arrival dates (April, early May). Shipping from Toronto to major centres. Confirmed orders by mid March at latest. Contact: Peter Mewett, RR 4, Stirling, On. KOK 3E0. Tel: 613-395-3225, Fax 613-395-1835, email:jmewett@hpedsb.on.ca

## Wanted to Buy 59

Buckwheat honey in drum. Contact Henry Nauta phone 905-640-1564, fax

## Foundation 54

For all your foundation needs, any size, wired or without, organic or conventional, place orders by phone 780-835-2115 or fax 780-835-2873 or email tegart@telusplanet.net.

## For Sale 55

RV Cut Comb Honey Trays (340g) Tight Snap-On Clear Plastic Lid - Cream Coloured Base Sold Coast to Coast by Mail. 2006 Prices: \$46.80/100 - \$210.70/500 F.O.B. River Valley Apiaries - P.O. Box 142, Stirling, ON, KOK 3E0 - Visa/Master Card Accepted - 613-395-4257, rvapiaries@yahoo.com

## For Sale 56

Manual benchtop system for making your own honey straws. Reliable, Affordable, Profitable. Check it out at www.AnthonysKansasHoney.com. Or phone 785-842-9268 or 913-206-2188

## For Sale 60

Beeswax candlemaking supplies including bulk wicking and silicone moulds at wholesale prices. Free Spirit Candles and Supplies. www.freespiritcandles.ca or 1-877-335-3769.

## For Sale 77

Frames of brood with bees, also have nucs with queen available May 2006. Call Bryan, Grysiuk Honey Farms, 204-831-7838 or 204-831-0961.

## For Sale 76

4-frame nucs available mid May. Queen cells ready for pickup June and July. Mated queens shipped from mid June to September. Contact: Phil Laflamme RR 3 Lanark ON KOG 1K0 613-259-5553.

## For Sale 79

Queens, nucs and hives for spring 2006. Contact Bill at Ferguson Apiaries, Hensall ON, 519-236-4979 or email ferga@hay.net

## For Sale 80

Small honey filter machine including filters, elect/hydraulic pallet stacker, whirl dry, two heat exchangers, 30 barrels, misc carts etc. Also 25 double brood hives, 150 honey supers, 400 hive shells. Call MacKenzie Honey 519-368-5363 or fax 519-368-7152.

## For Sale 81

Strong double brood chamber hives, excellent equipment, bees selected for over 16 years in Manitoba, tracheal mite resistance, high honey producers. Member of Manitoba Queen Breeders Association. Contact Terry, Meadowlark Honey Ltd. tfehr@mts.net or phone; 1-204-385-2337 Available September 1, 2006

## For Sale 82

Active Beekeeping business with retail packaging market. Registered packer, stainless steel extracting plant. Equipment for 500 colonies, queen rearing, package and nucleus colony production, pollination. Contact Mike McLennan, Flower Power Apiaries, 4550 Hillview Rd Grand Forks BC V0H 1H5 phone 250-442-2933.

## For Sale 83

2 pound packages of Vancouver Island bees for sale on pickup basis. \$50. Purchaser must provide package and queen. Contact Larry or Babe at Babe's Honey 250-658-8319.

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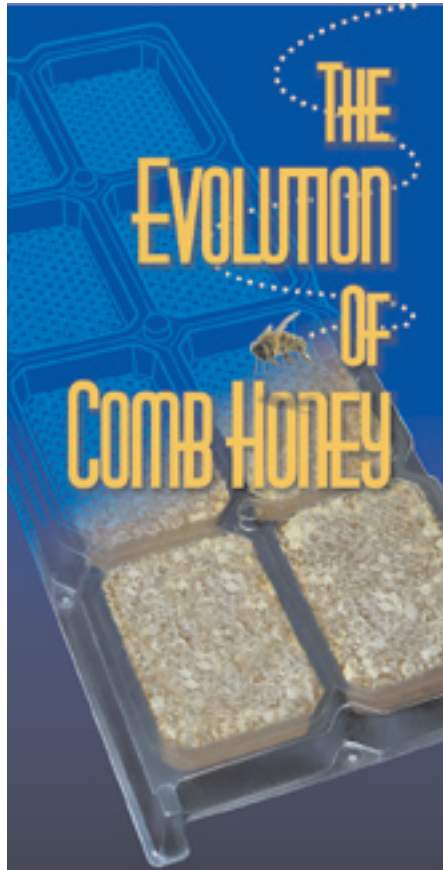
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**BEE PAC**

519-586-8289 [www.beeosphere.com](http://www.beeosphere.com)

website from pg 19 ►

their own content, depending on the financial and human resources available to an organization.

The CHC site is also expected to start taking a slightly different direction in the future. Up to now the site has been very much an industry site with information of interest mostly to beekeepers. We hope to be introducing material of interest to consumers of hive products. Some research is underway to develop better marketing strategies for honey and the website is expected to play a part in that as well.

If you have suggestions for features you would like to see, or have inquiries about hosting a site within the CHC site please send them to [feedback@honeycouncil.ca](mailto:feedback@honeycouncil.ca).

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