CANADIAN ASSOCIATION OF

PROFESSIONAL APICULTURISTS

L' ASSOCIATION CANADIENNE DES PROFESSIONELS DE L' APICULTURE

Proceedings 2010/11

Markham, Ontario
November 27, 2010

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Canadian Association of Professional Apiculturists
2010 Business Meeting
Markham Delta Hotel
Markham, Ontario
November 27, 2010

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("Written" denotes reports prepared by designated individuals, who will not be in attendance)

Canadian Association of Professional Apiculturists
2010 Business Meeting Minutes

Members Present:
Rhéal Lafrenière, Joanne Moran, Fletcher Colpitts, Melanie Kempers, Nicolas Tremblay, Pierre Giovenazzo, Medhat Nasr, Paul Kozak, Alison van Alten, Les Eccles, Janet Tam, Geoff Wilson, Claude Boucher, Tanya Copley, Andony Melathopoulos, Leonard foster, Rob Currie, Chris Jordan.

Guests & Speakers:
Heather Clay (CHC), Corey Bacon (CHC), Stephen Page (AAFC), Kurt Randall (PMRA), Amy Snow (CFIA), Don Hopkins (USA), Sal DeMonte (CFIA)-afternoon.

Welcome and Introductions

President Rhéal Lafrenière called the meeting to order at 8:42 am and welcomed everyone to Markham, Ontario for the 53rd meeting of CAPA. A round table of introduction was conducted.

CAPA AGM Agenda

The agenda was circulated. The CFIA agenda item was moved to time when Sal DeMonte is available sometime during the meeting.

Motion to approve agenda as circulated with addition of CFIA report.
Moved by Leonard Foster
Seconded by Joanne Moran
Carried

President's Report

2010 was another busty year for the Canadian Association of Professional Apiculturists. Although I have spent 12 years on the Executive, first 7 years as the Secretary/Treasurer, next 4 years as the Vice-President and now 1 year as President, I can honestly say every year has been a tremendous learning experience. Luckily for me now as in the past, I have had great people to work with. To my executive: VP, Medhat Nasr; Secretary/Treasurer Chris Jordan and Past-President Steve Pernal thank you for your support and hard work to keep things moving forward for our organization and the industry we support. Not only does that make the job a lot easier, at times it can even be a lot of fun.

The Chemical committee, chaired by Geoff Wilson undertook several important initiatives this past year. Based on need expressed by the industry, members were heavily involved with the Emergency Use Registration of Apivar®, a strip formulation of amitraz for varroa mite control. This committee was also consulted on several issues pertaining to PMRA's decision to enforce the phase-out proposal

for Note to CAPCO C94-05 by March 2, 2011. The Chemical committee also hosted several conference call meetings to deal with a request for information on the national and provincial rationales behind the Emergency Use Registration of Apivar®. As a relatively new member to CAPA, it was great to see Geoff take on the challenge of chairing such a high profile committee so early in his career.

CAPA's import committee, chaired by Medhat Nasr also did a tremendous amount of work this year. Working with CFIA, they provided consultation on a number of important trade issues. None-the-less of which was the immediate response to the small hive beetle discovery in Hawaii this Spring. Medhat and his committee provided recommendations to CFIA to allow the safe supply of queens from Hawaii to continue to come into Canada virtually uninterrupted. This committee has also been working with CFIA to look at reviewing the current bee import conditions with the various trading partners to ensure consistency and that the conditions are defendable. The small hive beetle discovery in Ontario this fall really emphasized the importance for effective surveillance and disease/pest control programs in order to defend Canada's import conditions.

Given the early meeting date for the CAPA AGM this year some of the standing committees such as the Awards committee student competition and CBRF Proposal review will not have taken place yet, so those reports will have to be amended at a later date to include that information.

Another busy committee this year was the National Survey committee chaired by Steve Pernal. A common set of winter loss survey questions was devised in order to harmonize the data collected across the country to allow for better comparison between the regions and perhaps a more accurate representation of national trends. Steve also coordinated Canada's participation in an international survey of colony losses a.k.a. COLOSS. Although not every province was able to provide data for all the standardized questions, Steve was still able to generate the annual report on honey bee losses, which was posted on the CAPA website.

The Ad-hoc committees do a tremendous job ensuring that important information on disease and pest identification as well as information about CAPA is available to the public.

Lastly, I want to take this opportunity to congratulate Heather Clay on her retirement at the end of 2010. It is with mix emotion that we say good bye to Heather, knowing that in a very short time the voice we grew accustom to hearing when we call CHC's head office will no longer have a recognizable Aussie accent. We have confidence that CHC will find an exceptional person to fill the Executive Director position knowing that the bar has been set extremely high by Heather. Again, congratulations Heather!

Rhéal Lafrenière
CAPA President

Motion to accept the President's Report as circulated.
Moved by Medhat Nasr
Seconded by Nicolas Tremblay
Carried

CHC Report

Heather Clay's replacement at CHC is being recruited by a professional agency. They do not know if person will be in place time time for the Galveston meetings scheduled for January 2011. CHC has been refocused and strategic items have been identified. The CHC is now a much more professional organization. Federal AAFC funding assisted with forging new direction program. This has been instrumental to the reorganization.

Four Priorities have been identified by the CHC:

1) Hive health
2) Labour/Succession
3) Food Safety
4) Market Access & Share.

Oxalic Acid now registered. New label has been added. This process started in 2003.
Kurt Randall (PMRA) and his team were instrumental in getting this registered. Formic Acid now on the horizon. Medivet will put in a presubmission. Acidic may be considered (80%) for treating/dipping equipment. Kills the spores of *Nosema*. However, this use is not currently registered. Quebec Cranberry group approached CHC about a similar product but it was not the same concentration.

Replacement bees is another issue. Permethrin has been put through.
SHB is being watched closely. Stakeholder meetings being planned for the spring of 2011 pending funding.

Apimonida 2012 – Pierre Giovenazzo has been approached. Hive health / Queen breeding themes are being organized. CAPA's involvement will be needed.
FAQ is not a member of CHC. Apimonidia would be hosted in Quebec. FAQ is considering joining CHC. Board has changed and new direction has been established.
Finances are an issue. Perhaps a levy can be established to raise funds so that FAQ can afford membership.

Hive health booklet has been prepared (summary booklet). There are plans for a bigger manual in the future. It is basically a summary document of IPM poster. Cost is $6/manual. This will be translated into French.

Other Issues:

1) Foreign Workers – wages has always been an issue. No consistency. Different interpretations. Low-skill / skilled worker program / soft worker program. '4/6 rule' After four years worker could not return to Canada for 6 years.

2) Succession Plan for operations – bee operations have become larger to make a profit. A million dollar value is common for bee operations. Difficult to get loans.

3) Replacement Stock Committee – CAPA has been involved. Project proposal in place. US border an issue for some time. Stakeholder meeting to get this issue resolved. Waiting for funding.

4) Funding – sponsorship has increased. Medivet (silver sponsor for 10,000). Bayer, Mann Lake, Bee Maid (61,000).

Labour:
Need to educate youth. Getting curriculum in place. Website has been updated for teachers/public. Different age groups are being targeted. The teachers have really taken advantage of this.

Food Safety:
CBISQT program has been a focus. The system needs to be fixed. Food safety experts in each province are involved with their own agendas. Pre-screening in May. Provinces have delayed approval with their own concerns. Manual is available and will be online. Beekeepers can use it the way it is. CFIA process will not pass it in its current form.
Butyric Acid another issue: media report was a concern. It was online and CFIA was not aware that it was in media. Communication plan need to be developed. CFIA loses sight of the fact that the industry is very interconnected. Damage control mode now.

Market Access Share
Honey For Health Program – very popular. Available in Spanish.

All proceedings now archived online on CHC website from 1950-onwawrd.

Discussion:
Acidic Acid may become an issue of Chemical Committee.
Stock replacement – Import Committee has been asked to join (Medhat/Rheal). Queen importation (Hawaii specifically) has been a priority.
Interprovincial Movement – another really important issue.
Package bees importation – general consensus from committee is that this is not a high priority.

'Bee Back' initiative from CFIA (Biosecurity for bees). Several industries have been targeted. CFIA didn't want CHC to do this. Contracted to Serecon Management Consulting to do the work for CFIA. Benchmarking exercise. Beekeepers will be contacted. Plan to start January. Trying to figure out the lists that CFIA needs to have. Access for beekeepers lists from provinces will be an issue. After benchmarking process is done, going to do national standard for beekeepers. The biostandards are known by industry. By 2012, a voluntary standard for bees should be in place. Rhéal mentioned that perhaps 'Bee Back' should become part of CAPA work. Steve Pernal has really been the only CAPA member approached to participate, probably because he's the only federal researcher working on bees.

Research Funding – CHC approached by Westin Foundation who donated money years ago. An offer of a substantial ($1M) donation with project proposal. Education / awareness component. Westin wants this donated to a food aspect e.g. pollinator awareness.

Rheal thanked Heather and Corey for their CHC report. Motion not necessary, but report acknowledged by the membership.

Minutes of 2010 Orlando Meeting

Minutes of the 2010 Orlando AGM were circulated a month prior to the Markham AGM.

Motion to accept the Minutes from the 2010 Orlando AGM Meeting as circulated on CAPA-L.
Moved by Chris Jordan
Seconded by Joanne Moran
Carried

Financial Report

Secretary/Treasurer Chris Jordan detailed the interim financial report. It was noted that a final budget will need to be circulated after the final year-end of December 31. Proposed time-frame is February 2011.

Motion to approve the 2010 Interim Financial Report as presented.
Moved by Chris Jordan
Seconded by Medhat Nasr
Carried

Discussion that the IBRF donation should be increased from $250 to $500.

Motion to increase the IBRF donation from $250 to $500.
Moved Medhat Nasr
Seconded Geoff Wilson
Carried

Motion to maintain CAPA membership fees at $40 for full membership and $20 for associate membership. AGM fees to be set at $60 per person.
Moved by Rob Currie
Seconded by Leonard Foster
Carried

Motion to empower the Executive to form a committee to approve expenditures. Committee members: Rob Currie, Joanne Moran, Chris Jordan, and Pierre Giovenazzo.

Moved Rob Currie
Seconded Pierre Giovenazzo
Carried

2010 CAPA Financial Statement

Opening balance(01/01/10) **$37,965.17**

Jan. 01, 2010 - December 31, 2010

REVENUE

Membership			
15	2011 Full	600.00	
3	2011 Associate	60.00	
34	2010 Full	1,360.00	
15	2010 Associate	300.50	
14	2009 Full	560.00	
9	2009 Associate	180.11	
Meetings			
	Registration (Orlando)	1,047.50	
	Registrations (Markham)	840.00	
	CFIA Supper Meeting (Markham)	150.00	
Publication Sales (2,174 units)		11,748.50	
GIC Interest Income		154.05	
GST Rebate (2009)		330.12	
		$17,330.78	$55,295.95

EXPENDITURES

Publications			
	Printing (300)	5,803.35	
	S/H charges	1,520.03	
IBRF Donation		250.00	
Awards			
	Student Award	500.00	
	Student Award Hardware	32.17	
	Past-President Certificate	119.62	
Misc. (cards, postage)		4.47	
Meetings			
	Orlando (January)	838.71	
	Markham (November)	1,500.00	
Speaker Expense Orlando (Dr. Yves Le Conte)		148.74	
Website Maintenance		147.00	
Bank charges		30.00	
GIC Term		24.93	
Cheque Order		77.19	
		$10,996.21	$44,299.74

GIC Term Deposit	$20,000.00
Cash	$24,299.74

AAFC Honey Market Report - Stephen Page

Stephen Page noted that his Power Point presentation may be included in the CAPA minutes.

There have been changes in imports/exports of honey. Certain regions get premium prices. $4.00 / kg – western provinces.
Detailed list of countries we export/import from by province were circulated.

Rhéal thanked Stephen for his presentation.

Heather Clay thanked Stephen and Amy Snow for attending the meetings. Medhat indicated that letter should stress how important it is to have these people present to make decisions. These letters could be sent any time. Paul Kozak mentioned that these letters could also include other government employees.

Stephen Page indicated the letter should be send to the Associate Deputy Minister for AAFC in his situation.

Original Motion to generalize the letters for government personnel, including Provincial Apiarists, to stress to their employers that their attendance is vital at these meetings. These letters should be personalized to individual employers.

Moved by Joanne Moran
Seconded by Paul Kozak
Carried

Medhat indicated that the 'move/shaker' name be given so that the letter could be directed to the correct person.

CFIA Honey Report

Sal DeMonte (Program Specialist for honey and maple products with CFIA) joined the meeting to follow-up on a meeting which occurred earlier at these meetings. The purpose was to establish a communications plan between CFIA and industry/CAPA. Important to focus on a communication strategy before media becomes aware of issues. This should be a written plan.

Federal / Provinicial governments may not be working cooperatively on issues. Information is scattered between provinces / within provinces. Statistics can get lost in these reporting structures.

In crisis situation, we must look at counterattack procedures e.g. butyric anhydride. Media will look at extreme worst case scenario. The two levels of government and industry must cooperate.

There are several potential issues:

1) banned non-approved antibiotics
2) antibiotics not approved for

3) pesticides used for beekeeping
4) bee repellants used on bees
5) antiparasitic chemicals used to treat bees / MRL's
6) lead / heavy metals for import/domestic trade which may end up in reports.

Plan has to be written so that everyone is one same page. Network Communication put in place before it actually happens. Sal is willing to work on this and wants someone to balance his view out from industry's viewpoint. Need to manage input risks to manage marketing risks ie. Beekeeping practices that uses chemicals to deal with consumer complaints. Can be balanced. Need someone from CAPA and industry rep (perhaps OBA or CHC).

Industry has to be proactive to ask for information so that CFIA can provide it. Must protect information so that names are not released. If a sampling plan is in place, information can be captured on a report that goes out annually. Consumer/trade complaints are also submitted. Crisis happens by randomness. CFIA is in constant crisis mode.

With import trade (big focus of their program). China/Hong Kong shipment of honey is detained and samples sent for testing for many chemicals. Every drum has to be tested for China. We expect importers to be responsible for anything coming from China. Specific countries are targeted based on their findings. These results could be available to industry. CFIA does same thing for domestic products. Need to decide how to do it, how often, etc.

Intelligence Sharing should be formalized. How can CAPA be part of the communication link with CFIA. Rhéal indicated that letters of support will be sent to government departments to attend these meetings in the future. The attendance is vital.

If CFIA is going to report to the individual operation, they could contact provincial apiculturists. Before we commit to that, Provincial Apiculturists must speak with their governments to OK this approach.

Rhéal suggested a Standing Committee. This could be an ad hoc committee.

We will consult (president) with stakeholders to develop a response.

This should be channeled through the executive of CAPA via secretary/president or both. Discuss within executive and then delegate to committees (perhaps communication committee). We have issues e.g. winter losses where we need to respond and put out statement.

Statement could take the form of a briefing note, similar to what provinces do. This could be more stand-alone compared to a briefing note.

The name Chemical Committee should be revised to a more acceptable name e.g. Pest Management Committee or some such name.

Sal needs another person to balance his views from CFIA. This makes it easier for Sal to get the intelligence compiled and released.

CHC should also be involved. Information sharing should be without industry at first so that operation involved is not made public.

The CAPA committee may have to only include provincial / federal employees to deal with Freedom of Information issues.

Letter could go directly to operation with the provincial apiarist copied on it so that everyone knows what the issues / players are. Then the Provincial Apiarists could work with the individual to correct the situation.

CHC would need to develop their own speaking points / procedure for communication with CFIA on this issue. CHC could consult with CAPA for their input. A positive relationship needs to be developed for communication.

Heather Clay believes it is CFIA's responsibility to let CHC and CAPA know when they are posting information. We would like to see results before press gets to it.

What would be Provincial Apiarists recommendations be to operation if they become aware of an issue. This will be a process to be developed. Develop some sort of recommendations to producers. Research Committee may need to be involved. We may need to find ways to fund that research. E.g. natural levels of phenol are not known. This may be a potential research project. If this is going to be an on-going situation e.g. residues being found with normal practices. What are safe levels. The levels imposed right now are somewhat arbitrary / artificial. What levels would be an appropriate scientific level. This is a complicated issue and will take some time to work through with all parties involved. The current issue was circulated world-wide instantly, including Japan. This type of situation may likely happen again.

Can we ask CFIA for other reports which may be available before they become public. Then CAPA can prepare sound bites / briefing notes in advance. An ATIP route can be persued, but it can be very drawn out and potentially expensive to obtain. The information will be seeking are routinely put together and should be readily available.

Medhat brought up point that CFIA is stating that we must ask for this information. We would like to see that relationship changed so that CFIA proactively provides this information to us.

Sal wants to improve the relationship between industry / government so that the consumer and industry can be served appropriately as tax payers. Once communication plan is in place, CFIA can hopefully improve communication plan.

Rhéal indicated that CAPA should not be the vehicle to relay bad information to the industry. Sal indicated that the industry, CAPA, CHC should be informed all at the same time. CFIA indicated that they do not want CAPA to be the 'bad boy' with these issues either.

Rhéal thanked Sal for his efforts, but would still like to see a CFIA honey report for CAPA.

PMRA Report to CAPA

Kurt Randall

I. Apiculture Products: Regulatory Activities

1. New Registrations

a) Oxalic Acid

- Oxalic Acid Dihydrate (99.65% oxalic acid dihydrate, Reg. No. 29575) was registered for varroa mite in honey bee hives on 4 November 2010.

b) Thymol

- Thymovar (15 g thymol per wafer, Reg. No. 29747) was registered for control of varroa mite in honey bee hives on 8 October 2010.

2. Under Review

a) Amitraz

- A Category A submission (received 27 July 2010) for amitraz for varroa mite in honey bee hives is currently under review by the PMRA.

3. Emergency Registrations

a) Amitraz

- An emergency use registration was granted for Apivar (amitraz) for control of varroa mite in honey bee hives in BC, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, and PEI from 1 July 2010 until 30 June 2011. This is the 3rd consecutive year for this emergency use request.

b) Permethrin

- An emergency use registration was granted for Permanone Multi-Purptose 10% EC (pemethrin) for suppression of small hive beetle in soil around honey bee hives in Ontario from 2 November 2010 until 1 November 2011.

4. Re-Assessment of Formic Acid

- In keeping with PMRA policy of periodic re-evaluation of regulatory decisions, a reassessment was conducted of the regulatory decision published in *Note to CAPCO C94-05: Proposed Scheduling of 65 Percent Formic Acid for the Detection and Control of Honey Bee Mites*.

- Note to CAPCO C94-05 was published on March 30, 1994. Since the publication of Note to CAPCO C94-05, a new Pest Control Products Act and Regulations have been brought into force and the previously proposed scheduling of formic acid is no longer consistent with current regulatory standards, processes, and practices. C94-05 was intended to allow the interim use of 65% liquid formic acid for the detection and control of varroa mite and control of tracheal mite in honeybees during the process to amend the Pest Control Products Regulations to add formic acid to Schedule II.

- PRO2009-01, *Reassessment of Note to the Canadian Association of Pest Control Officials C94-05: Proposed Scheduling of 65 Percent Formic Acid for the Detection and Control of Honey Bee Mites* was published on 4 June 2009. The PMRA received 123 written comments from stakeholders response to PRO2009-01.

- In consideration of these comments, the PMRA published DIR2010-03, *Reassessment of Note to the Canadian Association of Pest Control Officials C94-05: Proposed Scheduling of 65 Percent Formic Acid for the Detection and Control of Honey Bee Mites.* PRO2010-03 revokes C94-04 as of 2 March 2011.

- As an interim measure, if submissions for registration of 65% liquid formic acid are received by the PMRA by 2 March 2011, use of 65% liquid formic acid according to the proposed label(s) may be permitted if the use directions raise no concerns until the completion of the full review of these submissions. As Note to CAPCO C94-05 is limited in scope to applications of 65% formic acid solution in water, this regulatory decision is limited to products which are only formulated with formic acid and water, with a final application concentration of 65% formic acid in water.

- As Note to CAPCO C94-05 specifically prohibits applications of formic acid during honey flow, applications of formic acid while honey supers are present on the hive are not permitted under this interim measure. Full evaluation and registration of use during honey flow is required for this use to be permitted.

- Should no application for the registration of 65% liquid formic acid be submitted to the PMRA by 2 March 2011, all unregistered uses of formic acid will not be permitted as of that date.

- Since the publication of DIR2010-03, no submission has been received by PMRA for registration of 65% liquid formic acid.

II. PMRA Activities: Pollinator Protection

- There is ongoing collaboration with global partners to better assess and minimise risks to pollinators from pest control products. Pollinator populations are affected by many parameters and their populations have become a global concern. New chemistries of plant protection products, such as those that are systemic and persistent, require new risk assessment frameworks for assessing risk to pollinators. Adequately estimating and

minimising the risks to pollinators from plant protection products has therefore become a global concern for regulators, growers, apiarists, industry and scientists.

- PMRA is working with global partners, including ongoing collaboration with the US-EPA, to develop new risk assessment methods (including incorporating risk considerations such as seed dust off, guttation water, etc.), data requirements, and pesticide label language designed to reduce/mitigate the risk to pollinators from pesticides.

- PMRA will participate in the Society of Environmental Toxicology and Chemistry (SETAC) Pellston Conference on assessing risk of pesticides to pollinators (January 2011). Global participants include experts among scientists, regulators, industry, and non-governmental groups from Europe, Australia, North America, South America.

- PMRA will participate in an OECD Expert Working Group on pollinator protection which will cooperate internationally to improve pollinator protection with regards to pesticide use. The OECD expert group will build on results from the Pellston Conference.

- The active ingredient imidicloprid is currently under re-evaluation by both PMRA and US-EPA. Analysis of data and regulatory activities are being coordinated, with a decision likely to be completed in 2014. This re-evaluation is taking into account concerns regarding pollinator safety.

III. Incident Reporting

- Incident reports on pollinators are being received under the incident reporting program at PMRA. Voluntary reporting of pollinator/bee incidents are highly encouraged as they allow the PMRA to more accurately understand potential risks to pollinators/bees in the field. Incidents can be reported either to the pesticide manufacturer who is required by law to report incidents to the PMRA, or directly to the PMRA.

- In 2010, four incident reports were received for honey bees. All four reports were from Quebec. These incidents are currently under investigation. The conclusions of the investigations will be published on the PMRA website.

- Two of the reports were on clothianidin (one major incident, 290 colonies; one moderate, 15-20 colonies), one on clothianidin and thiamethoxam (moderate, 17 colonies), and one was on diazinon (major, 80 colonies).

- Detailed incident reports can be obtained on the PMRA website in the Public Registry.

PMRA Report

Discussion on PMRA Report

Claude Boucher elaborated on each incident in Quebec. Diazinon incident revolved around a cranberry operation. Hives were too close to the field. Medhat mentioned that provincial Environment should receive the complaint. This is reported to companies and federal agency. Provinces and PMRA should be communicating. Leonard Foster questioned Bt corn. PMRA does have responsibility for this.

Rhéal thanked Kurt for his report.

CFIA Bee Importation

Amy Snow has replaced Gary Kruger on the CFIA Importation file.

Gathering stats for live animals is not as easy as for products.

Small Hive Beetle:

Ontario and Quebec situations have been reviewed over last couple days. Our domestic situation does have impact on international trade so it is important to have a handle on what is going on in Canada.

Revision of import conditions. Hawaii is #1 – both importers/exports are concerned.
CFIA will not be certifying certificates under current conditions. If we make changes for Hawaii, changes will have to be made for other countries.
Australia has requested changes as well and this is a good time to address. Working on draft import conditions for other countries to achieve more consistency. This is done one at a time (i.e. import conditions). These conditions can look very different depending on who has written them. CFIA aiming for more consistency.

Difficult to get useful numbers on bees. Errors can occur. A large number of steps have to occur. From Border to CFIA office. Looking at inter-agency communication to get documents to appropriate CFIA office. Then evaluated and sent to Ottawa. A lag of information can occur between CFIA office and Ottawa. Not necessarily scientific people handling the paperwork. Leads to errors in how packages are reported. Data entry person may report import from California for shipments that come from Australia. This is an error.

Import permits are usually multiple-entry permits. Can be used many times.

Exporters on permits:

Queens:
California – dominates on queen side
Hawaii – also dominating (3 suppliers with 80% queens into Canada).
Australia
Chilie
Denmark
Chilie

Packages:
NZ (via California)
Australia

Past historical data seems grossly inaccurate for queen and package imports. CFIA doesn't have provincial breakdown. CFIA tracks entrance into country, but not the disbursement after they arrive. Honeybees mostly enter through western regions. Paul Kozak could work with Medhat on Import Committee regarding number tracking on import permits.

We can't impose import conditions for another country if you don't have controls for your own country's pest situation e.g. SHB. Canada must decide how to handle nationally. Our domestic situation has an impact.

Draft import conditions have been circulated to some CAPA members e.g. Provincial Apiarists, Import Committee. Agreements are in place between federal/provincial governments. Freedom of Information applies. Limit this information to this group for now. Still in development stages, so industry is not privy at this time.

Premises freedom is required, not necessarily country freedom. We still need ways to mitigate the risk stated on Import Permits e.g. hand-picking queens, packaging queens in area not accessible to SHB. This should be certified on permit. What are we willing to take out of our import permits. Fair treatment has to be applied to other countries e.g. continental US and Australia. How are we going to handle SHB?

Some preliminary discussions took place on Thursday evening. This was a starting point. All provinces still concerned about SHB so import conditions still required. Risk must be lowered by using import permit restrictions.

Options for restrictions:

1) 100 km away from any operation where queens will be sourced from (removed)
2) Cages – workers and queens hand-picked. Change from five workers to two workers so queens can survive. This might help eliminate need for battery boxes.
3) Location of Packing Bees – should be free from SHB e.g. corner of a shed/honey house.

Overall decision to be made on options:

1) Open border up and let it go
2) Maintain restrictions

We need to consider how industry will keep functioning while minimizing risk in the process.

We are talking about queens, not packages. Packages will remain same in terms of SHB-free premises.

We have to decide on size of mesh on cages and apply to all countries. Rhéal noted that the recommendations from CAPA are taken very seriously by CFIA on import restrictions. Therefore, CAPA must be very sure of their recommendations. CHC must also be kept in the loop early on so that the industry knows what CAPA's recommendation is.

Medhat suggested that Importation Committee continue to work with Amy Snow (CFIA) on the SHB issue and report back to membership. Provincial Apiarists will be included at this point, not general membership. There is a desire from industry to keep this market open (CHC). CHC would like to maintain Hawaii, but maintain control measures to reduce risk of SHB imports.

Same issue for Hawaii, Australia regarding queens and SHB.

We don't have *N. ceranae* cabensis as notifiable
Apis ceranae
Asian mites (*tropylapse* species)
Giant wasp (maybe Environment Canada is a better place for this as invasive species).
Fire ants in NS (also under Environment probably).

Provincial regulations need to be harmonized / updated to reflect National regulations and what is happening around the world.

Farmed Animals Committee (exact name not clear) could include notifiable diseases right away. This could happen from CHC where industry is allowed to have input.

Rhéal thanked Amy for her CFIA report.

USA Apiculture Report (AIA &/or AAPA)

Don Hopkins commented on our industry's ability to communication and cooperate on issues in a timely manner.

Resolutions:
Have a national survey. Statistical study from 2009 being expanded in 2010.

Testing for such pests as *tropylapse.* Relates to Australian import status and what this species may mean to the industry.

Different or more stream lined ID method for Africanized honey bees. This has not progressed. USDA morphametric system involved only at this point. Florida was receiving the samples.

Next meeting in Galveston in January.

Rhéal thanked Don for his report and for taking the time to attend on the USA Thanksgiving Weekend. Rhéal thanked AIA for sharing their information with CAPA. AIA is a valuable resource for information to CAPA.

Provincial Reports

Provincial reports were circulated. Only main points were highlighted at the meeting.

Manitoba – hobbyists inspect every 3 years. Commercial operations only get inspected every second year unless they have history of AFB. Active beekeepers could exchange comb and get reimbursed up to $1000 as in incentive to replace black comb. This was accessed through farm safety program. Equipment could also be purchased to replace equipment with high lead content. They must be an active beekeeper i.e. have a registration number with the province.

Paul van Westendorp was unable to attend meeting. Rhéal reviewed his report briefly.

Rhéal thanked all provinces for their provincial reports.

National Harmonized Survey Report 2009-10

As an effort undertaken by CAPA in 2009-10, a common set of winter loss survey questions was devised in order to harmonize the nature of data collected across Canadian provinces and to enable better comparisons to be made across regions. Also during this year, I was asked to facilitate Canada's participation in an international survey of colony losses by COLOSS (Prevention of Honey Bee Colony Losses), a European Union-funded Cooperation on Science and Technology (COST) Action (FA0803). In conjunction with provincial apiculturists, a Canadian National Harmonized Survey was developed that contained a blend of questions specific to Canadian beekeeping practices, along with others meant to harmonize with COLOSS survey efforts.

Surveys were carried out via mail and telephone interviews. The provinces of Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Manitoba and British Columbia were able to implement the National Harmonized Survey and allowed these data to be shared for common analyses and reporting. Quebec's survey was somewhat different than the national harmonized survey, but contained enough similar questions that much comparable data could be mined and summarized with the other provinces. The harmonized survey was implemented in Ontario, however its late date of implementation precluded access to these data for reporting purposes. Concerns regarding privacy of producer information prevented sharing of survey data from Alberta and Saskatchewan. Responses of individual beekeepers were supplied without any identifying information, including that pertaining to locality below the level of the province of origin. Data was supplied to S. Pernal in excel spreadsheet format, with responses recorded on an individual beekeeper basis.

From the six participating provinces, whole or partial responses were obtained from 418 beekeeping operations [13(PEI), 60(NS), 16(NB), 223(QC), 52(MB), 54(BC)]. These beekeepers collectively operated a total of 87,890 colonies during the summer of 2009 representing 14.4% of all managed honey bee colonies in Canada.

National wintering loss and spring dwindle for 2009-10 was determined to be 21.0%, or 1.4x the normal rate. This loss is substantially less than the 2008-09 mortality figure of 33.9% and is also less than rates of 35.0% and 29.0% recorded respectively for the winters of 2007-08 and 2006-07. The complete wintering loss survey report is contained in an annex to these proceedings, which marks a substantial improvement in CAPA's monitoring efforts over the previous years.

Careful thought will have to be given as to how, or if, to proceed for 2010-11. Survey results were substantially more comprehensive in 2009-10 and analysis proved to be quite time consuming with data being provided from a number of sources. Integrity checking of the data was also found to be essential. Factors that need to be considered if this survey will continue in 2010-11 are:

1. Whether all provinces can participate.
2. Whether surveys can be implemented and data returned for analysis within reasonable time frames.
3. Whether the survey should be administered centrally, through a web-based survey tool.
4. Whether further participation in COLOSS monitoring efforts is deemed worthwhile.

Should CAPA continue this effort for 2010-11 it is recommended that questions for a harmonized survey be approved early in 2011, to allow for translation into French and to allow sufficient lead time for provinces to prepare for survey implementation, should this be the modality chosen.

All participating provincial apiculturists are thanked for their efforts.
S. Pernal

Steve sends regrets for not attending CAPA meeting. Rhéal read Steve's written report.

Motion to accept the National Survey Report as presented.
Moved by Rob Currie
Seconded by Leonard Foster
Carried

Survey was long and that may have contributed to people not filling it out. The survey needs some fine tuning. Beekeepers are surveyed a lot and may be tired of completing them. We are risking 'ticking-off' the beekeepers with so many surveys. We may be risking CAPA reputation by going with COLOSS. The on-line option has been very successful in Ontario. It gives you more control than a paper survey. The system used in Ontario was simple and easy. Quebec has been surveying since 2003 with great success as long as you give them feedback they are happy to do it. In Saskatchewan, beekeepers are concerned with privacy of their information and may be concerned about passing it along to Europe. Ontario has similar concerns. On-line surveys are fine, but the demographics of beekeepers may not lend to capturing everyone. A paper back-up may be an option and these cold be inputted later. On-line surveys are the way to go. We could provide an incentive for people to complete the survey e.g. iPod touch. Time is an issue for many beekeepers, but this varies between operations. The CAPABEE website has been accessed by media and the public. There is a benefit to centralize reporting. CAPA has a chair who is a federal employee. This is a CAPA initiative. Having the CAPA chair does prompt people to provide this information. Saskatchewan is opposed to sending the raw data to be included. The summarized data is fine.

Factors involved in response rate include fatigue, privacy issue and getting tangled with COLOSS model which is set for 20 countries. Canada has been developing reports for a long time. These can be standardized as long as we agree. COLOSS is imposing their method of us. However, this information is not going to a competitor. As professionals, we should trust each other's information.

Information sharing is a delicate topic and must be handled carefully. The number of questions must be reduced in the survey. If that means no COLOSS, that may have to be the case. Many of the survey results are used to make recommendations for the following year in terms of pest management.

Motion that the National Sruvey Committee examine the modality of the survey and determine which questions are most critical to ask for importance to all provinces. Add a list of optional questions that provinces may include. COLOSS could then be consulted. The data would be summarized within provinces and summaries would be shared nationally.

Moved by Rob Currie
Seconded by Alliston Van Alten
Carried

Importation Committee Report

Committee Members: Medhat Nasr (Chair), Rob Currie, Ernesto Guzman, Paul Kozak, Chris Maund, Geoff Wilson, Alison Van Alten

The import committee had several issues to deal with in 2010. During the discussion of these issues all Provincial Apiculturists (PAs) were involved in the process. It has become important to include the PAs in these discussions due to their responsibilities in administering the Bee Acts and Regulations across the country. I thank all committee members and Pas for their continued support and commitment to provide constructive advise when needed.

Accomplished activities:

- **Supported the CFIA by providing timely advice on honey bee import issues.**
- **Harmonization of bee import conditions from various countries.** CAPA was advised by the Canadian Honey Council (CHC) to work with CFIA on harmonization of bee import conditions based on the current bee health status in Canada. The CFIA established a review process with industry stakeholders, CHC and PAs. In this process we have ensured that the conditions required for importing bees into Canada are in line with international standards as well as bee health practices and conditions for inter-provincial movement within Canada. Considerations were also given to management practices and seasonality of the exporting countries. Conditions were revised for all exporting countries, except New Zealand in 2010.
- **Responded to changing health status of bees in Hawaii.** The small hive beetle was found in Hawaii in 2010. Consequently, importing queens from Hawaii was suspended. The CHC, CAPA and CFIA worked closely to monitor the situation of the SHB in Hawaii. An import protocol was developed with conditions to prevent the introduction of the SHB from Hawaii with imported queens. The new requirements for honeybee queens imported from Hawaii are as follows:
    - The premises must be certified free of small hive beetle (SHB) (*Aethina tumida*) as follows:
        - All apiaries from which queen bees are derived or locations from where they will be shipped to Canada must be inspected for SHB with negative results by Federal or State apiary inspector within ninety (90) days prior to export.
        - Following due enquiry by a Federal or a State apiary inspector, all queens and attendants must be caught and placed in cages by hand.

        - Attendants (4-6 per queen) must be placed in individual cages with the queen and not loose in a battery box.
        - Packing of the cages into containers for export must be done in an enclosed indoor area which is not accessible to the SHB.
        - Exporters must be aware that battery boxes will no longer be acceptable for transport.
        - On entry into Canada, CFIA inspection will be required, so prior arrangements need to be made. This information will all be included in AIRS.
    - Any import permits that have been issued will be cancelled and re-issued. In addition, CFIA will be working closely with the PAs to track recent shipments from Hawaii so that inspections can be performed. We are also developing plans for shipments that are arriving in Canada imminently.

These requirements allowed the queen importation to continue without any disruptions for 2010. Once again the finding of a serious pest in a major exporting country showed the vulnerability of this industry. The Canadian beekeeping industry relies on importing 170,000/year from various countries. The majority of these queens were supplied by the USA, especially Hawaii (100,000-125,000) queens.

- **Development of Inspection Protocols for Queens Arrived and Quarantined in Canada**
  Inspection protocols were developed to inspect several thousands of queens arrived to Canada after the discovery of the small hive beetle in Hawaii (see more in Appendix I).
- **Review of risk assessment for importing queens from Argentina.**
  Argentina commented on CFIA's risk assessment and sent further documentations to explain their position. Members of CAPA import committee reviewed the new documents and found that importing queens from Argentina continues to be a risk for introducing Africanized genes to Canada and AFB resistant to Oxytetracycline.

Appendix I

English Version: Inspection Protocol for the Small Hive Beetle (SHB) Suspected In Imported Queens from Hawaii to Canada

NOTE: these procedures are intended for the use of the provincial apiculture specialists

Battery box queens:

1. Upon arrival of the shipment of queens, the battery boxes must be transferred to an approved quarantine room. This room must be inside another room to prevent any release of bees or suspected beetles out of the quarantined area.
2. An accredited inspector or provincial apiculturist (PA) will remove the queen cages from the battery box. Cages must be visually inspected for signs of small hive beetle (i.e. all life stages of the beetle - dead or live). Then, queen cages free from any sign of the SHB will be transferred into a clean SHB free container.
3. The SHB free queen container should be kept under cover to prevent any attendant bees or beetles from coming in contact with the inspected queen cages.
4. When all inspected queens in the SHB free queen container show that there are no signs of the SHB, the inspected queens should be released from the quarantine to a clean area where there are no flying bees around.
5. The remaining contents of the battery box including the box and all attendant bees must be placed in a double plastic bag. Place the plastic bag with its contents in a freezer to kill live bees and SHB and then, destroy by incineration.

6. All bees and SHB flying in the quarantine room must be collected using a bee vacuum or a vacuum cleaner. The vacuum cleaner bags containing bees and SHB must be placed in a double plastic bag. Place the plastic bag with its contents in a freezer to kill live bees and SHBs and then, destroy by incineration.
7. All inspected queens in the new container can be released to the importer.
8. The importer is allowed to pick up inspected queens in clean containers without any bees if he wishes. If bees added to inspected queens in clean containers, local new young nurse bees should be used.

Caged queens with attendants in the cage (i.e. 3-hole cages or plastic queen cages):

1. Upon arrival of the shipment of queens in 3-hole cages, the caged queens with attendants in shipping boxes must be transferred to an approved quarantine room. This room must be inside another room to prevent any release of bees or suspected beetles out of the quarantined area.
2. Visual inspection with the help of a flash light must be performed on the 3-hole cages for signs of the small hive beetle (i.e. all life stages of the beetle - dead or live).
3. Shipping boxes should be inspected for all life stages of small hive beetles.
4. If shipped queens in 3-hole cages and boxes have no signs of the small hive beetle, queens should be released to the importer.
5. Bees and SHB flying in the quarantine room should be collected using a bee vacuum or a vacuum cleaner. The vacuum cleaner bags containing bees and SHB should be placed in a double plastic bag. Place all infested queen cages and attendants and boxes in a double plastic bag. Place all plastic bags with their contents in a freezer to kill live bees and SHB, then, destroy by incineration.

Follow up Inspection Protocol for queens already used in the field:

1. A list of beekeepers that already imported and/or used Hawaiian queens this season should be collected. Beekeepers will be requested to provide apiary locations where Hawaiian queens were used or names of beekeepers bought bees with Hawaiian queens before implementing the new conditions for importing queens.
2. Bee inspectors will be asked to inspect honey bee colonies for SHBs using the inspection protocol as described in the OIE Terrestrial Manual 2008 <http://www.oie.int/eng/normes/mmanual/2008/pdf/2.02.05_SMALL_HIVE_BEETLE.pdf>
3. Inspection should be followed up and any findings should be reported immediately to CFIA. The SHB is an immediately notifiable pest <http://www.inspection.gc.ca/english/anima/disemala/guidee.shtml>.
4. A final report should be prepared for the CFIA.

French Version: Protocole d'inspection pour petits coléoptères des ruches éventuellement présents dans des changements de reines abeilles importées d'Hawaii au Canada

Remarque: ces protocoles sont pour les spécialistes en apiculture provinciaux

Reines dans des caisses à batterie

9. À l'arrivée des reines, transporter les caisses à batterie vers une salle de quarantaine approuvée. Cette salle doit se trouver à l'intérieur d'une autre salle pour empêcher que toute abeille ou tout coléoptère ne s'échappe de la zone de quarantaine.
10. Un inspecteur agréé ou un apiculteur provincial (AP) retirera les cages des abeilles des caisses à batterie. Procéder à une inspection visuelle des cages pour repérer tout petit coléoptère des ruches (c.-à-d. à toutes les étapes du cycle de vie du coléoptère – mort ou vif). Placer ensuite

les cages d'abeilles nettoyées de tout signe de petit coléoptère des ruches dans un contenant propre exempt de petits coléoptères des ruches.
11. Conserver ce contenant couvert pour empêcher toute ouvrière ou tout coléoptère de rentrer en contact avec les cages de reines inspectées.
12. Une fois qu'il apparaît clairement que les reines inspectées qui se trouvent dans le contenant pour reines qui ne contient pas de petit coléoptère des ruches ne présentent aucun signe de petit coléoptère des ruches, elles peuvent être transférées de la zone de quarantaine vers une zone propre où ne vole aucune abeille.
13. Placer le reste du contenu du caisse à batterie, c.-à-d. le caisson et les ouvrières dans un sac en plastique doublé. Placer le sac en plastique et son contenu au congélateur pour tuer les abeilles et les petits coléoptères des ruches vivants, puis les incinérer.
14. Attraper les abeilles et les petits coléoptères des ruches qui volent dans la salle de quarantaine à l'aide d'un aspirateur. Placer les sacs de l'aspirateur contenant les abeilles et les petits coléoptères des ruches dans un sac en plastique doublé. Placer le sac en plastique et son contenu au congélateur pour tuer les abeilles et les petits coléoptères des ruches vivants, puis les incinérer.
15. Les reines inspectées du nouveau contenant peuvent être remises à l'importateur.
16. L'importateur est autorisé à récupérer les reines inspectées dans les contenants propres sans abeilles s'il le souhaite. S'il souhaite ajouter d'autres abeilles dans les contenants propres, de jeunes nourrices locales doivent être choisies.

Reines en cage accompagnées d'ouvrières (c.-à-d. cages à trois trous ou en plastique pour la reine)

6. À l'arrivée des reines dans des cages à trois trous, transporter les reines en cage accompagnées d'ouvrières dans des boîtes d'expédition vers une salle de quarantaine approuvée. Cette salle doit se trouver à l'intérieur d'une autre salle pour empêcher que toute abeille ou tout coléoptère ne s'échappe de la zone de quarantaine.
7. Procéder à une inspection visuelle des cages à trois trous à l'aide d'une lampe de poche pour repérer tout petit coléoptère des ruches (c.-à-d. à toutes les étapes du cycle de vie du coléoptère – mort ou vif).
8. Inspecter les boîtes d'expédition pour repérer tout de petit coléoptère des ruches vivant (toutes les étapes du cycle de vie).
9. Si les reines expédiées dans des cages à trois trous et dans des boîtes ne présentent aucun signe de petits coléoptères des ruches, elles peuvent être remises à l'importateur.
10. Attraper les abeilles et les petits coléoptères des ruches qui volent dans la salle de quarantaine à l'aide d'un aspirateur. Placer les sacs de l'aspirateur contenant les abeilles et les petits coléoptères des ruches dans un sac en plastique doublé. Placer les cages de reines infectées, les ouvrières et les boîtes dans un sac en plastique doublé. Placer les sacs en plastique et leur contenu au congélateur pour tuer les abeilles et les petits coléoptères des ruches vivants, puis les incinérer.

Protocole d'inspection de suivi pour les reines déjà sur le terrain

5. Dresser la liste des apiculteurs qui ont déjà importé et/ou utilisé des reines hawaïennes cette saison. Les apiculteurs devront indiquer le lieu des ruchers où les reines hawaïennes ont été utilisées ou le nom des apiculteurs auprès desquels ils se sont procuré les reines hawaïennes avant la mise en œuvre des nouvelles conditions sur l'importation de reines.
6. Les inspecteurs des abeilles devront inspecter les colonies d'abeilles mellifères pour repérer les petits coléoptères des ruches en utilisant le protocole d'inspection, conformément au *Manuel terrestre* 2008 de l'OIE

<http://www.oie.int/eng/normes/mmanual/2008/pdf/2.02.05_SMALL_HIVE_COLÉOPTÈRE.pdf> (en anglais)

7. Réaliser un suivi de l'inspection et signaler immédiatement les résultats à l'ACIA. Le petit coléoptère des ruches est un parasite à déclaration immédiate <http://www.inspection.gc.ca/francais/anima/disemala/guidef.shtml>.
8. Préparer un rapport final pour l'ACIA.

Motion to accept the Importation Committee Report as presented
Moved by Medhat Nasr
Seconded by Claude Boucher
Carried

Chemical Committee Report

Chair: Geoff Wilson
Members: Claude Boucher, Paul Kozak, Rhéal Lafreiere, Medhat Nasr, Steve Pernal, Alison VanAlten

Registration of Thymovar®

Thymovar® received full registration in Oct 2010. This product shows potential for use in a varroa management program with efficacy of between 80 and 90% and will likely work well in combination with other treatments. This product has similar weaknesses to other "soft" treatments in that efficacy is dependent on temperature.

Registration of Oxalic Acid

Emergency Use Registration (EUR) of Apivar® (Amitraz)

The Canadian Honey Council (CHC), Provincial Associations, Provincial Apiarists and PMUCS put the package together for an Emergency Use Registration application. Emergency Use was granted for July 1, 2010 until June 30 2011.

Full registration for Apivar was submitted in the summer of 2010. Full registration takes approximately 18 months for a decision by the PMRA. If Apivar® is needed for the fall of 2011 and possibly spring of 2012 an additional EUR will be needed to cover these periods.

There were reports that Apivar did not work in some beekeeping operations, in many cases these were investigated and it does not appear that resistance caused the losses, rather it was the application method. It appears that Apivar is more difficult to use than other strip treatments, and it may be necessary to give better directions of use to beekeepers.

EUR of Permanone (Permethrin)

The government of Ontario with support from the OBA, CHC and other provinces registered Permanone through the EUR process. The EUR was granted until Nov 1 2011. This product is to be used as a ground drench for small hive beetles in ON.

Future necessity for Permanone will depend on the establishment of small hive beetles in Canada. Intentions for registration will need to be determined as the situation progresses.

EUR for MAQS

Many provinces received pressure from NOD and the Provincial Associations to submit an EUR for MAQS. The provinces that received the request could not justify that Varrroa situation represented an emergency because other products were in place to control mites that filled the same niche as MAQS.

CAPCO C94-05 & PRO 2009-01

PRO 2009-01 indicated the Pest Management Regulatory Agency's (PMRA) intent to repeal CAPCO C94-05 – the use of 65% liquid formic acid to control Varroa mites by Dec 2010. At this time all formic acid products will need to be fully registered to be used for mite control. According to PRO2009-01, if a submission is made for full registration, formic acid will be allowed to be used according to the submitted label directions. The PMRA delayed the repeal date until March 2011 to address the requests from industry for more time.

CAPA and CHC lobbied industries to proceed with registration of liquid formic acid. Two companies showed initial interest in registering formic acid, Medi-vet has agreed to proceed with the registration. A pre-submission has been made and the full registration is expected to be submitted on time to ensure formic acid is available for 2011. The label directions are up to Medi-vet to determine but CAPA has made a recommendation to keep the label as general as possible to ensure that beekeepers have the flexibility to use the product appropriately according to the local necessity.

Registrations of MAQS (Pre-submission)

NOD Apiary products has indicated that they are preparing a pre-submission to register MAQS. The pre-submission should be submitted in the near future.

Products of Interest for future registration

Bayvarol produced by Bayer and a Thymol treatment as developed by Ernesto Guzman at the University of Guelph show promise for use under Canadian conditions and should be further investigated. Other products are continued to be sought out but may have to be further developed before they are appropriate for registration.

Acetic Acid as a fumigant for hive equipment should be investigated for controlling Nosema.

Bee repellents

Honey is being inspected by the CFIA for bee repellents. Residues of butyric acid and benzaldehyde are being found that exceed the MRL of 0.1 ppm. Although the risk of honey with levels at greater than 1 ppm is unknown, a negative media release was made about this product. Mitigating actions must be taken possibly including at registration of this product with higher MRL's, best management practices for bee repellents, and better communication with the this level of This has already caused an negative It is necessary to are being investigated by the CFIA

Request for Apivar EU rational and Check-mite EU rational

The PMRA passed on a request from a private company for the provinces to release the rational for Apivar EUR's from 2009 and 2010. This was later amended to include all rationales for Apivar and Checkmite+. The consensus between the provinces was to ask that this request go through the provinces respective Freedom of Information processes. This would allow each province to ensure that all participants in the EUR's including other provinces, universities, the Canadian Honey Council, and provincial associations did not have sensitive information released.

This leads to a discussion that we should have at some point during this meeting. Does CAPA need a policy regarding release of information developed by various parties (e.g. EUR's are developed by participating provinces and the ownership of the document and various portions of the document becomes a very complex topic).

Motion to accept Chemical Committee Report
Moved by Geoff Wilson
Seconded by Rob Currie
Carried

Does CAPA need a policy to release information when all provinces have information put into it? How does CAPA handle this type of request? E.g. rationales from each province.
Provinces are responsible for their own information, but how do we handle CAPA-generated information? Any information on a government computer can be access through Freedom of Information. There could be unreleased data in the rationals and therefore may have issue with releasing it to anyone. If there is request from outside, can a stripped-down version be released? This type or procedure is governed and there are rules in place. The stakeholders of the information would have to be involved.

Research Report

Leonard Foster made a call for people to submit their Research Reports. Leonard has distributed the template for reporting to Leonard.

Motion that Research Committee will submit a report by January 30, 2011.
Moved by Leonard Foster
Seconded by Rob Currie
Carried

CANPOLIN Report

Rob Currie presented the CANPOLIN Report in the absence of Peter Kevan.

Rob suggested that the CANPOLIN Report be included in the Research Committee Report.

Rhéal thanked Rob for presenting the report. No motion necessary because this is not a standing committee.

Rhéal sat on CANPOLIN Board of Directors. He was not representing CAPA.

Awards Report

Committee Members: Alison Van Alten (Chair), Paul van Westendorp, Kenna MacKenzie, Nicolas Tremblay and Janet Tam

Student Award

The award information was distributed via the CAPA and AAPA list serves in both English and French. Three applications were received including one each from Laval University, the University of Guelph and the University of Manitoba. Each applicant had a strong work ethic and excellent references.

The committee recommends that the award go to Suresh Desai, a Ph. D. candidate in the Department of Entomology at the University of Manitoba. Suresh is investigating several approaches that could help in the identification of bee viruses in pollinators, he is helping beekeepers deal with the problem of colony loss due to bee viruses and is developing new methods to manage and/or control viruses, that would be economical to apply.

Alison Van Alten asked that everyone promote the award to get applicants. Deadline is January 15, 2011.

Motion to accept the Awards Committee Report
Moved by Alison VanAlten
Seconded by Janet Tam
Carried

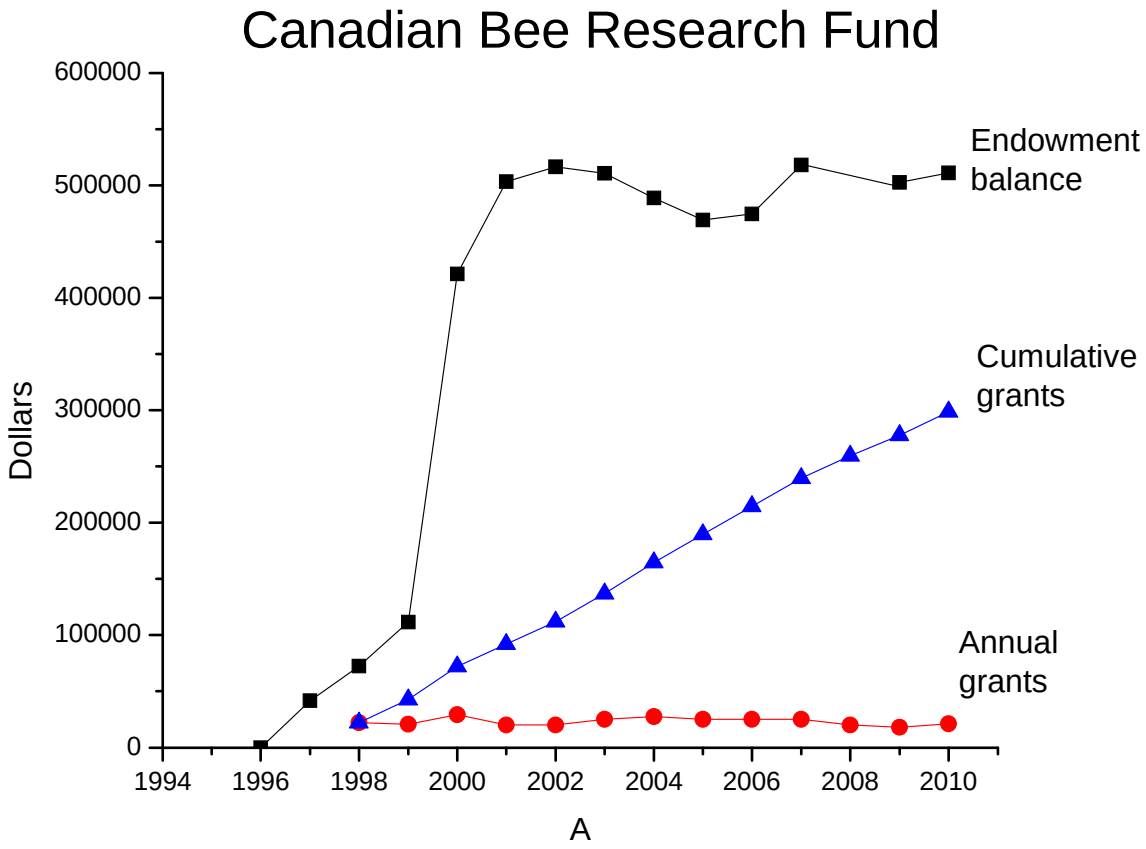
Rhéal spoke to awarding an Honorary Member Certificate to Heather Clay from the CHC. Heather is retiring in the near future.

Motion to declare Heather Clay as an Honorary Member of CAPA.
Moved by Adony Melathopolus
Seconded by Medhat Nasr
Carried and unanimous

CBRF Report for 2010

Rob Currie (Chair of CBRF)

The Canadian Bee Research Fund is an independent charitable organization that is headed by a board of directors composed of representatives from the Canadian Honey Council and Canadian Association of Professional Apiculturists. The Fund was created by Dr. Mark Winston in 1996 and has been set up as a long-term endowment fund, where the interest generated by the fund is made available for annual grants. In most years, the CBRF has been able to contribute $20,000 to $25,000 a year toward apiculture research projects. The current value of the fund is $511,087 (~Nov 23, 2010) and has been fairly stable at this level since 2001 despite major market fluctuations (see attached graph). Over the life of the fund approximately $298,637 has been allocated for industry research priorities and Canadian researchers have used this relatively modest amount to leverage large amounts of matching funding from external government funding agencies.



The board of directors consists of four voting members, two from CAPA and two from CHC and the CEO of the CHC. The board is responsible for making decisions about investments, fund raising, as well as disbursement of research grant funds. A grant selection committee is established each year that consists of CAPA members (whom are not submitting a research grant in the current competition) as well as two appointees from the Canadian Honey Council (not associated with research grants) and the CHC CEO. Industry research priorities and ability to leverage matching funding are used as the primary selection criteria for determining which projects receive funding.

Rob Currie and Paul VanWestendorp served on the Board of Trustees as representatives in 2010 but Steve Pernal (President of CAPA attended the board meeting in Florida as Paul's designate since he was unable to attend). The board met in Orlando on 14 January 2010. The main activities discussed at that board meeting related to discussions initiated in the previous year. Discussions centered on coordination of duties between CAPA and CHC members, fund raising, archival material and a review of investment manager changes that had been made in the previous year. Donations from the art auction conducted by Robbin Honey and an anonymous donation of $5,000 were treated as "exceptional donations" and added to the endowment fund.

Rob has been working on updating the terms of reference (including the dispute mechanism approved by CAPA and CHC last year) and will be presenting these to the board for discussion and approval. Three grants were awarded last year totaling $21,036 (to Pernal $8,636.64, Currie, $6,000 and Shutler, $6,400).

Grant disbursements are based upon an allocation based upon 3.5% of capital in the fund averaged over the past two years and an allocation associated with incoming donations each year (75% of donations). Typically this results in an allocation of $18-25,000 that is available to fund research grants in the upcoming year. For the coming year the grant application deadline is 15 December. Decisions on the exact amount of money allocated will not be made until after the end of the fiscal year. At that time, the grant selection committee will be established and make decisions on the current year's grant submissions. The grant selection committee will meet by conference call at some point after that applicants will be notified of the results of the committee's deliberations.

Motion to accept the CBRF Report
Moved by Rob Currie
Seconded by Medhat Nasr
Carried

Rob also reviewed proposed changes to the CBRF guidelines and operating procedures.
The CHC directors wanted to see the terms of reference cleaned up for some time. Heather indicated that the directors will be pleased with the proposed changes.

Rhéal indicated that there needs to be some consideration for the longevity for the entire endowment in the document. All donors must be treated with respect in terms of how their donation is used.

Rhéal thanked Rob for all the years he has put into the CBRF.

Non-Apis Pollinators Report

Committee Members: David Ostermann (Chair), Rob Currie, and Geoff Williams

David Osterman circulated the Non-Apris Report to the membership well in advance on CAPA-L therefore no further discussion at this time.

There are a number of non-apis pollinator activities to report this year.

On the East Coast, bumble bees and alfalfa leafcutting bees were imported for blueberry and cranberry pollination. In New Brunswick, bumble bees (<500 quads) were imported for blueberry pollination, and some were also used for cranberry pollination, but honey bees were most commonly used on cranberries. Alfalfa leafcutting bees (<4,000 gallons) were also used for blueberry pollination. In Newfoundland, some bumble bees were imported for cranberry pollination, but it's not certain if bumble bees were used on blueberries. In P.E.I., bumble bees were used to pollinate blueberries and cranberries, but there are reports of bumble bees losing popularity due to low colony activity compared to honey bees.

On the Prairies, alfalfa leafcutting bees continue to be important for alfalfa seed production and other crops. Leafcutting bee production and pollination conditions in Manitoba were better this year (2010) compared to last year (2009), when bee returns were poor. For Saskatchewan and Alberta, it's too early to say how the year went. The price of bees remained strong this year at around $90 per gallon.

There are currently a number of research studies being conducted on non-apis pollinators. These include studies looking at native bees on blueberries, as well as toxicity of reduced risk pesticides and biopesticides to bumble bees and alfalfa leafcutting bees, and bumble bees as vectors of biopesticides for disease control on wild blueberries.

The national Bee Biosecurity Advisory Committee is currently working with CFIA and consultants on the development of an on-farm biosecurity standard for the managed bee industries in Canada. The standard will be a voluntary tool to guard against disease and pests in the honey bee, alfalfa leafcutting bee, and bumble bee industries, and is expected to be available in 2012.

There are also non-apis pollinator activities related to the CANPOLIN network. For information on the CANPOLIN network visit http://www.uoguelph.ca/canpolin/.

Thanks to the committee members and everybody who contributed to the report!

Motion to accept the Non-Apis Report as circulated.
Moved by Rob Currie
Seconded by Claude Boucher
Carried

Honey Bee Diseases and Pests Publication Sales Report

Orders Filled in 2010 - English version

Invoice #	Date	Purchaser	No. Sold
Inv 10-01	2-Jan-10	Virginia Beekeeping Course	260
Inv 10-02	11-Jan-10	Brushy Mountain Bee Farm	100
Inv 10-03	11-Jan-10	Ontario Beekeepers' Assoc - TTP	100
Inv 10-04	14-Jan-10	E.H. Thorne (Beehives) Ltd	50
Inv 10-05	27-Jan-10	Virginia Bee Course	18
Inv 10-06	27-Jan-10	PEI Beekeepers Assoc	30
Inv 10-07	4-Feb-10	Univ of Maine Coop Extension	30
Inv 10-08	18-Feb-10	W.T. Kelley	100
Inv 10-09	14-Feb-10	MB Agric Food Rural Initiatives	80
Inv 10-10	4-Mar-10	Ontario Beekeepers' Assoc - TTP	49
Inv 10-11	8-Mar-10	Joanne Moran	25
Inv 10-12	15-Mar-10	Bees n Glass	15
Inv 10-13	7-Apr-10	Dadant & Sons Inc	150
Inv 10-14	23-Mar-10	Carol Schmitt	15
Inv 10-15	7-Apr-10	Glory Bee Foods	75
Inv 10-16	19-Apr-10	Rossman Apiaries Inc.	25
Inv 10-17	13-May-10	Mann Lake Ltd	100
Inv 10-18	19-May-10	NB Dept of Agric & Aquaculture	25
Inv 10-19	30-Jun-10	Dadant & Sons Inc	160
Inv 10-20	7-Jul-10	Dadant & Sons Inc	40
Inv 10-21	7-Jul-10	Brushy Mountain Bee Farm	40
Inv 10-22	7-Jul-10	Brock Lenox	5
Inv 10-23	12-Jul-10	Alanna Bannister	1
Inv 10-24	24-Aug-10	Shevaun O'Conner	1
Inv 10-25	24-Aug-10	Vicki Munroe	35
Inv 10-26	8-Sep-10	Univ of Maine Coop Extension	45
Inv 10-27	18-Nov-10	W.T. Kelley	100
Inv 10-28	18-Nov-10	Dadant & Sons Inc	100
Inv 10-29	23-Nov-10	Ontario Beekeepers' Assoc - TTP	100
Inv 10-30	29-Nov-10	Brushy Mountain Bee Farm	150
Inv 10-31	1-Dec-10	NB Dept of Agric & Aquaculture	25
Inv 10-32	3-Dec-10	Mann Lake Ltd	75

**** Inventory of English version: 1,463 **** **2124**

Orders Filled in 2010 - French version

Inv 10-03	11-Jan-10	Ontario Beekeepers' Assoc - TTP	30
Inv 10-10	4-Mar-10	Ontario Beekeepers' Assoc - TTP	20

**** Inventory of French version: 3,600 (approx) **** **50**

GRAND TOTAL: 2174

Publication Sales Report

Report given by President Rhéal Lafrenière. Rhéal indicated that we should have enough inventory to carry us through the next year. We should budget for potential reprints next year. Cost is approximately $4.00 per copy. Janet Tam from the Tech Transfer Team has agreed to take over the Publication Sales Coordinator for CAPA.

Motion to accept the Publication Sales Report as presented.
Moved by Rob Currie
Seconded by Alison VanAlten
Carried

New Disease Publication Report

Rhéal read Steve Pernal's report as submitted.

Third Edition of CAPA Disease Publication

In 2010, considerable effort was made to find a qualified individual to finish writing outstanding sections of the revised disease publication and shepherd the document to publication. As per action items from the 2009-10 CAPA annual general meeting, the editor approached two retired provincial apiculturists, and three individuals offering professional apicultural services, including scientific writing. All declined, despite remuneration being offered from CAPA. Suggestions on how to proceed on completion of this long-standing CAPA objective are welcome, including having someone else take over the helm who may have more time to devote to its completion.

Steve Pernal

Motion to accept the New Disease Publications report as presented.
Moved by Rob Currie
Seconded by Geoff Wilson
Carried

John Gruska, Robyn Underwood and Don Dixon were approached and were not interested. Loyd Harris could be approached to take to work on this project. Steve could consider approaching Loyd Harris.

Heather asked if other forms of publication have been considered e.g. electronic.

Ken Tuckey may be a potential name to consider.

CAPA generates significant income from this publication. This funds other CAPA activities such as website.

Communications Committee Report

27 November 2010

Committee Chair: Adony Melathopoulos

Committee Members: Rob Currie, Stephen Pernal, Rhéal Lafrenière, Suresh Desai, Melanie Kemper, Claude Boucher, Nicolas Tremblay.

1. Content

The only new content on the site this year is the CAPA Report on Honey Bee Losses 2010.

2. Statistics

Visitations at CAPABEES continued to grow through the past year (Table 1) and we have moved up in the rankings on some key search parameters (Table 2).

Table 1. Comparison of the number of visits in 2009 versus 2010 to CAPABEES across different months and number of pages viewed by visitors.

Month	Visits 2009	Visits 2010	Pages 2009	Pages 2010
Nov	2736	2471	7672	30410
Oct	3247	3443	16260	37809
Sep	2688	3535	24693	35391
Aug	1803	4045	28780	23956
Jul	1824	3317	14877	25383
Jun	1713	2366	21038	18318
May	1764	2837	19101	25700
Apr	1538	2731	15506	31024
Mar	1693	3649	11974	25899
Feb	2094	2739	12379	31595
TOTAL (Mar-Oct)	**21100**	**31133**	**172280**	**285485**

Table 2. The ranking of CAPABEES for eight search terms using Google

Search Term	CAPABEES Ranking Nov 2010	CAPABEES Ranking Jan 2010
"Varroa Thresholds"	1	2
"Nosema"	8	7
"Colony Loss Canada"	5	10
"Wintering Honey Bees"	11	>25
"Varroa"	>25	>25
"American foulbrood"	>25	>25
"Colony Collapse Disorder"	>25	>25

Reviewing the popularity of specific content on the site from our last report there has been growth in pages having to do with bee forages, wintering bees and varroa management (Table 3).

Table 3. Visits to specific pages November 2010

Rank	Hits	Pages
1	443	Chapter 3, Nectar and Pollen Plants, Beekeepers W Canada
2	428	Preparation of Honey For Market, OAC
3	338	Nosema, CAPA Publication
4	284	Alsike Clover, AAFC, Booklet
5	216	CAPA Crop Pollination Guide
6	181	Varroa EIL
7	173	Beehive Construction
8	161	Nosema, CAPA Publication
9	159	Wintering
10	147	Chapter 5, Spring Management, Beekeepers W Canada
TOTAL	**2530**	

3. Looking to 2011

a) Redesign?

The site is beginning to look dated and we will need to consider a redesign going into 2012.

b) Separate Provincial Apiarist Reports

Communication Report

Report was presented by Adony Melathopoulos.

Adony made a call to the membership to supply information for the website, particularly French information.

The website has really increased the profile of CAPA and worth the effort. The internal components of CAPA is underutilized and should be considered when redesigning the new website. CAPA members may increase their use of this vehicle. It should be very secure. We also need to make it easy to post new information.

Motion to approve $3,000 (top end) to redesign website and have it completed by Dec. 31/2011.
Moved by Adony Melathopoulos
Seconded by Geoff Wilson
Carried

Motion to accept the Communications Report
moved by Medhat Naasr
seconded by Paul Kozak
Carried

Africanized Bee Report

In Ernesto's absence, Rhéal read the Africanized Bee Report which was prepared by Ernesto Guzman.

Africanized bees are descendants of crosses between African honey bees (*Apis mellifera scutellata*) and several European bee races. Africanized bees have retained their predominantly African genotype and are notorious for their highly developed defensive behavior that has earned them the media title of "killer bees." Thus, they are viewed as a pest. The main characteristics that make Africanized honey bees undesirable for beekeeping practices are their extreme defensive, swarming, and absconding behaviours.
Africanized bees have spread throughout most of the Americas, including the southern states of the U.S.A. Africanized bees have largely replaced European bees throughout their wide range and are therefore an example of a successful invading organism. It is unlikely that they will spread naturally to the northern U.S.A. and Canada, but they may reach those regions through migratory beekeeping and with the importation of queens reared in Africanized areas.

It is not known yet how extensively Africanized bees will spread in North America and Canada or what the eventual impact of their spread will be. However, it is unlikely that they will have the largely negative impacts they have had on South and Central America. Probably the greater negative impact that these tropical bees might eventually have in the Northern hemisphere would be that massive stinging incidents generate bad publicity that may drastically affect the beekeeping industry and the positive perception that the general public may have about bees and beekeepers.

In Canada, we should develop contingency plans to act upon the presence of Africanized bees. In our lab at the University of Guelph we have established the techniques needed to identify Africanized bees through measurements of wing length and mitochondrial DNA techniques. So far we have ran more than 50 samples and feel confident of that our methods are working. However, these techniques are not 100% reliable, because mitochondrial DNA is maternally inherited, and hybrids might not be detected through morphometrics, but so far, these are the only valid techniques available to identify Africanized bees. Ideally, a sufficient number of nuclear markers should be developed that are species specific. Until that is achieved, the combination of morphometrics and mitochondrial DNA analyses is our best choice to identify Africanized bees.

Motion that the Africanized Bee Report be tabled and that the committee reconsider the implications of wording.

Moved by Rob Currie
Seconded by Geoff Wilson
Carried

The issue of Africanized bee arriving at this time was discussed in Kelowna by from different stakeholders. This is best protocol still available to lower risk. Medhat suggested that we can table this report until Ernesto can explain how to improve the current system. Committee reports need more consultation before being published. Rhéal is not comfortable with some of the wording in the report. Rhéal supports tabling the report for now.

Archive Report

Rob Currie indicated that there is nothing to report at this time.

New Business

Apimondia Symposium 2012
Queen breeding, selection and honey bee health

Pierre Giovenazzo made a 'pitch' for Apimondia Symposium 2012. Planning started 3-4 years ago and now it is underway. Quebec would be a nice city to hold these meetings.

Two Standing Commissions:
1) Beekeeping Technology and Quality, and
2) Bee Health.

First Steps
Obtained go-ahead from Apimondia officials
Implication of the Comite apicole du CRAAQ (provincial organization).
Implication of the CHC (official Apimondia link in Canada / host symposium)
Implication de l'office du tourisme de la ville de Quebec (what they offer as support).

Proposed Program
November 15-18, 2012
4-5 Keynote speakers (selected to attract Americans and Europeans)
Scientific Program (talks & posters)
Technical Tour
Touristic Tour

Oranizational Chart
Role of CHC
Official Host
Program proposal
Financial support
Federal grant demand
Creation of a cooperation: Apimondia Que. Incorporation of a non-profit organization

Role of CAPA
Support and approval of the event
Program proposal
Participation in the two scientific committees
Presentation of Canadian Research

Role of the CRAAQ (Quebec group)
Local organizing committee
Provincial grant demand

Proposed budget was reviewed by Pierre. Total budget income is $202,000. Asking for $40,000 federal and $30,000 from provincial government. Break even basis.

Expenses would need to be covered for 4-5 representatives. This would be covered by local organizing committee. Expecting 300 registrants. Registration fee would be $300.

This event could potentially attract many more than 300 people. This is a mini-Apimondia. What audience are they trying to attract? Scientific and some industry. It is for beekeepers, but researchers are also attending. Invite four key-note speakers on topics of interest to audience. There would not be concurrent sessions. Submitted papers would be invited. Approximately 30-40 speakers expected. More than 15-minute presentations to get more in-depth information. If we want beekeepers, a little bit more information should be offered. Simultaneous translation required (English/French). Looking for USA, Canada and maybe Europe will be attracted.

CHC has applied for funding via AAFC, but not approved yet. CHC needs CAPA support in order to proceed.

Discussion on who is responsible to pay if there is a loss. Pierre suggested the formation of a non-profit organization. Apimondia is not fronting any money on this, however they do want to share the profits. CAPA suggests that if they want to share the profits, they need to share the risk. Don Dixon has a lot of experience and should be consulted on this proposal. An event planner and Apimondia staff needs to be paid. The Apimondia logo needs to be on this in order to attract overseas delegates.

CHC needs funding approval before proceeding. CAPA's support should be conditional on CHC's situation. A sub-committee should be formed to investigate details and report back to CAPA membership.

Motion that CAPA show their support in Principal that CHC host Apinomdia symposium 2012 and that CAPA form an ad hoc committee to further explore conditions that may need to be clarified before giving full support. January 20, 2011 is deadline for reporting back to Pierre regarding CAPA's position.

Moved by Leonard Foster
Seconded by Paul Kozak
Carried

Motion that the membership authorizes CAPA executive to allocate up to $1,500 towards expenses incurred in exploring the Apimondia 2012 bid.
Moved by Rob Currie
Seconded by Leonard Foster
Carried

IIV-6 and CCD Paper

Leonard Foster made a presentation on a recently published paper entitled ***Iridovirus and Microsporidian Linked to Honey Bee Colony Decline.*** Leonard expressed his concern over the data presented in this paper.

Peptides identification. Take raw data and compare to database of protein sequences - ultimately you identify short peptides comprised of sequences of amino acids. When measuring these things in your sample and comparing you must consider all things that might be there. One of the fundamental problems with study is that when study was done, the thing they left out was honey bee protein sequences. All they considered were pathogen sequences, not bee proteins yet the samples came from bees. They then used what is otherwise a valid means of quantitation by comparing numbers of IIV-6 peptides and CCD severity. If this method is accurate, however, then it should also identify the highly abundant coat protein of the virus as the most abundant protein in their sample but it did not.

The authors did not report in their Methods section how this analysis was done but by making some safe assumptions Leonard was able to show with another dataset that very similar results can be arrived at that are explained completely by random data generation. Leonard indicated that he could find no evidence of correlation between IIV-6 and CCD. He expressed frustration that the authors did not make their raw data available, as they are required to do. It falls on the authors to fully disclose how they came to their conclusions.

It was noted that Leonard's response to the journal is appropriate and that this is part of the scientific process. Rhéal thanked Leonard for bringing this to CAPA's attention. It was also noted that more scientific discussions should take place at CAPA meetings.

Review Bylaws

President Rhéal Lafrenière indicated that a review of CAPA bylaws was brought forward from last year's action item. Potential changes need to be posted 30 days prior to the AGM. Changes were precipitated around election process last year. Changes should be made to reflect operational procedures with regards to elections. We have about three years to delay this.

Budget 2011

Secretary/Treasurer Chris Jordan presented the proposed budget for 2011 based on anticipated revenues and expenditures.

Motion to accept proposed budget.
Moved by Chris Jordan
Seconded by Rob Currie
Carried

Rheal suggested that we don't want to collect registration fees from guests.

CAPA 2011 PROPOSED BUDGET

Opening balance(01/01/11)			**42,012.61**
		Jan. 01, 2011 - Dec. 31, 2011	
REVENUE		$	
2011 Membership			
30	Full @ $40	1,200	
15	Assoc @ $20	300	
20	AGM Meeting Registrations	1,000	
AGM Meeting		0	
Publication sales Old (1550 units)		8,300	
Publication sales New		0	
GST Rebate		170	
		10,970	52,983
			52,983
EXPENDITURES			
Publications Sales (1500)			
	Reprints	6,000	
	S/H charges	1,600	
IBRA donation (2010)		500	
Awards			
	Student award	600	
	Hardware	50	
CAPA website			
	Maintenance	150	
	Redesign	3,000	
Misc. (cards, postage)		25	
Travel for Board Member (AGM)		1,000	
New Publication			
	Printing	0	
	Contracting	8,000	
Apimondia 2012 (November)			
	Expenses	1,500	
Bank charges		25	
		22,450	22,450
Balance			**30,533**

Committee Selection

President Rhéal Lafrenière indicated that the Tech Transfer Team agreed to accept the responsibility of distributing the CAPA publications.

Adjournment

Adjourned at 7:29 pm
Moved Geoff Wilson
Seconded by Claude Boucher
Carried

Additional Motions after the CAPA AGM

Bee Biosecurity

Motion that the *ad hoc* committee Bee Biosecurity be made up of the existing CAPA members on the CFIA's BEEBAC.

Moved by Medhat Nasr
Seconded by Chris Jordan
Carried

Members of the *ad hoc* Committee 'Bee Biosecurity' will be made up of the following:
Steve Pernal (Chair), David Osterman, Paul Kozak, Claude Boucher and Rob Currie.

Hive Health

There is another industry working group that we should also consider formalizing into Ad-hoc committees (e.g. Hive Health committee and the Stock Replacement committee). Both of these committees are working groups with CHC, but it may be beneficial to also make them into Ad-hoc committees so that the activities can also be shared and reported to CAPA, if nothing else at least once a year at the AGM. I talked to Corey about making Ad-hoc committee on these two subjects and he did not have a problem with it. Medhat later stated that the proposed Stock Replacement ad hoc committee could be part of the existing Standing Committee on Importation and that there is no need to create a new ad hoc committee just for Stock Replacement.

Motion that a new ad-hoc committee called "Hive Health" be created and that it be made up of existing CAPA members on CHC Committee "Hive Health".

Moved by Medhat Nasr
Seconded by Chris Jordan
Carried

Ad Hoc Committee Hive Health Members will include Rhéal Lafrenière (Chair), Steve Pernal, Medhat Nasr, Alison Van Alten. Project Title: Integrated

Research Reports

Project Title: Management of *Nosema* and Detection of Antibiotic Residues

Principal Investigator:

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Co-Investigators:

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Other Personnel: Dr. Abdullah Ibrahim (PDF), AAFC Beaverlodge; Johan van den Heever, Ph.D. Candidate, University of Alberta; Amara Masson, AAFC Casual Lab Technician.

Abstract:

Nosema ceranae is an emergent world-wide pathogen, and it, in combination with *N. apis*, have been linked to wide scale depopulation of colonies in North America and Europe. We propose to examine more effective chemotherapeutic control for these parasites and generate a modern antibiotic residue dataset for fumagillin-based therapies. Our objectives are to: 1) Develop optimal application methods and dosages for fumagillin against *N. apis* and *N. ceranae*; 2) Document residues associated with different methods of fumagillin application; 3) Screen alternative therapies for nosema; and 4) Examine the seasonal phenology of *N.* apis and *N. ceranae* in Canada.

These data will benefit the Canadian beekeeping industry by providing optimal treatment options to control both microsporidian species causing nosema disease without contaminating honey with unwanted residues. It will also provide for the development of modern analytical techniques for the detection of fumagillin and its degradation products, which currently do not exist. Finally, this research may lead to identifying other effective therapies so as to lessen dependency on fumagillin treatments.

In 2010, our research team resumed work to test alternatives to fumagillin in laboratory cage bioassays. In the field, we comparatively evaluated colony sampling methods by which to determine infections of *N. ceranae* in apiaries. We also continued intensive *Nosema* sampling to determine long-term effects of treatments applied to colonies in the previous production year. The latter was done by: a) following the progression of *Nosema* development and productivity of colonies from our 2009 comb disinfection experiment, and b) monitoring the progress of *Nosema* infections in colonies that received prescribed treatments of fumagilllin in the spring and fall of 2009. The latter two efforts were valuable in producing datasets that not only evaluated the effect of treatments in the season that they were applied, but also over the winter and 2010 production season. Finally, we made continued progress in implementing PCR techniques for the detection of both *Nosema* species in our laboratory.

Start Date: 1 April 2008 **End Date:** 31 March 2012

Total Funding: $ 117, 637 (Awarded in 2010)

Funding Sources (2010): AAFC MII ($56,000), ACIDF($30,000), Alberta Beekeepers ($20,000), Canadian Bee Research Fund ($8,637), Bee Maid Honey ($3,000).

Project Title: Honey Bee Disease Detection and Food Safety of Honey

Principal Investigator:

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Abstract:

The proposed research focuses on mitigating the impact of disease on the Canadian beekeeping industry and safeguarding honey as a food product for the Canadian consumer. The honey bee disease that will be the primary focus of our efforts is American foulbrood (AFB), with emphasis on strains of this disease resistant to the only registered control, oxytetracycline. We aim to develop a more selective and efficient microbiological media to culture the bacterium that causes this disease, *Paenibacillus larvae*, in order to improve laboratory diagnosis from samples of bees, honey or other hive products. We also will attempt to improve the accuracy of AFB diagnosis from samples of adult bees taken from the brood nest of colonies and develop sampling guidelines to improve the efficiency and reliability with which AFB can be diagnosed in the field. We will further explore novel technologies for detecting AFB, varroa mites and queenlessness by analysis of acoustical recordings of colonies. If experimentally successful, this may lead to the development of a hand-held electronic device for the rapid diagnosis of colony abnormalities.

We will also undertake studies that aim to maintain the integrity and safety of Canadian honey. Although the alternative antibiotics for honey bees, tylosin tartrate and lincomycin hydrochloride, have proven to be extremely effective in controlling oxytetracycline-resistant strains of *P. larvae*, they do not rapidly degrade. We will perform carefully controlled stability experiments examining the depletion patterns of tylosin and lincomycin in honey and their breakdown products. These studies will be performed at temperatures found in the brood nest of colonies and those at which extracted honey is commonly stored. These data will allow us to make safe recommendations for the use of these products so as to minimize their residue presence in honey after treating colonies.

A final set of objectives for our research are to examine Canadian honey for the presence of heavy metals, and if present, to determine whether the sources of these elements are environmental or derived from equipment used in harvesting or processing.

Our research will lower the financial impact of honey bee diseases on Canadian beekeepers and also ensure the Canada's colonies remain healthy to provide required pollination of key agricultural commodities. This research will also serve to minimize residues in honey and identify the product as being Canadian thus protecting the consumer and preventing loss of market share.

In 2010 a manuscript describing our new selective microbiological media for culturing *P. larvae* was completed and we performed analyses of laboratory stability data examining tylosin and lincomycin degradation patterns. Final project reporting will occur as the project will terminate in the spring of 2011.

Start Date: 1 April 2007 **End Date:** 31 March 2011

Total Current Funding: $ 36,000 (nominal cash per annum)
Funding Sources: AAFC National Project Grant

Project Title: *Apis mellifera* Proteomics of Innate reSistance (APIS)

Principal Investigator:

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Co-Investigators:

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Abstract:

Selective breeding efforts have been inhibited by: a) the immense amount of time and resources required for the selection, b) the lack of any real understanding of the mechanism of resistance, and c) the use of labour-intensive assays that have only been moderately successful at identifying highly desirable traits. The *Apis mellifera* Proteomics of Innate reSistance (APIS) project has focussed on five specific aims: **1)** to comprehensively map protein and RNA expression in all adult organs and larval tissues of the honey bee, **2)** to derive an economic model of the impact of disease on the supply of pollination and honey production, **3)** to identify molecular markers of resistance to *V. destructor*, **4)** to identify molecular markers of resistance to *P. larvae*, and **5)** to sequence and annotate the *P. larvae* genome. Mass spectrometry-based quantitative proteomics has been employed in Aims 1, 3, 4 and 5 to measure the levels of proteins between tissues and among different bee lineages. For Aims 3 and 4, we have worked with selective breeding programs to correlate colony- and worker-level phenotypic measurements of resistance with changes in protein profiles of tissues and organs in most direct contact with *V. destructor* and *P. larvae*.

In 2010, Pernal's lab continued to work towards aims 3 & 4 of this project. In Beaverlodge, AB, a breeding population was again evaluated for AFB resistance traits including: 1) hygienic behaviour, 2) *in vitro* larval resistance to *Paenibacillus larvae* infection, 3) spore filtering efficiency of nurse bees, 4) *in situ* development of AFB after inoculation of larval patches, and 5) whole-colony development of AFB following inoculation with infected comb. In Grand Forks, BC, a second population was assayed for: 1) hygienic behaviour, 2) *Varroa* sensitive hygiene (VSH), 3) phoretic and brood infestations levels of *Varroa* and 4) *Varroa* population growth. Selection was performed on all phenotypic traits evaluated at Beaverlodge, and hygienic behaviour and VSH in Grand Forks. Quantitative genetic parameters were calculated for each trait between the parental and F_1 generation, produced through a series of partial diallel crosses using instrumental insemination.

Results to date suggest that hygienic behaviour and larval resistance to *P. larvae* each affect the expression of AFB in a colony environment but at different stages of the disease's development. Preliminary estimates of heritability of traits between the parental and F_1 generation of AFB-selected colonies indicate moderate heritability for hygienic behavior but no significant heritability for larval resistance traits. Moderate heritability for hygienic behaviour was also found among *Varroa*-resistant-selected colonies. *Varroa* mite fertility was found to be negatively correlated with the expression of VSH and most colony measures of *Varroa* infestation were inter-correlated.

In parallel with the breeding and phenotype evaluation, biomarkers associated with disease or *Varroa* resistance were identified from adult and larval tissues using quantitative mass spectrometry-based proteomics by Foster's lab at UBC. Proteins highly associated with hygienic behaviour have been identified and putative larval tissue and antennal protein biomarkers were shown to be

significantly correlated with the expression of VSH and phoretic mite levels in colonies. These data show some promise that protein-based markers may hold future use in marker-assisted selection (MAS) programs for honey bees.

Start Date: 1 April 2008 **End Date:** 31 March 2011
Total Current Funding: **$**2.8 M - Total project life. (~$75,000 to SFP for supplies, students, travel)
Funding Sources: $1.4 M Genome BC (Cash); $1.4 M from AAFC, UBC, Canadian Bee Research Fund, Beekeeping Industry Development Initiative, Boone-Hodgson-Wilkinson Fund, BC Bee Breeders' Association, Investment Agriculture Foundation of British Columbia (Cash and In-Kind)

PROVINCIAL APIARISTS REPORTS

Provincial Reports, 2010 Production Season

	BC	AB	SK	MB	ON	QC	NB	NS	PE
Number of Beekeepers	1,865	769	980	490	2,628	418	204	215	33
Number of Colonies	41,936	260,000	85,000	78,000	83,166	39,631	7,645	18,500	3,890
Average Honey Production per colony (lbs & kg)	43 / 20	115 / 47.1	240 / 109	160 / 72.7	100.25 / 45.1	-	60 / 27.2	88 / 40	77 / 35
Total Production per 1000 wt. (lbs & kg)	1,803 / 820	29.9 / 13.3	20,400	12.5 / 5.7	5,589 / 2,535	-	257 / 117	528 / 204	200 / 90
Number of Colonies Wintered in 2009-10	40,000	255,000	85,000	75,000	80,000	39,182	8,800	18,750	3,920
Average Winter Mortality (%)	28	17.5	20	25	20	21	22.3	40.7	16.7
Colonies inspected for AFB (% incidence)	2,869 (3)	4,500 (2.5)	-	2,455 (2.6)	25,000 (0.5)	748 (-)	1,667 (3.5)	401 (-)	544 (2)
Colonies inspected for EFB (%incidence)	2,869 (2)	- (0.01)	-	2,455 (0)	25,000 (0.02)	748 (-)	1,667 (0.8)	401 (-)	544 (2.9)
Colonies inspected for Chalk Brood (%incidence)	2,869 (9)	-	-	2,455 (n/a)	25,000 (1.8)	748 (-)	1,667 (7.2)	401 (-)	544 (2.8)
Colonies inspected for sacbrood (% incidence)	2,869 (<1)	-	-	2,455 (na)	25,000 (0.4)	-	1,667 (0.5)	401 (-)	544 (46)
Colonies inspected for HBTM (% incidence)	8 (na)	-	-	205 samples (na)	-	-	-	100+ sampled	20 composite samples (0)
Colonies inspected for Varroa (% incidence)	1,681 (14)	-	-	227 samples (na)	-	-	-	-	-

Note:- indicates information not available.

2010 PROVINCIAL APIARIST ANNUAL REPORT

Provincial Apiarist: Paul van Westendorp (British Columbia)

A. Beekeeping Industry Statistics

. No. of Beekeepers	1,865
. No. of Producing Colonies	41,936
. Average Yield/Colony (lb/kg)	43 / 20
. Total Estimated Crop (lb/Kg x1000)	1,803 / 820
. Colonies Wintered Last Year (08/09)	(est.) 40,000
. Average Winter Mortality (%)	28%

B. Diseases and Pests

Disease/Pest	Number of Colonies Inspected	Number of Beekeepers Inspected	Disease Colony Incidence (%)	Disease Beekeeper Incidence (%)
. AFB	2,869	na	3	na
. EFB	2,869	na	2	na
. Chalkbrood	2,869	na	9	na
. Sacbrood	2,869	na	<1	na
. Tracheal Mite	8	8	na	25
. Varroa Mite	1,681	na	14	na
. Other				

C. Comments

- A comprehensive spring survey of commercial beekeepers was carried out as part of the national harmonized colony mortality survey ~ COLOSS.
- The overall provincial winter mortality was skewed by the unusually high losses reported on Vancouver Island during the fall of 2009. The losses were attributed to a number of factors including susceptible bee stock, weather, mite resistance to some widely used miticides, and management. No single pathogen was identified as principal causal agent but it is believed to have been the combined impact of parasitic mites and viral agents.
- BC had a long-held policy that prohibited the shipment of honey bees from all domestic (~Canadian) sources to Vancouver Island, while permitting the import of honey bees from approved overseas sources under federal permit. This policy was challenged and the BC Attorney General advised the BC Ministry of Agriculture that its policy was not legally defensible or scientifically justified, and advised the Ministry to establish a new policy that would permit the import of domestic bees under prescribed conditions.
- The Vancouver Island Bee District harbors the same pathogens as those found in other parts of British Columbia, even though seasonal and annual fluctuations of prevalence of diseases are recognized.
- The new policy conditions were aligned with shipping conditions regulating interprovincial bee movements and imports from overseas sources. Vancouver Island beekeepers expressed strong opposition to the change of policy and demanded continued protection through restricting imports from Canadian sources.

2010 PROVINCIAL APIARIST ANNUAL REPORT

Provincial Apiarist: Dr. Medhat Nasr (Alberta)

A. Beekeeping Industry Statistics

. No. of Beekeepers	769
. No. of Producing Colonies	260,000
. Average Yield/Colony (lb/kg)	115 lb/47.1 kg
. Total Estimated Crop (lb/Kg x1000)	29.9 mil lb/13.3 mil kg
. Colonies Wintered Last Year	255,000
. Average Winter Mortality (%)	17.5%*

* The Provincial survey showed that an additional 12 per cent of the surviving colonies were weak. These weak colonies recovered by early summer 2010.

B. Diseases and Pests

Disease/Pest	Number of Colonies Inspected	Number of Beekeepers Inspected	Disease Colony Incidence (%)	Disease Beekeeper Incidence (%)
. AFB	4500	85	2.5	
. EFB			0.01	
. Chalkbrood				
. Sacbrood				
. Tracheal Mite				
. Varroa Mite				
. Other				

C. Comments

- In the spring of 2010 beekeepers reported a lower winterkill (17.5%) than has been reported in the previous few years (30%/year). The reported winterkill for 2010 is more in line with the long-term average in Alberta (15%). 12% of the surviving colonies were weak with less than 3 frames covered with bees, making them unproductive for the 2010 season. However, the weak colonies were able to recover in 2010 summer.
- The decrease in overwintering losses in Alberta may be attributed to a combination of multiple factors. The most important factor would be the availability of an effective miticide e.g. Apivar to control varroa mites, and the favorable weather conditions in the fall and spring allowing beekeepers to effectively use formic acid. Moreover, the majority of Alberta beekeepers medicated their colonies for Nosema disease on time.
- The use of Apistan and Checkmite has sharply declined over the past few years due to the development of mites resistant to both miticides.

- Beekeepers replaced their dead outs throughout the year and increased their numbers of colonies. They were able to replace all their dead outs over the past 4 years and increase their number of bee colonies to 260,000. This number is higher than the 255,000 colonies reported in 2006 before the reports of high winter kill began.
- Honey production was low due to climatic conditions. In some regions there was too much rain and other regions such as the Peace River suffered from drought.
- The pedigreed hybrid canola seed production industry continues to grow in Southern Alberta. Beekeepers in Alberta supplied 74,000 colonies for canola pollination. The average fee for renting a bee colony was $145/ colony.

- **Brood Disease**

  During the inspection of bee colonies across the province as our surveillance program expanded, American Foul Brood was found in few commercial operations. Swift action was taken to replace combs, burn heavily infected hives and treat. Samples of AFB infected cells were tested for resistance to Oxytetracycline. Results reported to beekeepers as advised for further actions.

- **Parasitic Mites**

  Apivar showed excellent results of Varroa control (>95% efficacy). When Apivar was placed in the second brood box in fall, the efficacy was low. Bees in these hives did not get good exposure to Apivar. Beekeepers are required to follow instructions on the label for Applying Apivar in bee colonies and encouraged to move their Apivar treatment to spring.

- **Nosema**

  Over 900 bee samples were examined for Nosema. Results of examining samples collected in spring showed that these samples have a moderate level of Nosema spores in comparison to previous years. Sampling bees for nosema showed higher levels of nosema spores and prevalence in comparison to samples collected in fall.

- **The small hive beetle**

  Visual inspection of examined bee colonies in 85 commercial and hobby beekeepers operations did not yield any positive finding of the small hive beetle in Alberta.

- **Alberta Apiculture Research Program:**

  The honey bee pest surveillance research project continued for the 2nd year. Over 75 beekeepers participated in the program. 24 bee colonies were sampled (6 colonies/apiary) for varroa and nosema. Results were shared with the participant beekeepers for taking appropriate actions to keep healthy bees. Screening and evaluation of five new miticides for controlling existing resistant Varroa mites were conducted in 2010. One potential miticide showed high mite kill under laboratory conditions. Futher testing will be conducted in 2011. An intensive hands on, one on one outreach educational program was implemented. The purpose is educate beekeepers on implemintation of pest surveillance, pest monitoring and taking treatment actions as needed.

  This project is sponsored by Alberta crop Industry Development (ACIDF), Alberta Agriculture, Alberta Beekeepers, Bayer Cropscience- Canada, Pioneer-Hi bred, Poelman Apiaries, and Southern Alberta Beekeepers Association (Sponsored by beekeepers pollinating canola, Bayer Cropsciences, Pioneer Hi-Bredd Hy Tech Production ltd. and Monsanto Canada).

2010 PROVINCIAL APIARIST ANNUAL REPORT

Provincial Apiarist: Geoff Wilson (Saskatchewan)

A. Beekeeping Industry Statistics

. No. of Beekeepers	980
. No. of Producing Colonies	85000
. Average Yield/Colony (lb/kg)	240 lbs / 109 kg
. Total Estimated Crop (lb/Kg x 1000)	20400
. Colonies Wintered Last Year (09/10)	85000
. Average Winter Mortality (%)	20 %

B. Diseases and Pests

Disease/Pest	Number of Colonies Inspected	Number of Beekeepers Inspected	Disease Colony Incidence (%)	Disease Beekeeper Incidence (%)
. AFB				
. EFB				
. Chalkbrood				
. Sacbrood				
. Tracheal Mite				
. Varroa Mite				
. Other				

C. Comments

- The 2009-2010 over wintering mortality at almost 41% is the highest reported in Nova Scotia in over 2 decades. The significant increase in the provincial mortality was due to high losses by approximately 10% of the commercial beekeepers. For the majority of the beekeepers in the province losses were less than 20%.
- 62% of beekeepers monitored for varroa mites before treating with 75% reporting that they treated for varroa. Monitoring for nosema was done by just 6 % of beekeepers with 68% treating almost exclusively by feeding Fumagillin in sugar syrup.
- Beekeepers used various varroa control products with 16% using Apistan, 36% using Apivar, 18% oxalic acid and the remainder using mainly a combination of formic and oxalic acid for mite control.
- Main causes of mortality reported by beekeepers – weak colonies (35%), poor queens (28%), and starvation (17%).
- The price of wild blueberries fell in 2008 and 2009 and was projected low for 2010. For the first time in many years not all available hives were rented for pollination. Beekeepers were fortunate as the 2010 season was ideal for honey production with the average yield at 88 lbs per hive compared to 2009 at 57 lbs. The number of hives used for 2010 blueberry pollination is estimated at 12,000 down from 15000 in 2009.

- The majority of inspections are conducted for 1) health certification for beekeepers selling hives and/or equipment and 2) inspections requested by beekeepers that suspect a disease problem. The percentage incidence should not be considered representative throughout the province.
- The Nova Scotia Department of Agriculture is conducting a review and assessment for the quarantine of Nova Scotia to honey bees under the Bee Industry Act. The Nova Scotia border has been closed since 1990 to the importation of bees. This closure was reviewed in 1995 and is being reviewed again to determine if it is still the best option for honey bee health protection and viability of the NS beekeeping industry. The ultimate question to be answered is – Would opening the border between Nova Scotia and the provinces of Canada have a long term negative or beneficial impact on Nova Scotia Agriculture, including bio-security, food security, and rural development and economics.

2010 PROVINCIAL APIARIST ANNUAL REPORT

Provincial Apiarists: Rhéal Lafrenière & David Ostermann (Manitoba)

A. Beekeeping Industry Statistics

. No. of Beekeepers	490
. No. of Producing Colonies	78,000
. Average Yield/Colony (lb/kg)	160 lb/ 72.7 kg
. Total Estimated Crop (lb/Kg x1000)	12.5 mil lb/ 5.7mil kg
. Colonies Wintered Last Year	75,000
. Average Winter Mortality (%)	25%

B. Diseases and Pests

Disease/Pest	Number of Colonies Inspected	Number of Beekeepers Inspected	Disease Colony Incidence (%)	Disease Beekeeper Incidence (%)
. AFB	2455	143	2.6	4.9
. EFB	2455	143	0	0
. Chalkbrood	2455	143	n/a	n/a
. Sacbrood	2455	143	n/a	n/a
. Tracheal Mite	205 samples	75	n/a	17.3
. Varroa Mite	227 samples	81	n/a	79.0
. Other - Nosema	244 samples	80	n/a	93.8

C. Comments

Although it is an improvement over the last three years where Manitoba beekeepers have been losing close to a third of the colonies over the winter, this year the estimated "winter loss" was only 25%. Long-term average winter loss in Manitoba has been typically in the range of 15% - 25%, so this year would appear to be on the high end of the average winter loss range.

This year there appeared to be a greater amount of variation in losses with a significant number of beekeepers reporting low losses (i.e.15% or less) and an equally significant number of beekeepers reporting high losses (i.e. 35% or higher). On the flip side, the early spring has helped to rebuild the bee populations and in some cases there was a surplus of nucs and wintered colonies available for sale this spring. Many beekeepers have reported that the colonies were stronger this spring than they have seen in years and some reported building back their colony numbers back to where they were four years ago.

Similar to the National winter loss survey results, the most commonly reported responses to what were the suspected causes for the winter losses were queen problems (35%), Starvation (15%), weak colonies in the fall (14%), ineffective varroa control (13%), weather (7%), and lastly Nosema (4%). The comments under "Other" or "reasons

unknown" accounted for 12% of the responses. In most cases the respondent indicated a combination of multiple problems.

Another interesting piece of information generated from the survey was that 73% of the respondents reported monitoring their colonies in the fall for varroa mite but only 17% indicated that the monitored for nosema disease. Ninety percent indicated that the treated for varroa and the majority used Apivar (53%), Mite-Away II (11%), Apistan (11%); Oxalic acid (9%), CheckMite+ (9%), and lastly Mite wipes (7%). Seventy-three percent indicated that they treated for nosema and 92% used fumagillin in syrup. The remaining 8% indicated other and in most cases did not indicate what they had used or reported using a product that is not registered for that use.

MAFRI inspectors inspected 143 operations and 2,455 hives. AFB was found in 7 operations and 64 hives. This includes a new discovery of rAFB in an operation in the Southwest region of the province. This is the second operation with rAFB in this region. A number of other operations were inspected in the Southwest in the fall, and no other disease was found.

Levels of varroa and tracheal mite were generally similar or lower this year, while nosema was similar to higher compared to last. The weather in the spring was better for treating and less stressful on the bees, and this helped keep bees healthy. Although varroa levels were similar or lower than last year, any samples continue to have varroa levels above economic threshold. Varroa continues to be the number one pest concern among Manitoba beekeepers. Relatively few samples had high levels of tracheal mites this year. Formic acid use in the province appears to be increasing so this may be reducing tracheal mite levels. Nosema disease was found in many beekeeping operations which had bees analysed.

In regards to honey production in 2010, although it started off on a good foot with an early spring to make up losses, for many beekeepers "the honey crop" was a big disappointment. Survey results suggest that the average honey production per colony is going to be slightly below the long-term average of 165lbs/colony.

This story seems to be similar to what has happened across the prairies. Both Alberta and Saskatchewan had lower winter losses, followed by an early spring followed by wet cool weather that reduced the prospect for a great honey crop. Unfortunately, excess moisture caused a lot of over land flooding and many acres never got seeded this summer. This put a lot of pressure on beekeepers to either travel (if they could) to find forage for their bees or have to operate higher stocking rates on the limited number of apiary sites they had available to them. There are going to be a lot of AgriStability payouts this year!

2010 Provincial Apiarist Annual Report

Paul Kozak, OMAFRA

November 2010

Beekeeping Industry Statistics

- No. of Registered Beekeepers 2,628
- No. of Producing Colonies 83,166
- Average Yield/Colony (lb/kg) 100.25 lb / 45.1 kg
- Total Estimated Crop (lb/Kg x1000) 5,589 lb / 2,535 kg
- Colonies Wintered Last Year (09/10) 80,000
- Average Winter Mortality (%) 20%

Diseases and Pests

Disease/Pest	Number of Inspections	Number of colonies inspected*	Number of Beekeepers Inspected	Disease Colony Incidence	Disease Beekeeper Incidence
AFB	1,134	25,000	534	132/25,000=0.5%	NA
EFB	1,134	25,000	534	5/25,000=0.02%	NA
Chalkbrood	1,134	25,000	534	455/25,000=1.8%	NA
Sacbrood	1,134	25,000	534	88/25,000=0.4%	NA
Tracheal Mite	See below	NA	NA	NA	NA
Varroa Mite	See below	NA	NA	NA	NA
Other	See below	NA	NA	NA	NA

*estimated

Comments

2010 was an eventful year for apiculture in Ontario.

The winter leading up to the spring was uncharacteristically mild throughout many regions of Ontario. Spring arrived early with most colonies becoming active three weeks earlier than normal (foraging and brood rearing) across most regions of the province. Early spring was typically warm with a brief period of colder weather occurring. Late spring and summer were characterized by sustained hot weather. Fall arrived early in many regions with cooler temperatures settling in early October.

Honey production
It was an exceptional year for honey production, with many beekeepers claiming that it was their best year on record. Two major factors — strong, populous colonies and sustained hot and humid weather — likely account for the heavy honey flow. At many times this summer, beekeepers were in short supply of spare honey supers.

Although many regions reported substantial honey production well above average, not all regions had the same outcome. In some areas, the nectar flow started heavy and tapered off in mid summer. This, along with an earlier cold period in fall may account for the lower than expected yield experienced by some regions.

Spring build-up of honey bee colonies in many operations was substantial. Anecdotally, there were high levels of swarming throughout Southern Ontario. This can be attributed to the hot weather, early spring and colonies that were populous early in the season.

Varroa and tracheal mites
Varroa and tracheal mites are well established and widely distributed throughout Ontario. The only region where varroa or tracheal mites have not been recorded in Ontario is the region of Thunder Bay. Varroa mites resistant to both fluvalinate and coumaphos continue to be documented throughout the province through resistance testing by the Ontario Beekeepers' Association's Tech-Transfer Program. At present amitraz resistance has not yet been documented in Ontario. American Foulbrood (AFB) samples are sent to the USDA Lab in Beltsville, Maryland to test for antibiotic resistance. At present, resistance to Oxy-tetracycline has not been found in any sample of AFB in Ontario.

Pollination
Pollination continues to be an important source of income for beekeepers with many operations relying on the revenue from pollination services, particularly from blueberry pollination in New Brunswick and Québec. There was a decrease in the demand for pollination services this year, due to lower blueberry prices. However, towards June a number of contracts picked up and there were many more colonies required than originally anticipated. In total, 12,618 colonies were moved to New Brunswick and Québec for pollination in June.

As in previous years, colonies were inspected by OMAFRA for the presence of AFB and SHB as required by the receiving provinces. Beekeepers also moved colonies west in 2010. Several hundred Ontario colonies were moved into south central Manitoba for honey production.

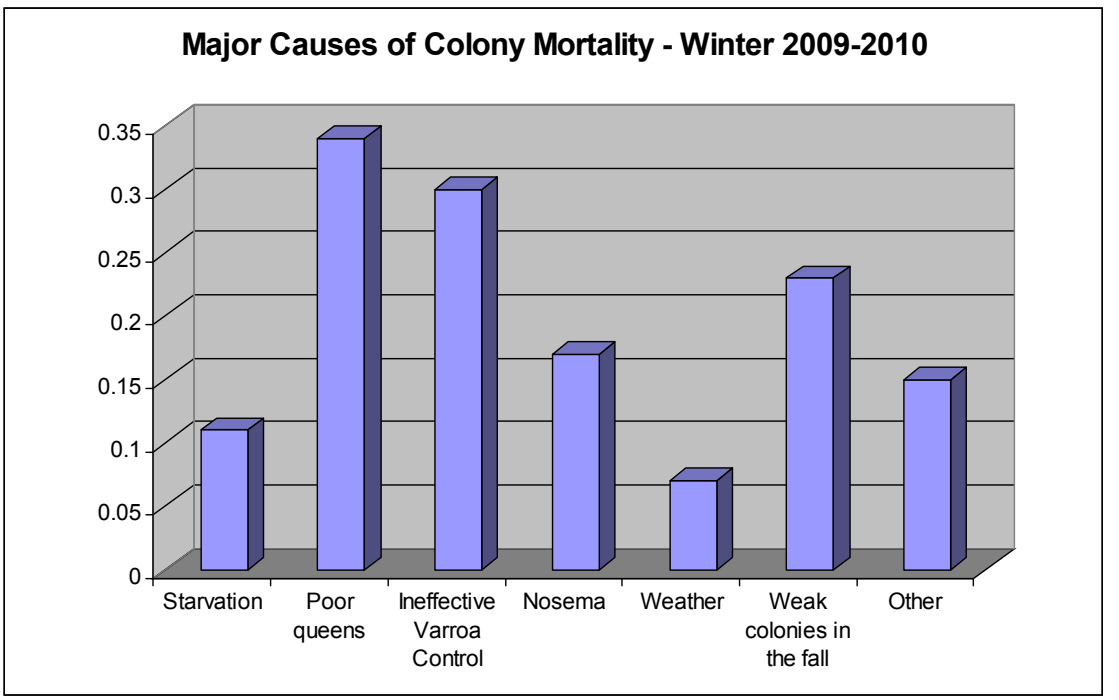
2010 apiculture survey results
The provincial average for colony mortality over the winter of 2009-2010 was 20 per cent. This was also the national average across Canada. This level of colony mortality is lower than that of the previous three years (an average of 33 per cent for 2007, 2008 and 2009) in Ontario. This level of colony mortality, however, is still higher than the 15 per cent threshold that the extension and research community considers sustainable for maintaining a commercial beekeeping operation.

Of the surveyed beekeepers in Ontario, 46 per cent reported that they had monitored for mites in the fall of 2009, while 53 per cent reported that they had not sampled for mites at that time, and 2 per cent abstained from responding. Among the monitoring methods, the sticky board method was the most

popular, with 30 per cent of surveyed beekeepers preferring this method, followed by the ether roll (22 per cent) and alcohol wash (13 per cent). The importance of monitoring for varroa as a part of assessing colony health and the efficacy of treatments cannot be stressed enough.

High levels of colony mortality can still be largely attributed to inadequate varroa mite control in honey bee colonies. This factor had been identified by the research and extension community of Canada and supported by recent research from the University of Guelph (Guzman *et al*., 2010). This study identified varroa mites as the primary factor, and insufficient food stores and cluster sizes as secondary factors, in colony mortality.

Graph 1 shows the major causes of colony mortality identified by beekeepers in the survey.

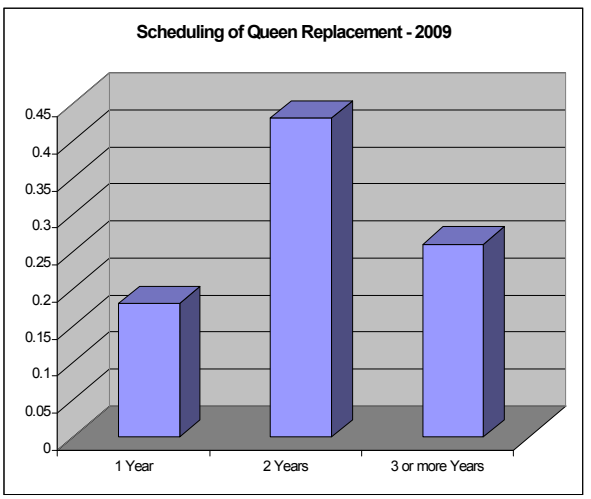


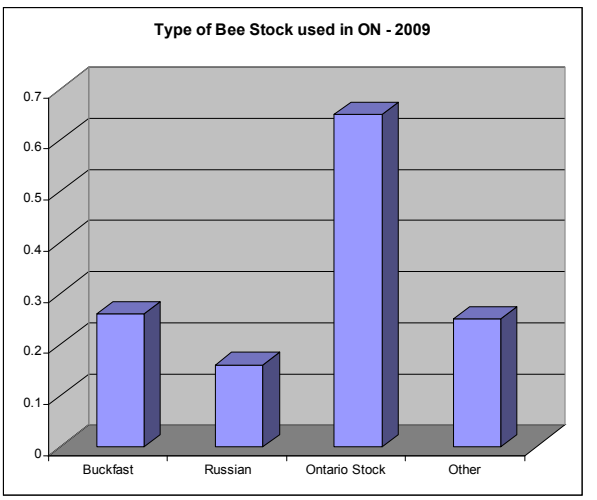
The two most substantial factors identified by beekeepers for colony mortality were ineffective varroa control and poor queens. Varroa control is still a very important issue in Ontario. There are beekeepers who are continuing to use products where resistance is well established. Type of treatment, timing of treatment and monitoring of efficacy through sampling is important for all beekeepers.

Anecdotally, many beekeepers have expressed concern over the high levels of failure in queen health in their operations and have noted higher than acceptable levels of early supersedure.

Graphs 2 and 3 represent the practices in queen replacement and the type of stock used by beekeepers in Ontario. Most beekeepers in Ontario are continuing to use local stock although Buckfast stock and Russian stock are still popular. New Buckfast breeding stock has recently been imported into Ontario from a certified Buckfast breeder in Denmark through the University of Guelph and collaborating queen breeders. This new stock has been established in isolated locations in Central Ontario.

Graph 2 and Graph 3





Note: Additional analysis of the 2010 apiculture survey can be found at http://www.omafra.gov.on.ca/english/food/inspection/bees/apicultu.html

New and Emerging Pests

There were two significant developments in new and emerging pests in 2010, both involving small hive beetle *Aethina tumida* (SHB).

SHB in Hawaiian queens

On April 27, 2010 SHB was confirmed in East Hawaii for the first time. The Canadian Association of Professional Apiculturists was informed of the find and, subsequently, all regions of Canada assessed the risk of importing SHB. As Ontario receives a substantial number of Hawaiian queens every year this was seen to be a potential risk, particularly since shipments of Hawaiian queens were distributed to a number of beekeepers before the confirmation was made in Hawaiian.

As part of the apiary program follow-up, all queen importers were contacted, all beekeepers who received Hawaiian queens after the discovery of SHB were contacted and colonies in yards that received Hawaiian queens were inspected by provincial bee inspectors. No SHB or symptoms of SHB were found in any of the operations inspected, nor the large numbers of queens that were individually inspected while held in quarantine in Western Canada. As a result of all of the follow up in Ontario and the experience out West, the risk of infestation was determined to be low.

SHB in Ontario

On September 8, 2010, SHB was reported in Essex County, in extreme south-western Ontario,. On September 15, 2010, SHB was confirmed by the National Identification Service at Agriculture and Agri-Food Canada. This is the first confirmation of SHB in Ontario.

On November 2, 2010 it was confirmed that sequencing done on the original samples were 100 per cent identical to the 'NA1' haplotype of SHB. This is one of the two prevalent haplotypes found in the U.S. since the late 1990s. This indicates that the introduction was from the U.S. population of SHB.

Apiary inspections were immediately expanded to determine the distribution of SHB in high-risk areas of Ontario, including regions along the Canada/U.S. border and regions adjacent to Essex County.

Since the initial find of SHB in Ontario, 226 apiaries, covering ~5,374 honey bee colonies, have been inspected for SHB. Of all the bee yards inspected, 15 were found to be infested, all in Essex County.

At the time of this report, the Ontario Ministry of Food Agriculture and Rural Affairs (OMAFRA) had issued 16 quarantines on 15 infested bee yards and one quarantine on an extraction facility under suspicion of potentially harboring SHB. All quarantines were issued under the Animal Health Act of Ontario.

The primary purpose of the quarantines is to prevent further spread of SHB to new premises within Essex and to regions outside of Essex. Both the natural capacity for SHB dispersal and potential for beekeeper-assisted dispersal through transported colonies and equipment are being taken into account in all efforts to mitigate the spread of SHB.

Information about SHB was sent to every registered beekeeper in Ontario upon confirmation of SHB in Essex County, detailing the identification, biology and impact of SHB, as well as best management practices, treatments, biosecurity practices and prevention.

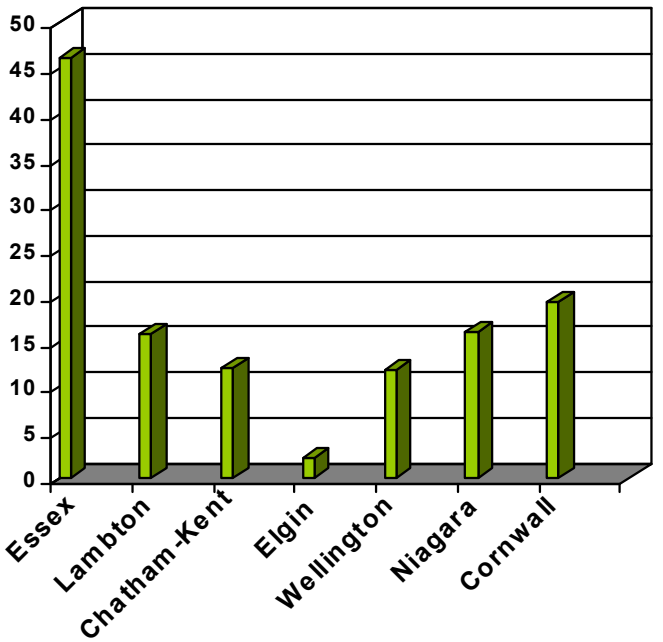
To minimize stress on colonies during cold weather, the Apiculture Program modified its inspection strategy in mid-October. Inspections are currently conducted exclusively through the placement of SHB traps on the bottom board. The SHB trap consists of a CheckMite+™ strip and corrugated plastic. Although the traps are placed primarily for inspection purposes, they also function to kill SHB in colonies and reduce their numbers in apiaries. One SHB trap is placed in every colony in an inspected yard. All 15 quarantined yards in Ontario are now being monitored using SHB traps.

Beekeepers can use Permanone (active ingredient Permethrin) as a ground drench for treating infested yards, targeting the pupal stage of SHB. This treatment was made available through an Emergency Use Registration through the Pest Management Regulatory Agency (PMRA). At this time, Ontario is the only jurisdiction in Canada to have this treatment available.

All registered beekeepers in Ontario are also able to use CheckMite+™ (according to the label instructions) to treat SHB inside infested colonies.

Graphs 4 and 5 show percentage of total number of bee yards and percentage of total number of bee colonies inspected since September 2010.

Graph 4. Percentage of Total Bee Yards / County Inspected for SHB since Sept. 2010



Graph 5. Percentage of Total Colonies / County Inspected for SHB since Sept. 2010

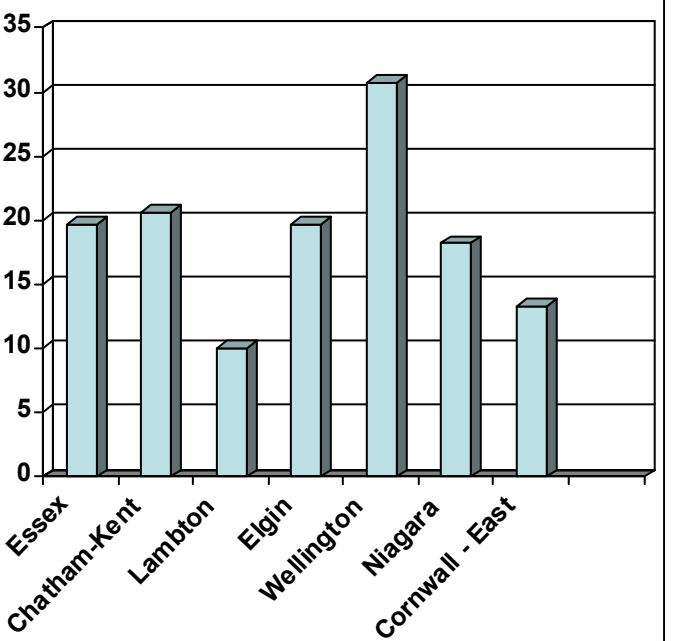
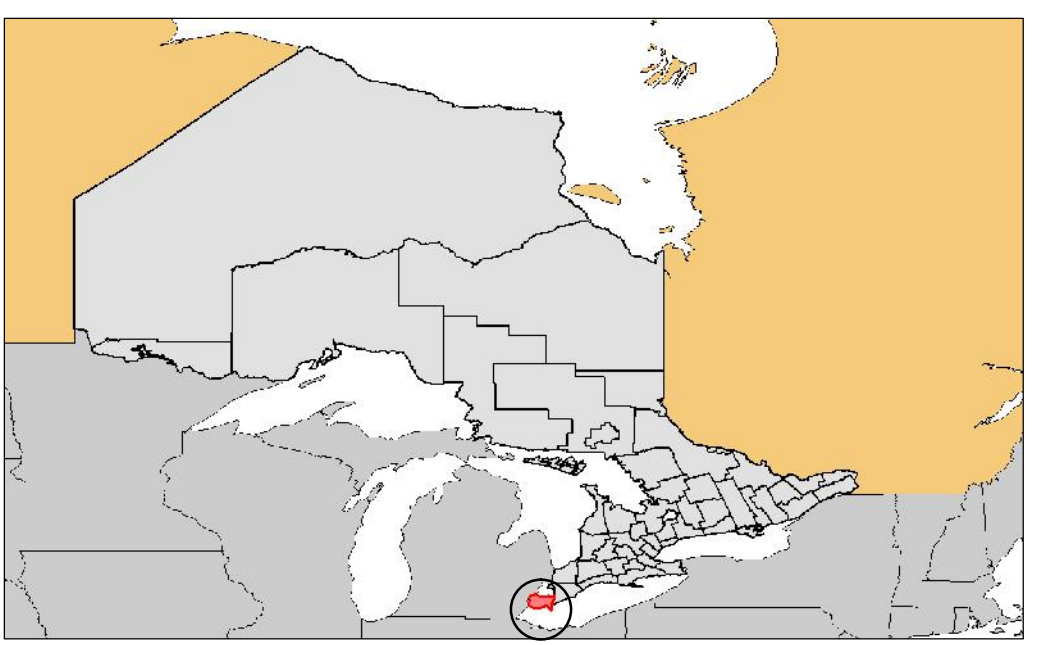


Figure 1. Current Distribution of SHB in Ontario
The current SHB distribution is restricted to Essex County (circled).



The current focus for SHB response is to pursue trace-out inspections of any potential movements from the 16 infested premises or operations.

Since the first find of SHB in early September, the apiculture program in Ontario has obtained a representative distribution of SHB in the province, based on thousands (~5,400) of colonies inspected in high-risk regions and using movement information from operations. Current inspection data indicates that SHB has a distribution that is restricted in the extreme south- western corner of Ontario, along the Michigan border.

The timing of the find of SHB in Ontario at this time has worked in favour of mitigation strategies. It is the end of the active season and all colonies are stationary. Over the winter the existing quarantines will be maintained in an effort to minimize the spread of SHB and the Ministry will continue to conduct inspections and more detailed risk analysis.

OMAFRA's apiary program will continue to work closely with staff from other OMAFRA program areas, including the Animal Health and Welfare Branch, the Canadian Food Inspection Agency and other provincial apiarists on this issue.

The province is continuing to evaluate options to minimize the spread and establishment of SHB in Ontario.

Acknowledgements
Martha Fabri (OMAFRA), Emanuel Mohan (FSDSS Program Support, OMAFRA), Siva Mailvaganam (OMAFRA), Ernesto Guzman (Dept Environmental Biology, University of Guelph), Janet Tam (OBA, Technology Transfer Program), Mel Kempers (OBA, Technology Transfer Program).

Recommended reading

Giovenazzo, P. and Boucher, C. 2010. A scientific note on the occurrence of the small hive beetle (*Aethina tumida* Murray) in Southern Quebec. American Bee Journal 140(3): 275-276.

Guzman-Novoa, E.; Eccles, L; Calvete, Y; McGowan, J; Kelly, P.G.; Correa-Benitez, A. 2010. *Varroa destructor* is the main culprit for the death and reduced populations of overwintered honey bee (*Apis mellifera)* colonies in Ontario, Canada. Apidologie. 41(4) : 443-450.

Currie, R.W.; Pernal, S.F.; Guzman-Novoa, E. 2010. Honey bee colony losses in Canada. Journal of Apicultural Research 49(1): 104-106.

Kozak, P. Small Hive Beetle in Ontario. Hivelights 23(4): 10-12.

Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Apiculture Website: http://www.omafra.gov.on.ca/english/food/inspection/bees/apicultu.html

Small Hive Beetle Advisory
http://www.omafra.gov.on.ca/english/food/inspection/bees/shb-advisory.htm

Small Hive Beetle:
http://www.omafra.gov.on.ca/english/food/inspection/bees/info-shb.htm

Small Hive Beetle Treatment Recommendations:
http://www.omafra.gov.on.ca/english/food/inspection/bees/info-shb-treatment.htm

For more information:
Telephone: 1-519-826-3595
E-mail: paul.kozak@ontario.ca

www.ontario.ca/omafra

2010 PROVINCIAL APIARIST ANNUAL REPORT

Provincial Apiarist: **Claude Boucher mv - Québec**

A. Beekeeping Industry Statistics

. No. of Beekeepers 418 registered beekeepers
. No. of Producing Colonies 39,631
. Average Yield/Colony (lb/kg): Unknown at the moment
. Total Estimated Crop (lb/Kg x1000): Unknown at the moment
. Colonies Wintered Last Year (09/10): 39,182*
. Average Winter Mortality (%): 21%

* From CAPA Statement on Honey Bees Losses in Canada (2010)

B. Diseases and Pests

Disease/Pest	Number of Colonies Inspected	Number of Beekeepers Inspected	Disease Colony Incidence (%)	Disease Beekeeper Incidence (%)
. AFB	748	52		29%
. EFB	748	52		12%
. Chalkbrood	748	52		13%
. Sacbrood				
. Tracheal Mite				
. Varroa Mite				
. SHB**	152	8		13% (1/8)

C. Comments

- No AFBr strain detected in 2009.
- Winter mortality rate (2008-2009) for the colonies was 21% from a postal survey send to all registered beekeepers in the spring.
- Data in section B, except those for SHB, are issued from passive surveillance (ex. from inspection done following a request by beekeepers that suspected a disease problem in their hives or for health certification). The indicated proportion should not be interpreted as real annual incidence or prevalence of these diseases through the entire beekeeping industry in Québec.

- ** Data issued from active surveillance done in apiaries located in a defined risk zone along the Québec-USA border. Presence of only one adult SHB detected in a colony (only one colony on the site) in October 2010. Presence of SHB was not reported elsewhere in Québec while regular inspection includes detection of SHB.

  Sentinel hives placed on three sites in the same SHB risk zone mentioned previously, from a research project on SHB reproduction, were still positives for the presence of SHB (same situation as in 2009).

- Results from all samples entering animal pathology laboratory and issued from active or passive surveillance:
  - Tracheal mite: 91 samples from 32 beekeepers, 5 beekeepers positives
  - Bacteriology: 150 samples from 32 beekeepers, 17 beekeepers positives for *Paenibacillus larvae* and 7 for *Melissococcus plutonius/Paenibacillus alvei*
  - Nosemosis: 221 samples from 88 beekeepers, 46 beekeepers with some results higher than 1M spores

- Since 2009, we are investigating suspected case of bee poisoning by pesticides declared by beekeepers. Detection of pesticides is done in bees only (targeting acute poisoning). When mortality can be linked to some pesticides, this is declared to PMRA. Interesting fact, in 2009 and 2010, some bee mortality incidents where linked to neonicotinoïd pesticides.

2010 PROVINCIAL APIARIST ANNUAL REPORT

Provincial Apiarist: Chris Maund (New Brunswick)

A. Beekeeping Industry Statistics

. No. of Beekeepers	204
. No. of Producing Colonies	4,288 producing (7,645 registered)
. Average Yield/Colony (lb/kg)	60 / 27.2
. Total Estimated Crop (lb/kg x1000)	257 / 117
. Colonies Wintered Last Year (09/10)	8,800
. Average Winter Mortality (%)	22.3

B. Diseases and Pests

Disease/Pest	Number of Colonies Inspected	Number of Beekeepers Inspected	Disease Colony Incidence (%)	Disease Beekeeper Incidence (%)
. AFB	1,667	87	3.5	13.8
. EFB	1,667	87	0.8	13.8
. Chalkbrood	1,667	87	7.2	12.6
. Sacbrood	1,667	87	0.5	4.6
. Tracheal Mite	na	na	na	na
. Varroa Mite	na	na	na	na
. Other				

C. Comments

- The number of registered beekeepers includes beekeepers registered in the current year and in the previous three years.
- No rAFB found.
- Varroa mite: There was a large variation of mite levels in the province due to beekeepers choosing different types of controls. Spring formic acid treatments were not effective. Beekeepers using Apivar, in fall of 2009, in single brood chambers had good mite control. Many of the beekeepers using the Apivar, in the fall of 2009, in double brood chambers had poor mite control resulting in high mite levels during the summer of 2010.
- There was a strong correlation between old black brood comb and multiple viral, bacterial and fungal infections in the brood and adult bees. There was also a significant improvement in colony health when black comb replacement was a part of the beekeeper's management practices.
- Small hive beetle (SHB) and monitoring for imported Hawaiian queens: All colonies (87) from two beekeepers were inspected according to Canadian Food Inspection Agency protocol. There were not any SHB found. Sixteen colonies were each monitored with a Better Beetle Blaster ™ trap when brood became present. The traps were placed, removed and examined by the inspector. Visual inspections were also done. There were not any SHB found.
- Small hive beetle (SHB) and border monitoring: Beekeepers in New Brunswick along the New Brunswick / Maine border were monitored for SHB with Better Beetle Blaster ™ traps that were placed, removed and examined by the inspector. Monitoring included: 14 beekeepers; 160 colonies; 31 traps. Visual inspections were also done. There were not any SHB found.
- na = not available

2010 PROVINCIAL APIARIST ANNUAL REPORT

Provincial Apiarist: Joanne Moran Bee Health Advisor (Nova Scotia)

A. Beekeeping Industry Statistics

. No. of Beekeepers 215
. No. of Producing Colonies 6000 producing total colonies18500
. Average Yield/Colony (lb/kg) 88/40
. Total Estimated Crop (lb/Kg x 1000) 528/240
. Colonies Wintered Last Year (09/10) 18750
. Average Winter Mortality (%) 40.7

B. Diseases and Pests

Disease/Pest	Number of Colonies Inspected	Number of Beekeepers Inspected	Disease Colony Incidence (%)	Disease Beekeeper Incidence (%)
. AFB	401	36	1.7	11
. EFB	401	36		
. Chalkbrood	401	36		
. Sacbrood	401	36		
. Tracheal Mite	100+ samples in the process of being analyzed			
. Varroa Mite				
. Other				

C. Comments

- The 2009-2010 over wintering mortality at almost 41% is the highest reported in Nova Scotia in over 2 decades. The significant increase in the provincial mortality was due to high losses by approximately 10% of the commercial beekeepers. For the majority of the beekeepers in the province losses were less than 20%.
- 62% of beekeepers monitored for varroa mites before treating with 75% reporting that they treated for varroa. Monitoring for nosema was done by just 6 % of beekeepers with 68% treating almost exclusively by feeding Fumagillin in sugar syrup.
- Beekeepers used various varroa control products with 16% using Apistan, 36% using Apivar, 18% oxalic acid and the remainder using mainly a combination of formic and oxalic acid for mite control.
- Main causes of mortality reported by beekeepers – weak colonies (35%), poor queens (28%), and starvation (17%).
- The price of wild blueberries fell in 2008 and 2009 and was projected low for 2010. For the first time in many years not all available hives were rented for pollination. Beekeepers were fortunate as the 2010 season was ideal for honey production with the average yield at 88 lbs per hive compared to 2009 at 57 lbs. The number of hives used for 2010 blueberry pollination is estimated at 12,000 down from 15000 in 2009.

- The majority of inspections are conducted for 1) health certification for beekeepers selling hives and/or equipment and 2) inspections requested by beekeepers that suspect a disease problem. The percentage incidence should not be considered representative throughout the province.
- The Nova Scotia Department of Agriculture is conducting a review and assessment for the quarantine of Nova Scotia to honey bees under the Bee Industry Act. The Nova Scotia border has been closed since 1990 to the importation of bees. This closure was reviewed in 1995 and is being reviewed again to determine if it is still the best option for honey bee health protection and viability of the NS beekeeping industry. The ultimate question to be answered is – Would opening the border between Nova Scotia and the provinces of Canada have a long term negative or beneficial impact on Nova Scotia Agriculture, including bio-security, food security, and rural development and economics.

Prince Edward Island Provincial Apiarist Annual Report 2010

Provincial Apiarist: Chris Jordan, PEI

A. Beekeeping Industry Statistics

. No. of Beekeepers	33 (6 have >50 colonies)
. No. of Producing Colonies	3,890 colonies of which 2,605 are producing
. Average Yield/Colony (lb/kg)	77 lb / 35 kg
. Total Estimated Crop (lb/Kg x1000)	200,000 lbs total / 90,718 kg total
. Colonies Wintered Last Year (09/10)	3,920
. Average Winter Mortality (%)	16.7%

B. Diseases and Pests

Disease/Pest	Number of Colonies Inspected	Number of Beekeepers Inspected	Disease Colony Incidence (%)	Disease Beekeeper Incidence (%)
. AFB	544	13	2%	15%
. EFB	544	13	2.9%	15%
. Chalkbrood	544	13	2.8%	30%
. Sacbrood	544	13	46%	1.5%
. Tracheal Mite	20 composite samples analyzed (no HTMB detected)			
. Varroa Mite				
. Other	n/a	n/a	n/a	n/a

C. Comments

- Mite control in the fall of 2009 consisted mostly of Oxalic Acid. One large beekeeper used Apivar.
- Majority of beekeepers treated for *Nosema* with fumigillin in the Fall of 2009
- Most common causes of winter mortality were poor queens and weak colonies going into winter.
- 2010 Inspection Program targeted colonies which had high disease levels in 2009
- In 2010, an effort was made to reduce the incidence of AFB
- No rAFB detected
- Varroa mite levels were high in July
- Small Hive Beetle (SHB) inspections were conducted on shipments of Hawaiian queens as described by CFIA. There were 250 queens shipped into PEI. There was no evidence of SHB in any of the inspections.
- Fletcher & Mary Colpitts were contracted to do hive inspections in 2009 & 2010
- Approximately 41% of colonies used for lowbush blueberry pollination were imported from Nova Scotia (not included in numbers reported above).

CAPA BYLAWS

CANADIAN ASSOCIATION OF PROFESSIONAL APICULTURISTS
L'ASSOCIATION CANADIENNE DE PROFESSIONELS DE L'APICULTURE

BYLAWS

Objectives of the Association

1. To promote, develop and maintain good fellowship and cooperation among professional apiculturists (individuals whose work in government, university, or similar professional capacity involve managed bee species)
2. To create a meeting of administrative and research professionals for the purpose of discussing common interests related to bee management and effectively coordinating, where possible, their activities.
3. To aid in the dissemination of information regarding the beekeeping industry in all its forms.
4. To maintain a consultative rapport with the Canadian Honey Council and other organizations concerned with managed bee species.
5. To maintain a rapport with professional in apiculture and related fields in other countries.

ARTICLE I - Membe rship

I (1): Full membership, with voting privileges is open to personnel employed by Canadian Federal and Provincial governments, universities or college, and consultants who are employed in the field of apiculture or other related fields as:

- federal apiculturist
- provincial apiculturist
- full-time or part time extension apiculturist
- full-time or part time teaching and/or research apiculturist
- full-time or part time apiary inspectors
- full-time or part time apicultural technicians
- full-time or part time professionals in any other capacity whose work involves managed bee species

I (2): Non-voting, associate membership in the association may, upon receipt of application, be granted to persons who are:

- Part or full-time graduate students involved in projects involving managed bee species
- Part-time technicians associated with personnel or projects involving managed bee species
- Part-time disease inspection staff
- Representatives of appropriate programs within federal government agencies such as Agriculture and Agri-Food Canada, the Canadian Food Inspection Agency and the Pest Management Regulatory Agency
- The representative of the Canadian Honey council and a representative of any other organizations concerned with managed bee species.
- Members of the American Association of Professional Apiculturists
- Members of the Apiary Inspectors of America.

I (3): Membership or associate membership may be extended to persons other than those defined in Clauses I and II upon ratification by a majority of the membership.

I (4): The privileges of membership in the Association shall terminate when a current member resigns or retires from the position which established his/her eligibility.
I (5): Membership fees shall be prescribed by the members in general meeting.
I (6): Every member shall receive a copy of the bylaws annually.
I (7): Privileges of membership shall be restricted to those holding current membership.
I (8): The decision to grant life memberships, honorary memberships, and awards of merit shall be made by a 75% majority of the members present at the general meeting.

ARTICLE II - General Meeting

II (1): The annual meeting shall be held at a time and place designated by the executive.
II (2): The secretary shall send all members a notice of a general meeting sixty (60) days in advance of the date of such a meeting unless a majority of the members waive the sixty day requirement.
II (3): A quorum of a duly called general meeting shall be six (6) members.
II (4): Attendance at the Association's meeting shall be limited to members and guests invited by the executive.
II (5): Minutes of the general meeting shall, when printed, be of a confidential nature and permission to use the information presented must be obtained from the executive.

ARTICLE III - Finances

III (1): The fiscal year of the Association shall be from January 01 to December 31 of the calendar year.
III (2): All monies and securities held by the Association shall be in the name of the Canadian Association of Professional Apiculturists.
III (3): All money transactions made by the Association shall be made by cheque signed by the secretary-treasurer and the president.

ARTICLE IV - Officers of the Association

IV(1): The members shall, at the general meeting, elect a president, vice-president and secretary- treasurer and the executive may appoint such other officers and committee members as may be required.
IV (2): All officers shall be elected for a two year term of office.
IV (3): The president shall preside over all meetings of the Association and shall be ex-officio, a member of all committees.
IV (4): The vice-president shall perform the duties of the president in his/her absence or inability to act.
IV (5): The secretary-treasurer shall:

1. Record the minutes of all meetings of the Association and distribute copies of these minutes to the membership sometime during the sixty (60) days following a meeting, and,
2. Send information and notices of motions and meetings etc. to the membership as required, and,
3. Collect the annual fees from each member and maintain an up-to-date membership list, and,
4. Look after all financial matters of the Association and maintain accurate records relating to same.

ARTICLE V - Amendments of Bylaws

V(1): Bylaws may be amended only by a recognized quorum at a general meeting and all members must be notified by the secretary-treasurer of any proposed changes in the thirty (30) days in advance of the meeting date.

The foregoing are the Bylaws of the Canadian Association of Professional Apiculturists as amended at the annual meeting held in Winnipeg, Manitoba, January 27 and 28, 2004.

*****

2010

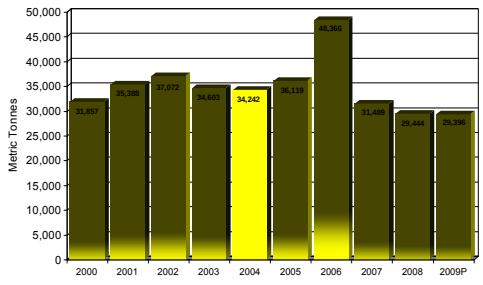
Overview of Honey Statistics

Stephen Page - Senior Market Development Advisor
Horticulture Division
Agriculture and Agri-Food Canada

Markham, ON · Nov 26th, 2010

Canadian Honey Production

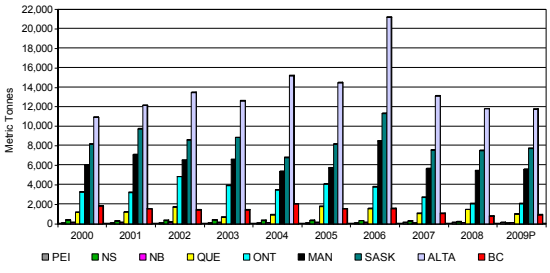
Quantity (Metric Tonnes)



Statistics Canada

Provincial Honey Production

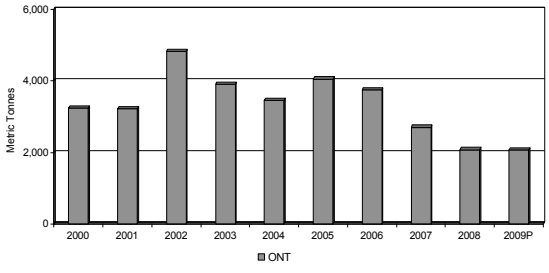
Quantity (Metric Tonnes)



Statistics Canada

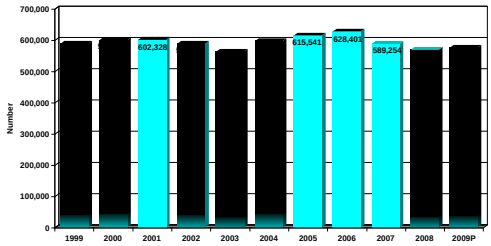
Ontario Honey Production

Quantity (Metric Tonnes)



Statistics Canada

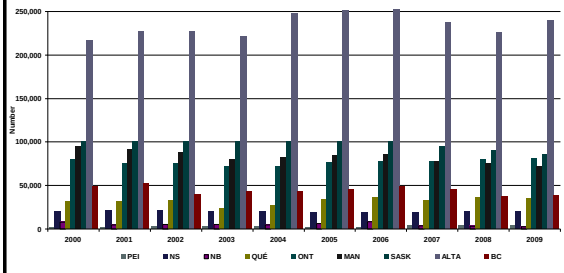
Canadian Honey Bee Colonies



Statistics Canada

Honey Bee Colonies

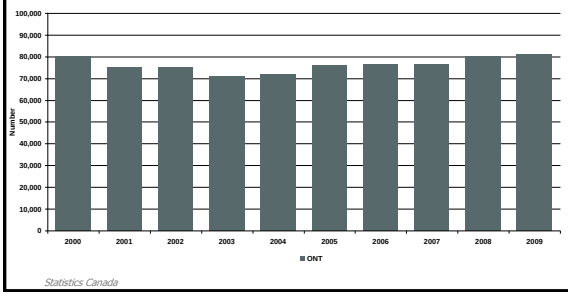
Number by Province



Statistics Canada

Honey Bee Colonies

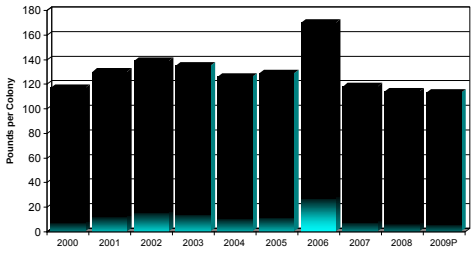
Ontario



Statistics Canada

Canadian Average Yields

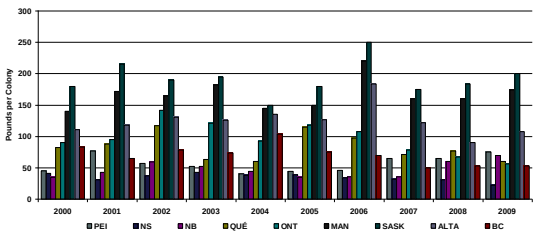
Pounds per Colony



Statistics Canada

Provincial Average Yields

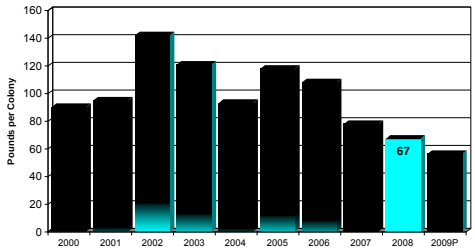
Pounds per Colony



Statistics Canada

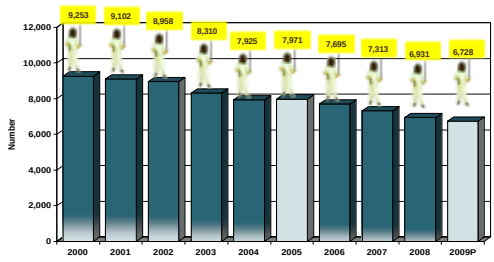
Ontario Average Yields

Pounds per Colony



Statistics Canada

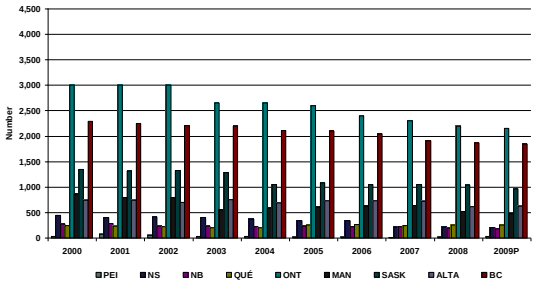
Number of Canadian Beekeepers



Statistics Canada

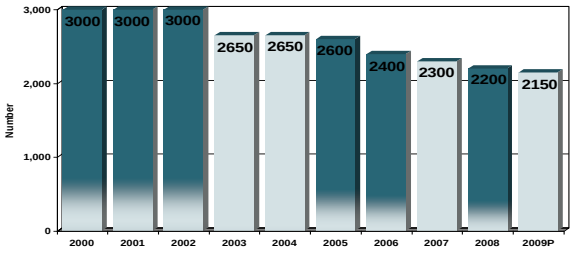
Number of Beekeepers

by Province



Statistics Canada

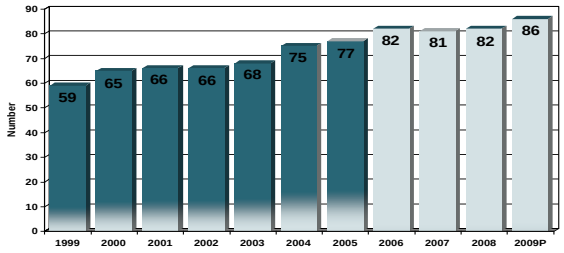
Ontario- Number of Beekeepers



Statistics Canada

Canada- Number of Colonies

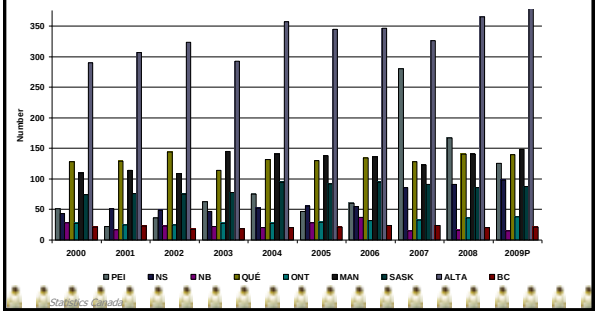
per Beekeeper



Statistics Canada

Number of Colonies

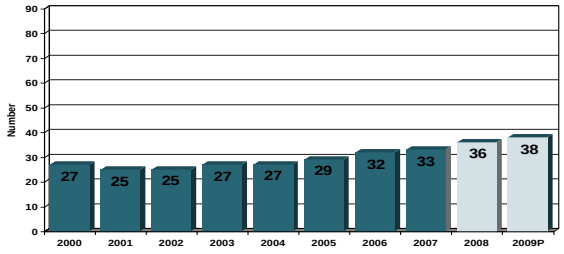
per Beekeeper · by Province



Statistics Canada

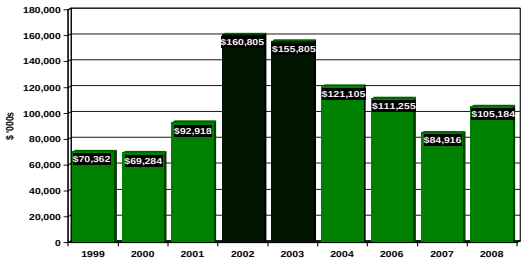
Ontario - Number of Colonies

per Beekeeper



Statistics Canada

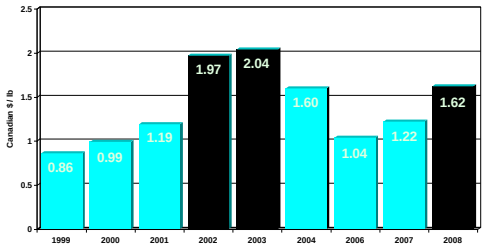
Value of Canadian Honey



Statistics Canada

Canadian Honey Price

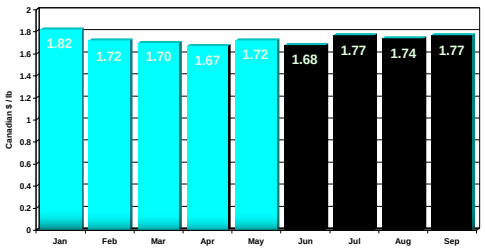
per Pound



Statistics Canada

Recent Canadian Honey Export Prices 2010

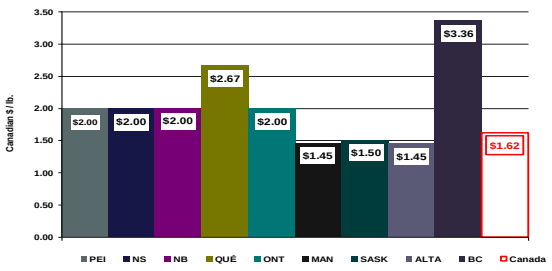
per Pound



Statistics Canada

Honey Price per Pound

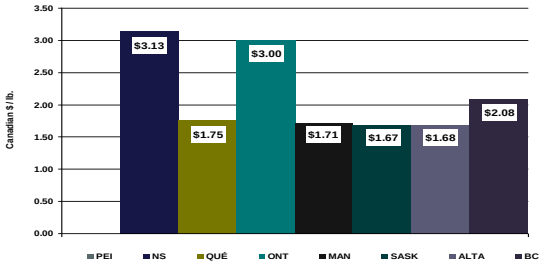
by Province in 2008



Statistics Canada

Recent Export Honey Price per Pound

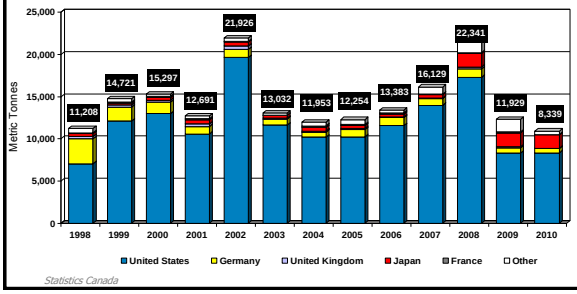
by Province, 2010 to date



Statistics Canada

Exports of Honey from Canada

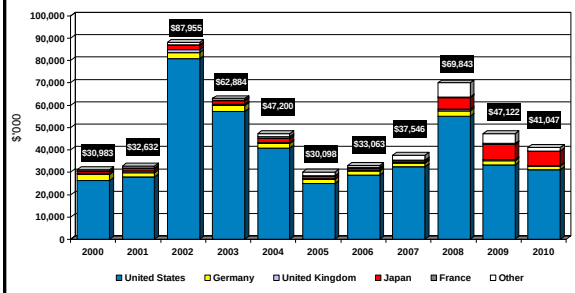
Quantity (Metric Tonnes)



Statistics Canada

Exports of Honey from Canada

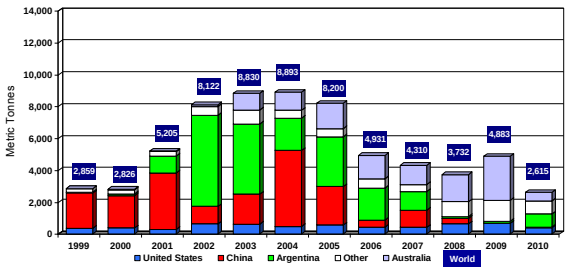
Value ($'000 Cdn)



Statistics Canada

Imports of Honey into Canada

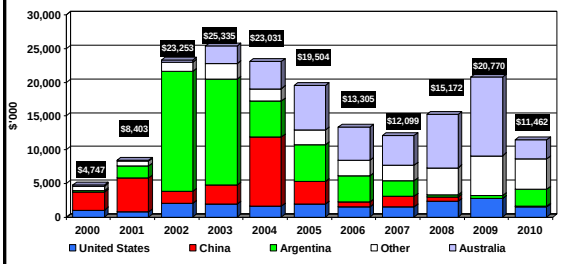
Quantity (Metric Tonnes)



Statistics Canada

Imports of Honey into Canada

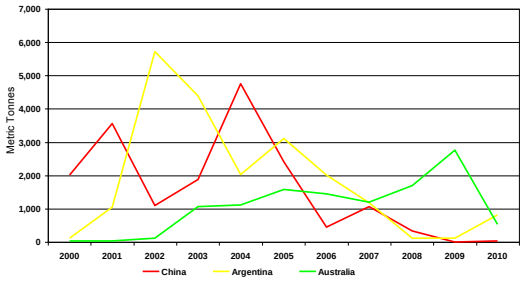
Value ($'000 Cdn)



Statistics Canada

Top 3 Sources of Imported Honey

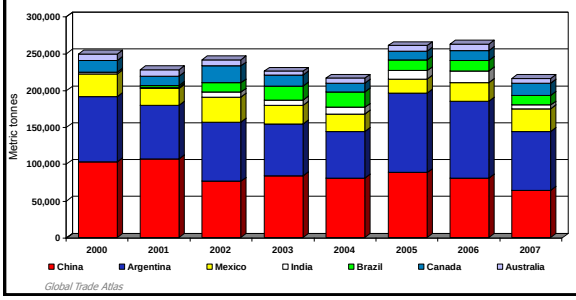
Quantity (Metric Tonnes)



Statistics Canada

World Honey Exports

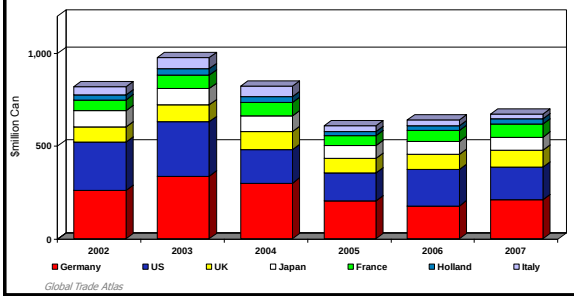
Top 7 Countries (by Metric Tonnes)



Global Trade Atlas

Honey Importers

Top 7 Countries (by Metric Tonnes)



Global Trade Atlas

Canadian Food Inspection Agency | Agence canadienne d'inspection des aliments

Canadian Food Inspection Agency

Our vision:
To excel as a science-based regulator, trusted and respected by Canadians and the international community.

Our mission:
Dedicated to safeguarding food, animals and plants, which enhances the health and well-being of Canada's people, environment and economy.

Ontario Beekeepers Association
Annual General Meeting
Markham, Ontario

November 25 – 26, 2010

Debbie Fishbein
Chief, Honey Program
Canadian Food Inspection Agency

Canada

Outline

- When do I need to become registered ?
- Packing honey in bulk barrels
- *Honey Regulations*

When to get registered

If you wish to ….

- Sell extracted honey in another province or country
  - Includes Internet and mail order sales
  - Exemption: shipping in bulk containers to a registered honey establishment in another province for the purpose of grading and repacking.
- Repack imported honey
- Use a Canada grade name (Canada No. 1, Canada No. 2 or Canada No. 3) for extracted honey,

Then, according to the *Honey Regulations* you require registration.

How to get registered

- From your local CFIA inspection office
  - Application for Registration (CFIA/ACIA 3043)*
  - Descriptive Profile (CFIA/ACIA 3082)*
- Complete and sign forms, include:
  - Copy of Sanitation and Pest Control Programs
  - Copy of federal/provincial documents of incorporation, partnership or proof of business
  - Fees - Producer-grader, packer or pasteurizer ?
    - Producer-grader – only honey from own apiaries ($100.00)
    - Packer – honey from other beekeepers, imports ($200.00)
    - Pasteurizer – as a packer but with pasteurizing equipment (Can. No. 1) ($400.00)
    - Payable annually

* Also available on www.inspection.gc.ca – click "Forms"

CFIA Honey Program

- Review application for registration
  - Carry out Pre-registration visit:
    - Determine compliance with sections 16 – 27 of the Honey Regulations
    - Suitable facility and equipment (construction, materials, location) ?
    - Appropriate equipment (e.g : pasteurizer, grading equipment)
    - Review written programs
  - Recommend registration to the Director of the Agrifood Division
  - Issue registration number and certificate

Now that you're registered…..

- Operate in accordance with the *Honey Regulations:*
  - Procedures (written) in place to control hazards (physical, chemical, biological)
    - Sanitation and Pest Control programs (mandatory)
    - Other Written Programs
      - Premises
      - Transportation and Storage
      - Equipment
      - Personnel
      - Complaints and Recall
  - Provide samples as required
  - Operational Changes (construction, additions, moving etc.)
  - Registration Fees paid annually

CFIA verifies compliance through:

- Annual in-depth establishment inspections
- Good Manufacturing Practices
  - Honey Establishment Inspection Manual
- Product inspections
  - Samples for laboratory analysis (composition, chemical residues)
  - Label verification
  - Grade verification
  - Net quantity verification

Honey Industry Bulk Container Standard

- Assist the honey industry to comply with Canadian regulatory requirements.
  - *Food and Drugs Act* - Sections 4 and 7
  - *Food and Drug Regulations* - Division 23
  - *Honey Regulations* - Sections 4.1, 16, 25, 32
- Recommendations:
- **All bulk containers used to store honey should be coated with a food grade coating on the interior and an approved coating on the exterior.**
- **If unsure about interior/exterior coatings, a food grade liner must be used. Coatings that contact honey must meet federal food safety standards.**
- **For a list of acceptable coatings, paints, chemicals, lubricants and other materials used for food contact surfaces visit " Reference Listing of Accepted Construction, Packaging Materials and Non-Food Chemical Agents"**
- Available at www.inspection.gc.ca , click Food, then Honey

Amendments to the *Honey Regulations*

No major amendments in over 25 years

- Need to modernize to reflect the Agency's priorities and current trading practices

Stakeholders agree on the following proposals for amendments:

- Aligning the compositional standard for honey, definitions and colour classifications with international standards (Codex).
- Regulating food products where honey is the major ingredient, for example, flavoured honey.
- Enhancing the requirements for the registration, operation and maintenance of a honey establishment to be consistent with established policies.
  - HACCP based principles

Different viewpoints for labelling amendments

- Use of Canada grade names
- Country of origin declarations/blend statements

Use of "Canada No. 1/No. 2/No. 3"

Current Requirements: The *Honey Regulations* require the use of these grade names on honey packed and graded in a registered honey establishment. This includes:

- domestic honey,
- honey repackaged from imported bulk,
- blends of Canadian and imported honey.

Imported honey is marked with a grade designation "No. 1/ No. 2" as appropriate in the foreign country.

Country of Origin declarations/blend statements (e.g. Product of …, or Blend of ….,) are required and may appear anywhere on the package except the bottom.

Use of "Canada No. 1/No. 2/No. 3" – cont'd.

Concern: Allegations that consumers mistake the Canada grade name as a country of origin declaration and are misled regarding the source of honey, especially in the case of repackaged imported honey and blends of Canadian and imported honey because the Country of Origin declarations are not required to be in close proximity to the Canada grade name

Consumer Focus groups conducted to obtain consumer's opinions about the labelling of honey. Results of focus groups were considered in developing regulatory amendments for the use of the Canada grade name and country of origin declaration.

Labelling Proposals

Results suggested that current labelling requirements are misleading with respect to the country of origin

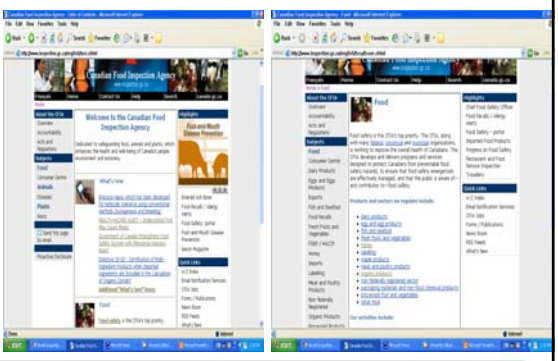
To ensure truth in labelling:

- Propose that "Canada" grade declarations be used only on honey of 100% Canadian origin
- Introduce new grade names for blended and imported honey repackaged from bulk in Canada
  - i.e. Grade No. 1, Grade No. 2, Grade No. 3
- Maintain the existing country of origin declaration requirement including blend statements which can appear anywhere on the package.
  - Introduce, new font and type height requirements to ensure legibility for consumers, i.e. net quantity/grade declarations.
  - Consistent with "Product of Canada" policy.

Next Steps

- Finalize supporting documentation
- Consequential amendments to the *Food and Drug Regulations*
- Continue to work with the Department of Justice to finalize drafting of the regulations
- Publication in Canada Gazette 1
  - Comment period for all Canadians

CFIA Website
www.inspection.gc.ca



Questions ?

Canada

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CAPA AGM, November 2010
Markham, Ontario

Honey bee Import Issues

Dr. Amy Snow
Veterinary Program Specialist, Live Animal Import Section, Terrestrial Animal Health Division, CFIA

Canada

Topics for discussion

1. Honey bee import statistics
2. Health reports
   - Australia
   - New Zealand
3. Review of Small Hive Beetle in Canada
   - Quebec
   - Ontario
4. Revision of import conditions
   - Hawaii
   - Continental United States
   - Australia
   - The remainder can be discussed, time permitting, but any changes unlikely to be implemented until the 2012 import season

Import Statistics

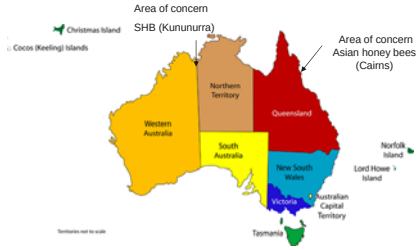
Difficult to confirm exact numbers (quality of data recorded is variable)

- Better to report on trends
  - Similar number of import permits issued 2007-2010
  - Generally, the largest percentage of import permits for queens issued each year pertain to shipments from California; Hawaii is next, then Australia or Chile, NZ, and Denmark
  - Packages from Australia and NZ, only occasionally Chile

Health Status Update - Australia

- **Nationally notifiable diseases:**
  - Tracheal mite, AFB, EFB, SHB, Tropilaelaps mite, Varroa mite
  - Other diseases notifiable at the state level
- **AFB endemic except for isolated areas**
- **EFB endemic except for state of Western Australia (free)**
- **SHB – endemic in Queensland, NSW, Victoria, not identified in Tasmania, S. Australia, Northern Territory**
  - SHB is present in the far north-west of Western Australia, but remains confined to that region
  - Surveillance is ongoing in the south-west and no SHB detected
  - Movement controls exist within the state
  - Australia can continue to certify SHB freedom in the area from which packages are exported

Health Status Update - Australia



Health Status Update - Australia

- Asian honey bee
  - To October 2010, 237 nests/swarms have been detected and destroyed
  - Recent jobs cuts reported
  - Only one detection outside the restricted area (RA), despite extensive surveillance
  - 200 samples from Asian honey bee colonies – no evidence of pathogenic mites
- RA for Asian honey bees continues to be far from the major beekeeping areas

Health Status Update - Australia

- National Sentinel Hive Program
  - Established 2000
  - Monitors for exotic pests such as varroa mite, tropilaelaps mite, tracheal mite, asian honey bee
  - 2009 – 34 hives maintained at seaports and airports
  - 15 coconut log traps for *A. cerana*
  - 236 samples examined, but no results reported

Health Status Update – New Zealand

- New Zealand publishes the "Honey Bee Exotic Disease Surveillance Report"
  - Conducted and reported by AsureQuality Limited on behalf of MAF NZ Biosecurity group
- Surveillance conducted for:
  - European foulbrood, SHB, "the parasitic fly" (*Braula coeca*), tracheal mite, Asian mites, Africanized honey bees, cape bee, and *Apis* species other than *mellifera*
- Data collected from:
  - High-risk areas (targeted sampling)
  - Export testing requirements
  - Disease investigations
- Results: all hives sampled, inspected, and tested for listed exotic bee diseases were NEGATIVE

Small Hive Beetle Update: Quebec

- September 2008 – SHB infested hives found in Quebec, near U.S. border
  - 6 bee yards, multiple life stages (in 1 yard)
  - DNA typing suggested natural introduction from U.S., not related to importation
  - Controlled/eliminated - province (MAPAQ)
- Northern U.S. states bring up migratory hives in spring to replenish colonies, support pollination
  - Bring hives from states where SHB is endemic; SHB found in Northern U.S. bee yards
- Ongoing surveillance
  - Sentinel hives along Quebec/U.S. border
  - Ongoing natural infestation with small numbers of adults, no evidence of reproduction

Small Hive Beetle Update: Quebec

- Sentinel hives inspected late April
  - 2 adult beetles found in 2 distinct hives
- Questions:
  - Have these beetles survived the winter?
    - Early movement of U.S. migratory hives this year
  - Are they capable of reproducing and completing a life cycle?
- Research ongoing in Quebec – beetles NOT destroyed
- Additional comments from Quebec?

Small Hive Beetle Update: Ontario

- September, 2010 - CFIA was advised of the suspected discovery of SHB at an apiary in Ontario (later confirmed by AAFC as SHB)
- The apiary was located in southwest Ontario (Essex county) near the US border with Michigan, where there are known problems with SHB
- Provincial apiculturists investigated and have responded
- Major concern: the climate in this region would potentially support establishment of SHB.
- Investigations are ongoing, provincial apiculturists will continue to communicate with CFIA on this matter.
- Additional comments from Ontario?

Revision of Import Conditions

- Hawaii
  - There has been several communications concerning imports from Hawaii this upcoming season - pertains to SHB
  - I have requested an official situation report from USDA; it has not yet been received
- Continental US
- Australia
  - SHB, request to relax import conditions for queens
  - Amendments to conditions related to *Apis cerana?*
- Others
  - Minor adjustments/updates


Canada

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Agence canadienne d'inspection des aliments

Notre vision :
Exceller en tant qu'organisme de réglementation à vocation scientifique fiable et respecté des Canadiens et de la communauté internationale.

Notre mission :
Veiller à la santé et au bien-être des Canadiens, à l'environnement et à l'économie en préservant la salubrité des aliments, la santé des animaux et la protection des végétaux.

Assemblée générale annuelle de l'ACAP
Novembre 2010
Markham (Ontario)

Questions touchant les importations d'abeilles mellifères

Dre Amy Snow

Spécialiste du programme vétérinaire, Section de l'importation des animaux vivants, Division de la santé des animaux terrestres, ACIA

Canada

Sujets de discussion

1. Statistiques sur les importations d'abeilles mellifères
2. Rapports sur l'état sanitaire
   - Australie
   - Nouvelle-Zélande
3. Examen du petit coléoptère des ruches au Canada
   - Québec
   - Ontario
4. Révision des conditions d'importation
   - Hawaï
   - Zone continentale des États-Unis
   - Australie
   - On pourrait discuter du reste, si on a le temps, mais il est peu probable que des changements soient apportés avant 2012.

Statistiques sur les importations

Il est difficile de confirmer les chiffres exacts (la qualité des données enregistrées varie).

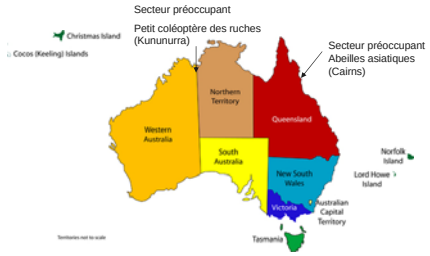
Il vaut mieux analyser les tendances.

- Approximativement le même nombre de permis d'importation délivrés annuellement, de 2007 à 2010.
- En général, la majorité des permis d'importation délivrés chaque année pour des reines se rattachent aux envois de la Californie, suivis des envois d'Hawaï, ensuite de l'Australie et du Chili, de la Nouvelle-Zélande et du Danemark.
- Envois provenant de l'Australie et de la Nouvelle-Zélande, et à l'occasion, du Chili.

Situation sanitaire de l'Australie

- **Maladies à déclaration obligatoire à l'échelle nationale :**
  - Acarien de l'abeille, loque américaine, loque européenne, petit coléoptère des ruches, Tropilaelaps, varroa
  - Autres maladies à déclaration obligatoire dans les États
- **La loque américaine est endémique sauf dans les régions isolées.**
- **La loque européenne est endémique sauf en Australie-Occidentale (exempte).**
- **Le petit coléoptère des ruches est endémique au Queensland, en Nouvelle-Galles du Sud et au Victoria, mais n'a pas été dépisté en Tasmanie, en Australie-Méridionale ni au Territoire du Nord.**
  - Le petit coléoptère des ruches est présent dans les régions éloignées du nord-ouest de l'Australie-Occidentale, mais il se limite à cette région.
  - La surveillance se poursuit dans le sud-ouest et aucun petit coléoptère des ruches n'a été détecté.
  - Des contrôles des déplacements ont été mis en oeuvre dans les États.
  - L'Australie peut continuer de certifier que les régions d'où proviennent les exportations sont libres du coléoptère.

Le point sur l'état sanitaire de l'Australie



Situation sanitaire de l'Australie

- Abeille asiatique
  - En octobre 2010, 237 ruches ou essaims avaient été détectés et détruits.
  - Hausse récente des ressources consacrées à l'éradication (55 personnes).
  - Une seule détection à l'extérieur de la zone réglementée, malgré la surveillance étroite.
  - 200 échantillons de colonies d'abeilles mellifères asiatiques – aucun signe d'acariens pathogènes.
- La zone réglementée pour les abeilles mellifères asiatiques continue d'être loin des grands secteurs apicoles.

Situation sanitaire de l'Australie

- Programme national des ruches sentinelles
  - Établi en 2000
  - Surveille la présence des ravageurs exotiques comme le varroa, l'acarien Tropilaelaps, l'acarien de l'abeille, l'abeille mellifère asiatique
  - En 2009, 34 ruches retenues dans des ports maritimes et aéroports
  - 15 pièges de cocotiers pour *A. cerana*
  - 236 échantillons examinés, mais aucun résultat n'a été signalé

Situation sanitaire de la Nouvelle-Zélande

- La Nouvelle-Zélande publie le rapport de surveillance des maladies exotiques des abeilles mellifères.
  - Réalisé par AsureQuality Limited au nom du MAF NZ Biosecurity Group
- Surveillance des espèces suivantes :
  - Loque européenne, petit coléoptère des ruches, pou de l'abeille (*Braula coeca*), acarien de l'abeille, acarien asiatique, abeille mellifère africanisée, abeille du Cap et espèces *Apis* autres que *mellifera*
- Source des données recueillies :
  - Zones à risque élevée (échantillonnage ciblé)
  - Exigences d'analyse des exportations
  - Enquêtes sur les maladies

- Résultats : toutes les ruches échantillonnées, inspectées et analysées ont donné des résultats NÉGATIFS pour les maladies exotiques figurant dans la liste.

Situation du petit coléoptère des ruches : Québec

- Septembre 2008 – des ruches infestées par le coléoptère ont été détectées au Québec, près de la frontière américaine.
  - Six ruchers, différentes étapes du cycle de vie (dans un rucher)
  - L'empreinte génétique indique que le parasite a été introduit naturellement au Canada des États-Unis, et non par l'importation
  - Contrôlé et éliminé - province (MAPAQ)
- Les États du Nord des États-Unis apportent des ruches migratrices au printemps pour réapprovisionner les colonies, favoriser la pollinisation.
  - Ruches en provenance d'États où le petit coléoptère des ruches est endémique; coléoptère dépisté dans des ruchers au Nord des États-Unis
- Surveillance continue
  - Ruches sentinelles le long de la frontière entre le Québec et les États-Unis
  - Infestation naturelle chez un petit nombre d'adultes, aucun signe de reproduction

Situation du petit coléoptère des ruches : Québec

- Ruches sentinelles inspectées à la fin d'avril
  - Deux coléoptères adultes trouvés dans deux ruches différentes
- Questions :
  - Ces coléoptères ont-ils survécu à l'hiver?
    - Déplacement précoce des ruches migratoires des États-Unis cette année
  - Sont-ils capables de se reproduire et de compléter un cycle de vie?
- Les recherches se poursuivent au Québec – les coléoptères N'ONT PAS été détruits.
- Autres commentaires du Québec?

Situation du petit coléoptère des ruches : Ontario

- Septembre 2010 - L'ACIA a été avisée du dépistage possible du petit coléoptère des ruches dans un rucher en Ontario (AAC a par la suite confirmé qu'il s'agissait du coléoptère).
- Le rucher était situé au sud-ouest de l'Ontario (comté d'Essex) près de la frontière du Michigan, où la présence du petit coléoptère des ruches est connue.
- Les apiculteurs provinciaux ont enquêté sur la situation et ont pris les mesures nécessaires.
- Principale préoccupation : le climat de cette région risque de favoriser l'établissement du coléoptère.
- Les enquêtes se poursuivent, les apiculteurs provinciaux continueront de communiquer avec l'ACIA à cet égard.
- Autres commentaires de l'Ontario?

Révision des conditions d'importation

- Hawaï
  - Il y a eu plusieurs communications concernant les importations d'Hawaï durant la saison à venir (petit coléoptère des ruches).
  - J'ai demandé un rapport d'étape officiel de l'USDA mais je ne l'ai pas encore reçu.
- Zone continentale des États-Unis
- Australie
  - Petit coléoptère des ruches, demande d'alléger les conditions d'importation relatives aux reines.
  - Modification des conditions relatives à *Apis cerana?*
- Autres
  - Modifications et mises à jour mineures.


Canada

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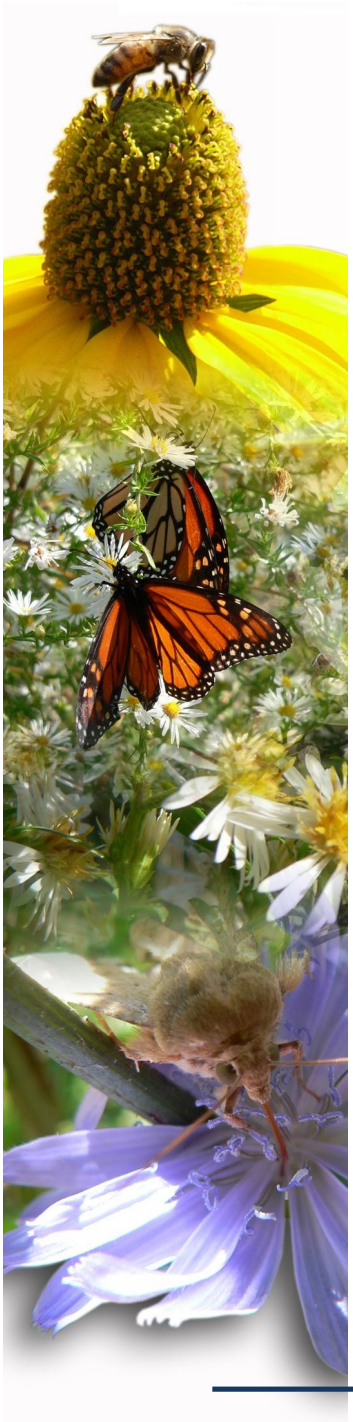
CANADIAN POLLINATION INITIATIVE

NSERC-CANPOLIN NEWSLETTER Volume 2 • Issue 1 June 2010



MESSAGE FROM THE DIRECTOR

Paying homage to Illinois' giant bee sculpture, April 2010 (photo by Stephen Humphrey)

Dear Friends of CANPOLIN,

Much has happened since our last newsletter. Our second annual Science Advisory Committee (SAC) and Board of Directors (BoD) meetings were held in Guelph in February. The meetings provided an opportunity to celebrate our successes to date, and plan ahead for the next field season. A detailed Annual Scientific Report was submitted to and endorsed by the SAC and BoD; a public summary is forthcoming. The first half of 2010 also saw the successful launch of two CANPOLIN courses (see page 2). Our second field season is now well underway; for a taste of what NSERC-CANPOLIN researchers are up to this year, I refer you to page 3.

CANPOLIN continues to forge new collaborations, and strengthen existing ones, to ensure that the Network is best positioned to address pollination research needs in Canada. In March, several CANPOLIN researchers met with growers and beekeepers in Moncton to jointly determine how the Network's research activities can best serve the needs of the Maritime agricultural industry (see page 5). CANPOLIN representatives have also met with members of the leafcutting bee/alfalfa seed production industry to discuss research needs and priorities in this important industry; a similar meeting is planned for late summer with members of the hybrid canola industry with a view to forming a canola crop squad.

CANPOLIN is also in the process of developing a proposal to be put forward to the Canadian Council of Academies (CCA) for a study on the Status of Pollination in Canada. Such a document will do much to advance the Network's activities beyond R&D discovery and into the policy realm. We are also working to have pollination become a part of the NAFTA-CEC mandate for considerations in food security and sustainability, trade, and environmental health, following on a roundtable meeting in Washington last fall with US, Mexican and Canadian government, industry and NGO representatives.

Be sure to visit our website for regular updates and new articles resulting from CANPOLIN research; already four articles have been published, with several others in press.

With all best wishes, Peter G Kevan

Inaugural CANPOLIN Courses a Great Success

The first half of 2010 saw the successful launch of two CANPOLIN courses - a pollinator identification course, the other a pollination biology field course.

The Network's first **Pollinator Identification** course was held February 15-24 at the Canadian National Collection in Ottawa. Attended by 18 graduate students from across Canada, the course covered the taxonomy of Syrphidae and bees, as well as topics such as collecting, handling and preparing specimens. Students were able to identify their own specimens collected during their field work, using both existing keys and others newly developed by CANPOLIN researchers. The course also provided valuable networking opportunities. Special thanks to Jeff Skevington (WG 1) and Chris Thompson (USDA) for instructing the Syrphidae portion of the course, and to Cory Sheffield (WG 1) and Jason Gibbs (York University) for leading the bee portion. Andrew Young, Gil Miranda and Michelle Locke also assisted with the fly half of the course.

(Left) Participants in the 2010 Pollinator Identification Course gather outside the K.W. Neatby building in Ottawa; (Above) keying out an unidentified Syrphidae sample (photos by Jeff Skevington)

In late April, a 12-day field course in **Pollination Biology** was held at the historic and internationally-renowned Missouri Botanical Garden (MBOT). Modelled after the highly successful International Pollination Biology Course, the course included daily lectures, field excursions, lab activities and demonstrations. Participants also completed individual research projects. Peter Kevan served as the lead instructor, with guest lectures by Peter Bernhardt (MBOT), Retha Meier (SLU) and Kyra Krakos (WUSTL). Twelve participants from Canada and the US took part in the course.

(Left) Course participant Robert Pemberton of the USDA gets up close and personal with the flora at Shaw Nature Reserve, an extension of the Missouri Botanical Garden; (Right) Pawpaw flower at the Shaw Nature Reserve (photos by Stephen Humphrey)

Curious about what's happening in CANPOLIN labs and field sites this year? See below for a list of currently funded projects:

2010 Research Projects

WG 1 Wild Pollinators	Databasing of historical pollinator collections (Marshall, U of Guelph, Skevington, AAFC, Packer, York U) Key development and study of *Coelixys, Megachile, Dialictus*, and the bumble bees of eastern Canada (Packer, York U); Key development and study of Canadian Syrphidae and Calliphoridae (Marshall, U of Guelph, Skevington, AAFC) Development of an interactive key to Canadian Lepidoptera and genetic surveys of pollinating butterflies (Sperling, U Alberta)
WG 2 Managed Pollinators	Canadian survey of viruses in honey bees (Currie, U Manitoba) Impact of viruses on winter survival (Currie, U Manitoba) Methodology for sampling viruses (Currie, U Manitoba) Development of a predictive model for impact of viruses on colonies (Currie, U Manitoba) Use of RNAi to control honeybee viruses (Currie, U Manitoba) Prevalence of honey bee viruses in native pollinators (Currie, U Manitoba) Interactions between Nosema and honeybee viruses (Currie, U Manitoba, Pernal, AAFC, and Guzman, U of Guelph) Detection of honeybee physiological responses and natural resistance to parasitic diseases (Guzman, U of Guelph) Natural and biological controls of Varroa mites in honeybees (Guzman, U of Guelph) Pesticides and pollinator health (Cutler, NSAC, Scott-Dupree, U of Guelph) Bees as vectors of biopesticides for disease control on wild blueberries (Cutler, NSAC, Shipp, AAFC, Kevan, U of Guelph) Bumble bee pollination & vectoring in winter greenhouse production (Kevan, U of Guelph, Shipp, AAFC) Hive design and honeybee health (Kevan and Eberl, U of Guelph)
WG 3 Plant Reprod. Biology	Mating system and pollination studies in lowbush blueberry populations (Schoen, McGill) Mating system, clonal structure and pollination in British Columbia blueberry species (Ritland, UBC) Pollination ecology of *Vaccinium angustifolium* (Sargent, U Ottawa) Pollen limitation & pollinator diversity and efficiency in lowbush blueberry populations in NB (Jesson, UNB) Long-term natural selection and adaptive evolution in weedy sunflowers (Reiseberg, UBC)
WG 4 Wind Pollination	Testing models of pollen dispersal in ragweed (Greene, Concordia) Mechanics of wind pollination (Ackerman, U of G) Effectiveness of anemophily and ambophily in open-pollinated crops, rare species, and invasives in ON (Murphy, U Waterloo)
WG 5 Ecosystem	Connectance in pollination webs (Ali, U of Guelph) Influences of landscape & grazing regime on bee pollinators and floral resources in rough fescue prairie (Cartar, U Calgary) Native pollinators in wild Blueberry in NS and NL (Cutler, NSAC) Effect of canopy gap formation on patterns of pollinator diversity and seed set in forest understory herbs (Dorken, Trent) Effect of grazing intensity on plant and pollinator community interactions and diversity in antelope-brush shrubsteppe (Elle, SFU) Landscape use by pollinators: wild bee diversity and pollination services in southern Okanagan valley orchards (Elle, SFU) Effect of diversity on pollen limitation and plant-pollinator interaction networks in the Garry Oak Ecosystem (Elle, SFU) Relative role of Diptera in the pollination of commercial carrots and wild carrots (Hunter, Brock U) Impact of forest boundaries and windbreakers on the biodiversity of pollinators in blueberry landscapes (Fournier, Laval) Bee Diversity and Pollination of Managed and Non-managed Blueberry on the Island of Newfoundland (Hermanutz, Memorial) Ecosystem rehabilitation (Kevan, U of Guelph) Diversity and abundance of pollinators and general survey work in Churchill/Wapusk (Kevan, U of Guelph) Effects of forest gaps on pollination services and native herb population dynamics in Algonquin Park (Kevan, U of Guelph). The importance of plant species diversity and functional grouping on alpine pollinators (Lortie, York U) Pollinators in commercial blueberry (McNeil, Western) The effects of farming system on the ecology of wild bees (Mineau, Carleton) The effects of two logging techniques on the diversity of native pollinators (Nol, Trent) Plant community composition effects on pollinators and native plant reproduction (Vamosi, U Calgary) Community diversity and plant-pollinator interactions in the tall grass prairie (Worley, U Manitoba, and Westwood, U Winnipeg) Investigation of pollinator rewards and floral reproductive biology in *Vaccinium* spp. (Davis, U Saskatchewan)
WG 7 Prediction	Modelling Impacts of Global Change on Pollinators (Kerr, U Ottawa)
WG 8 Economics	Structure of the beekeeping industry in Canada (Weersink, Cranfield and Hailu, U of Guelph) Enterprise diversification in the Canadian beekeeping industry (Weersink, Cranfield and Hailu, U of Guelph) Production relationship between pollinator habitat and agricultural commodities (Weersink, Cranfield and Hailu, U of Guelph)

What's New @ CANPOLIN?

Chris Cutler Receives AIC Award

Congratulations to CANPOLIN researcher Chris Cutler, who is the first recipient of the Agricultural Institute of Canada's (AIC) Sustainable Futures Award. The award recognizes a young professional who shows great potential as an innovation leader, integrator and communicator. Currently serving as Assistant Professor at the Nova Scotia Agricultural College Assistant, Chris' research program in sustainable blueberry production and pollination issues is contributing to CANPOLIN objectives in both WG2 (Managed Pollinators) and WG5 (Ecosystems). He was nominated for the award by CANPOLIN Scientific Director, Peter Kevan. .

Tomato Pollination Studies Get Boost from Brazilian Student

Patricia Nunes Silva, a visiting PhD student from the University of São Paulo, is hoping to advance greenhouse pollination programs and improve crop yields in her native Brazil by studying what makes bumble bees good pollinators in Canadian greenhouses. Working under the supervision of WG2 researchers Les Shipp (AAFC) and Peter Kevan (U of Guelph),

Patricia is examining the frequency and velocity of bumble bee vibrations, along with the thoracic displacement of a pollinating bee during pollination. She will then compare her results with stingless bee species in Brazil, where raising bees for greenhouse pollination is still in its early stages. The project is also expected to shed light on how bumblebee pollination may be improved in Canadian greenhouse crops.

Patricia's studies in Canada are supported by a CAPES scholarship from the Brazilian government.

Writer-in-Residence to Explore Pollination

NSERC-CANPOLIN is pleased to welcome Stephen Humphrey as a "pollination writer-in-residence" at the University of Guelph. A freelance writer and poet, Stephen has been awarded a Chalmers Fellowship from the Ontario Arts Council to study and write about bees . The two-year fellowship will see Stephen produce non-fiction articles, blogs and poems, with the ultimate goal of creating a literary work that "explores the prospect of bee extinction through imaginative writing that's grounded in research and direct experience".

Originally from Edmonton, Stephen hails from a family of beekeepers and has nurtured a long standing interest in bees - and in particular the "almost mythological" nature of honeybees. He is based in Toronto and plans to spend about two days a week on the U of G campus liaising with pollination researchers.

To read more about Stephen's pollination experiences to date, check out his blog at http://beeattitudes.igmagogon.org/wordpress/. He can also be reached directly at igmagogon@rogers.com.

Don't forget to check the CANPOLIN website regularly to download recently published papers by CANPOLIN researchers, popular press articles about our researchers and relevant pollination issues, Powerpoint presentations, videos and more! Be sure to also explore our new "*Creative Contributions from the Arts*" section, featuring a link to our writer-in-residence's blog and a new video from the Resonating Bodies project.

www.uoguelph.ca/canpolin

Pollination Action Forum Focuses on CANPOLIN Research

Producers gained insight into current research activities and researchers gained insight into the needs of producers at a recent meeting of stakeholders sponsored by the New Brunswick Agricultural Council. Researchers from a range of CANPOLIN working groups gathered with beekeepers, growers and conservationists in Moncton on March 19th to discuss current research related to beekeeping, pollination and agriculture, and to set research priorities for the future. The day long event, advertised as "The Maritime Pollination Research Action Forum", featured presentations on bee health, bee diversity in agro-ecosystems, and plant pollination and biology; meeting participants then split into groups to discuss each theme and share ideas and perspectives on research needs.

Participants in the research planning discussion following the Pollination Action Forum in Moncton. **Back Row** (Left to Right): Ernesto Guzman, Risa Sargent, Heather Clay, Patricia Silva, Gwen Huber, Melissa Fulton. **Middle Row:** Ralph Lockhart, Benoit Savoie, Chris Maund, David Greene, Russell Weir, Doug McRory, Tom Woodcock. **Front Row**: Almuhanad Melhim, Shirlyn Coleman, Les Shipp, Peter Kevan, Kathy Trueman, Chris Cutler, Dan Schoen. **Floor**: Jamie Morrison, Mike Melanson, Valérie Fournier, Corey Sheffield, Linley Jesson.

Following on the heels of the Forum, CANPOLIN researchers spent a second day discussing their research progress in more detail and coordinating efforts for ongoing and future projects, including many that fall under the "blueberry crop squad" banner. Graduate students in attendance received valuable feedback from the wide range of scientific expertise present, while representatives of the blueberry grower and beekeeper associations were able to provide advice on industry issues and logistics.

The meeting was widely hailed as a success, and the format is likely to serve as a useful model for other stakeholder gatherings in the future. Special thanks to Linley Jesson (UNB), Bleuets NB Blueberries, the NB Department of Agriculture and Aquaculture, the Conservation Council of NB, for their support and efforts in organizing the meeting. Additional support was provided by several industry partners including the NB Beekeepers Association, WBPANS, and the PEI Wild Blueberry Growers Association.

Blueberry field in Newfoundland (photo by Cory Sheffield)

Save the Date!
NSERC-CANPOLIN AGM
February 25-26th, 2011
University of Guelph

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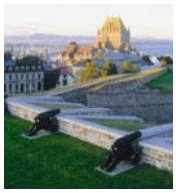


Apimondia Symposium 2012

Élevage de reines, sélection et pathologie de l'abeille mellifère
Queen breeding, selection and honey bee health

VILLE DE QUÉBEC

Introduction

- Initial idea (how this started)
  - Nuevo Vallarta Queen breeding Symposium
  - Gilles Ratia, president Apimondia
  - Québec City for the venue of this event
- Two standing commissions
  - Beekeeping technology and quality
    - President Étienne Bruneau
  - Bee health
    - President Wolfgang Ritter

First steps

- Ok from Apimondia (first steps with Apimondia officials and proposed letter of agreement)
- Implication of the comité apicole du CRAAQ
  - Provincial organization
- Implication of the Canadian honey council
  - Official Apimondia link in Canada
  - Host of the Symposium
- Implication de l'office du tourisme de la ville de Québec (what they offer as support)

Proposed program

- November 15-18 2012
- 4-5 Keynote speakers
- Scientific program
  - Talks and posters
- Technical tour
- Touristic tour

Symposium Apimondia 2012, Élevage de reines, sélection et pathologie de l'abeille mellifère

Queen Breeding, Selection and Honey Bee Health Apimondia Symposium 2012

Programme préliminaire/Preliminary Program

Jeudi/Thursday

PM
Enregistrement au symposium/Symposium registration check in

Soirée/Evening
Cocktail d'ouverture/Opening cocktail

Vendredi/Friday

Enregistrement / Registration check-in

AM (8h45-12h50)
Discours d'ouverture / Opening talk
Plénière Technologie / Plenary session Technology
Conférence clé / Keynote speaker (20 minutes)
Conférences / Conferences (15 minutes /conference)
Posters

PM (13h30- 17h50)
Plénière Pathologie de l'abeille / Plenary Bee Pathology
Conférence clé / Keynote speaker (20 minutes)
Conférences / Conferences (15 minutes / conference)
Posters

Soirée / Evening
Souper thématique / Thematic supper

Organization chart

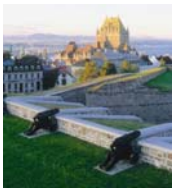
- Role of the CHC
  - Official host
  - Program proposal
  - Financial support
  - Federal grant demand
  - Creation of a corporation: Apimondia Qué incorporation of a non profit organization symposium)
- Role of the CAPA
  - Support and approval of the event
  - Program proposal
  - Participation in the two scientific committ
  - Presentation of Canadian research
- Role of the CRAAQ
  - Local organizing committee
  - Provincial grant demand

Proposed budget

- Comparison of the two selected Hotels (Concorde and Château Frontenac)
  - Deadline for these prices january 31 2011

Schedule

- CCM official commitment	January 2011
- CAPA approval and support	November 2010
- Hotel confirmation	January 31 2011
- Symposium promotion	ongoing
- Preliminary contacts with Symposium sponsors	ongoing
- Official finalisation and signing of Letter of Agreement	**Mar** 2011
- Development and updating of Symposium website	**Mar** 2011
- Submission of Symposium circular in draft for Apimondia review	**10 Mar** 2011
- Editing, review and printing of Symposium circular	**31 Mar** 2011
- Distribution of Symposium circular	**Apr** 2011
- Symposium progress report presentation at Executive Council meeting	May 2011
- Symposium promotion at 42nd Apimondia Congress	Sept 2011



Apimondia Symposium 2012

Élevage de reines, sélection et pathologie de l'abeille mellifère
Queen breeding, selection and honey bee health

VILLE DE QUÉBEC

MCP Papers in Press. Published on January 4, 2011 as Manuscript O110.006387

Interpretation of data underlying the link between CCD and an invertebrate iridescent virus

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In a recent publication, Bromenshenk et al. claim that an iridovirus, Invertebrate Iridescent Virus-6 (IIV-6), is tightly linked to Colony Collapse Disorder (CCD, the cause of many of the bee losses over the past four winters) based on proteomic analyses of bees from CCD-afflicted and un-afflicted colonies (1). We believe that there are fundamental flaws in the interpretation of their data based on the following rationale. Firstly, LC-MS/MS tends to identify the most abundant proteins much more frequently and the major capsid protein of IIV-6 constitutes at least 17% of total virion protein (2) yet of the 792 IIV-6 peptides reported by the authors, only 4 (0.5%) are from protein 274L, the major capsid protein. This is especially troubling since the authors rely on spectral counting to correlate IIV-6 levels with CCD. Secondly, in the list of identified peptides provided by the authors there is a high frequency of missed cleavage sites. Trypsin is a very reliable protease (3) and, indeed, if we examine some of our own recent large-scale bee proteomic datasets (available at http://www.ebi.ac.uk/pride/), we find that nearly 80% of all peptides are perfect tryptic peptides, with ~18% containing one missed cleavage and a few percent containing two (Figure 1, red bars). The peptides from Bromenshenk, et al. are skewed dramatically towards greater numbers of missed cleavages (Figure 1, blue bars), which could be explained in one of two possible ways: 1) that the tryptic digest was inefficient, or 2) that many of the peptide identities are incorrect (i.e. a high false discovery rate (FDR)). Since there is no independent 'gold standard' MS/MS data from IIV-6 proteins to compare against it is difficult to definitively evaluate the efficacy of trypsin from these data. However, other aspects of the described Methods suggest that the second possibility, a high FDR, is the more likely explanation: the authors state that they did not consider bee protein sequences when interpreting their MS/MS spectra, only pathogen protein sequences. Others have shown that when identifying proteins using a search engine such as SEQUEST or Mascot it is important to consider all the protein sequences that might be present in the sample or risk a high FDR (4). If we take the above-mentioned, large-scale LC-MS/MS dataset acquired on an LTQ-OrbitrapXL, that should have similar fragmentation characteristics to the LTQ data reported by the authors, and search all 692,336 MS/MS against a database comprised only of proteins from IIV-6 and all other known bee viruses (i.e., no *Apis mellifera* sequences), we can also 'identify' 103 IIV-6 peptides. However, if we include *A. mellifera* protein sequences in this search, as well as the virus sequences, then only a single IIV-6 peptide is found at an FDR of 1% based on reversed database searching: the other 102 spectra that matched IIV-6 peptides in the absence of bee sequences match considerably better to bee peptides than to IIV-6 peptides. In other words, at least 102 of the 103 matches were false discoveries when bee proteins were not considered. Interestingly, if one then plots the distribution of missed trypsin cleavages in the false IIV-6 peptides that we have 'discovered', the distribution is almost identical to that of the peptides from Bromenshenk, et al. (Figure 1, green bars). We believe that there is currently insufficient evidence to conclude that bees are a natural host for IIV-6, let alone that the virus is linked to CCD.

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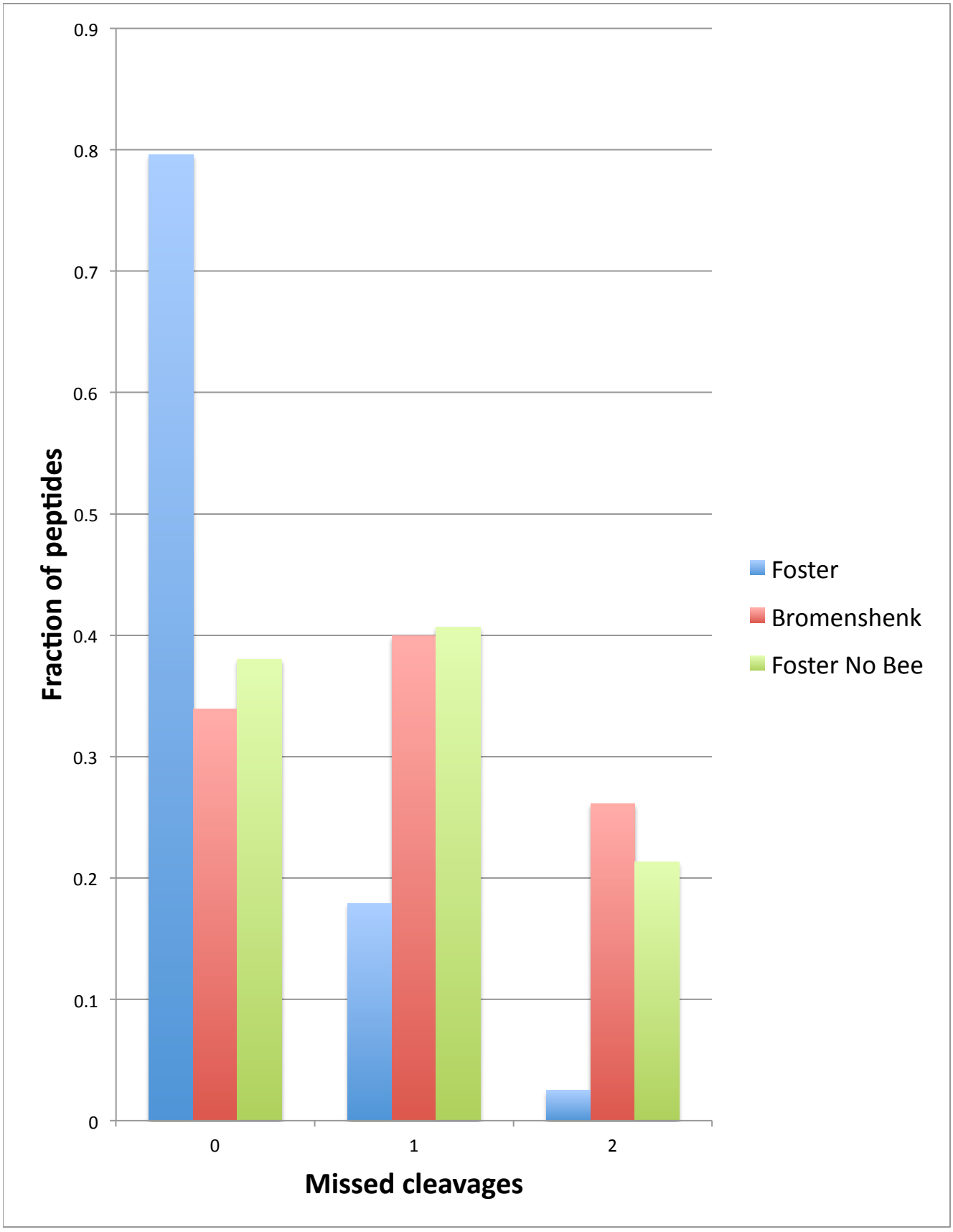
Figure legends:

Figure 1: Missed cleavages in peptides. A large-scale honey bee LC-MS/MS dataset was acquired on an LTQ-OrbitrapXL as described (5) and searched using MaxQuant against two different protein libraries: 1) all *Apis mellifera* protein sequences plus sequences from Israeli Acute Paralysis Virus, Kashmir Bee Virus, Black Queen Cell Virus, Invertebrate Iridescent Virus 6, Deformed Wing Virus and Acute Bee Paralysis Virus, or 2) just the above mentioned virus sequences. The number of missed trypsin cleavages (defined as the count of internal R or K residue except those followed by a P) was then evaluated in the results from these two searches (blue bars for search #1, green bars for search #2), as well as the list of peptides provided by Bromenshenk et al (red bars).


0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Fraction of peptides
0
1
2
Missed cleavages
Foster
Bromenshenk
Foster No Bee

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