Vol 20
Supplement 2007

HiveLights

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Canadian Honey Council

Reports from the 66th Annual CHC Meeting in Langley

CHC Activities

Industry statistics

Canadian Beekeepers Association 1940-1972

President				Secretary			
Year	Name	Town	Prov	Year	Name	Town	Prov
1940-41	William R. Agar*	Brooklyn	ON	1940	W.T. Patterson	Winnipeg	MB
1942	Sam M. Deschenes*	Montreal	QC	1941-48	Roy M. Pugh	Tisdale	SK
1943	J. W. Braithwaite*	Brandon	MB				
1944	P.C. Colquhoun*	Maple Creek	SK				
1945	Allan T. Brown	Peterborough	ON				
1946	W.E. Phillips*	Dauphin	MB				
1947-49	Frank Garland*	Winnipeg	MB				
1949-51	J.N. Dyment	Smithville	ON	1949	W.G. LeMaistre*	Edmonton	AB
1952	Peter Kowalski*	Edmonton	AB	1950-59	Roy M Pugh*	Tisdale	SK
1953-54	W.H. Turnbull*	Vernon	BC				
1955-56	H.C. Allen*	Toronto	ON				
1957-58	Sid J. Lye	Oakville	ON				
1959-65	Victor Mesley	Kemptille	ON	1960-62	R.M. McKay	Ottawa	ON
1966-67	Earl J. Burnett	Roland	MB	1962-69	John E. King*	Ottawa	ON
1968-69	Robert Asher	Brooks	AB				
1969-71	Lou Truscott	Creston	BC	1969-72	Hank R. Taylor	Ottawa	ON

Canadian Honey Council 1972-2007

1971-72	Don F. Peer	Nipawin	SK				
1972-74	Robert Bird	New West-minster	BC	1972-75	Frank R. Garland*	Winnipeg	MB
1974-76	Jack M Smith*	Beaverlodge	AB	1975-82	Fred Rathje*	Bassano	AB
1976-78	Gerry Paradis*	Falher	AB				
1978-80	Tom Taylor	Nipawin	SK				
1980-82	Howard Bryans	Alvinston	ON				
1982-84	Merv Abrahamson	Pelley	SK	1982-85	Bob Douglas	MacGregor	MB
1984-86	Jerry Awram	Hines Creek	AB	1985-98	Linda Gane	Nipawin	SK
1986-88	Dale Hansen	Farmington	BC				
1988-93	Roger Congdon	Cottam	ON				
1993-95	Barrie Termeer	Rollyview	AB	National Coordinator			
1995-99	Wink Howland	Yorkton	SK	1998-	Heather Clay	Calgary	AB
1999-01	Merv Malyon	Brandon	MB				
2001-02	Dave MacMillan	Thornloe	ON				
2002-04	Wink Howland	Yorkton	SK				
2005-06	Alain Moyen	Mirabel	QC				
2007	Ed Nowek	Vernon	BC				

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Haida Art by
Artist J McCue
Cascades Hotel and Conference Centre
Langley, BC

Photos Garry McCue

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SECTION 1:

Minutes of the 66th Annual Meeting of the Canadian Honey Council

24-27 January 2007, Langley, BC

Business Meeting

The 66th annual meeting of the Canadian Honey Council opened at 7:00 PM, Wednesday 24th January, 2007 at the Cascades Hotel and Conference Centre, Langley, BC

and continued on Thursday 25th January 9 am-5 pm

Present: Ed Nowek, Ron Greidanus, Corey Bacon, Barrie Termeer, Ron Rudiak, John van Alten, Paul Kittilsen, and the National Coordinator Heather Clay

Absent Jean Francois Regalbuto, QC delegate

Minutes of the 2006 AGM

Motion: Moved by Ed Nowek, seconded by John van Alten.

To accept the minutes of the January 2006, AGM Quebec City meeting as printed in the proceedings.

CARRIED.

There was no business arising from minutes.

2006 Financial Statement

Wink Howland

The CHC sought a new accounting firm after Jack MacKay declined the increasing work load that has resulted from government auditing requirements.The new firm is Justason, Sorenson of Saskatoon. The short notice for financial review caused a problem in having printed copies ready. The report is electronic and will be available in hard copy after the meeting. Their report is in Appendices 1, 2 and 3.

Motion: Moved by Corey Bacon /Paul Kittilsen to accept the 2006 financial statement as presented.

CARRIED

President's Report

Ed Nowek

I would first like to awknowledge and thank all directors for their endless hours of time they volunteer to Honey Council and their provincial associations, to our National Coordinator who contributes far above and beyond what could ever be expected for the remuneration we are able to pay, and to the other numerous volunteers who keep giving of their time and other personal resources to make this organization what it is today. And of course, thank you also to all of our members for joining CHC and the support you provide.

The Canadian Honey Council is the only recognized national voice for the Canadian honeybee industry representing producers first and the best interests of Canadian honey at home and abroad. There have been many significant accomplishments in the past few years such as Oxalic Acid registration, investigation of an anti'-dumping action against cheap foreign honey, continued work on an extensive project, CBISQT, to develop some of the world's highest standards for quality control and traceability. CHC continues with regular representation to Ottawa lobbying for honey regulation changes and truth in labelling practises to help protect the good name of Canadian honey from imitations and inferior imports as well as quarterly publication of "Hivelights," a first class newsletter to the Canadian beekeeping industry. This has been accomplished mostly

by a very efficient staff of one, numerous volunteers giving selflessly of their own time and an operating budget which is grossly underfunded for the continued good work of C.H.C.

Council has of late demonstrated its ability to build consensus on very contentious issues and provide Ottawa with the unified voice of industry enabling both change and growth. I feel this has built a framework of how the new council can work for everyone.

Our current project to redesign and restructure the Council of Canadian beekeepers to best represent our industry as their one effective national voice is providing the necessary opportuity to reevaluate the organization from the ground up. Please give us your input now and bee a part of the solution to a stronger and more vibrant Canadian honeybee industry.

Heather Clay received thanks from CHC and CAPA members for her work on behalf of the industry

National Coordinator's Report

Heather Clay

Anti Dumping

The low price of honey in 2006 put pressure the Canadian Honey Council to act on beekeeper's behalf and pursue the possibility of lodging a dumping complaint against imported honey. A great deal of time and effort was spent in procuring the necessary information for the complaint. We not only had to prove injury to our industry across Canada but also had to prove that the price of imported honey was below their cost of production. At the same time we had to raise money to pay for the legal costs. Many beekeepers contributed to the campaign and we were able to hire the services of an international trade lawyer. From January to July we monitored the imported honey and during that period there was no importation of Chinese honey. The lawyer advised that the timing was not good and we should continue to monitor the situation. Should importations resume and reach an unacceptable level we are well prepared to act quickly and lodge an official complaint.

Promotion

The directors recognized that anti dumping action is not the only answer to low prices and the CHC embarked on an ambitious project to promote the superior quality of Canadian honey. Winnipeg was chosen as a test market for a promotion campaign. A new mascot, Pierre the Bear, appeared at several fall fairs and was popular with adults and children. From October to December radio ads were run and billboards featuring the new logo with a cartoon of our mascot were displayed around the city. A consumer survey was conducted by Probe Research before and after the promotion campaign. The results showed that consumers awareness of the billboards and Canadian honey increased over the period of the campaign. The CHC has also produced a brochure to raise awareness of the benefits of Canadian honey. It will be distributed in bulk from the CHC to producers and associations.

Labelling

Canada Number one as a grade name for labelling imported or blended Canadian honey has been a concern for Canadian beekeepers for many years. We have pursued changes to the labelling regulations for many years. In 2006 the CHC invited stakeholders to a facilitated meeting in Calgary to dicuss labelling issues. There was consensus on many issues including the use of the term pasteurised. Three of the packers who are not dependent on Canadian honey did not agree to changes on position or size or grade name. The CFIA responded by holding their own consumer focus groups. The outcome has been that the CFIA is recommending changes to the label regarding the grade name and term pasteurized. There is still work to be done on the use of the name "honey" for products that contain little or no honey and the CHC will pursue that issue in the coming year.

C-BISQT

The CHC has undertaken an on farm food safety program in the past. A great deal of work has been completed and the Canadian Bee Industry Safety Quality and Traceability (C-BISQT) team has developed a draft good production practices manual. This project was placed on hold during 2006 because of the anti dumping work. It is anticipated that C-BISQT project will be pursued in 2007.

Oxalic Acid

The Pest Management Regulatory Agency approved the CHC's application for use of oxalic acid dihydrate in the treatment of varroa mites. Beekeepers can legally use the product because of the hard work of the CHC in preparing the necessary documentation and payment of the costs involved.

Coumaphos

The CHC applied for Emergency Use Registration of coumaphos (CheckMite+™) in 2006 on behalf of all provinces for treatment of varroa mites. This meant that only one national application for registration was required and beekeeper associations were saved the cost of individual applications. A second application was submitted for EUR of CheckMite for Small Hive Beetle. It is expected that CheckMite+™ will be registered in 2007 and there will no longer be a requirement for EUR for varroa mites. However there may be a need for an EUR request for small hive beetle until Bayer receives permission to add it to the current label.

Forging a New Direction

The current setup of CHC with one staff member and voluntary membership and no stable funding does not allow us to meet emerging issues. We have done a good job in responding to the many critical issues affecting the beekeeping industry but it the situation is unsustainable. In October 2006 we received funding from Agriculture Agri-Food Canada through their Advancing Canadian Agriculture Agri-Food fund to assist the CHC in Forging a New Direction. Work has commenced and there are four working committees are taking a look at the future purpose and roles of the CHC and the national office, our membership and representation, future budgets and funding sources, and our conferences.

This year will be one of the most exciting in the CHC's history, as the results of the committee's work are brought to you, the members, for discussion. Information will be posted on our website so everyone can see the progress we are making toward becoming a stronger national voice for the Canadian honeybee industry.We invite your participation in this process. Please send any comments to our project team at feedback@honeycouncil.ca.

Motion: Moved by Ed Nowek / Paul Kittilsen to accept the National Coordinator's report as presented.

CARRIED

Canadian Bee Industry Safety Quality Traceability.

Tim Townsend

The On Farm Food Safety program C-BISQT was put on hold through 2006 because of the time needed to pursue anti dumping. The good production practices manual for beekeepers is well under way. We have applied for funding to continue this project in 2007 and hope to submit the documentation to the Canadian Food Inspection Agency for technical review by the end of 2007.

Directors Report

The Directors decided to present their provincial reports in Hivelights magazine instead of verbally at the meeting. This allowed more time for an unscheduled presentation by Florida State Apiarist Jeff Hayes on the situation regarding Colony Collapse Disorder.

Colony Collapse Disorder

Jeff Hayes, State Apiarist, AIA representative, Florida

The media coverage of dwindling colonies and large scale losses in the USA has generated a great deal of public interest. In response to beekeeper concerns about a potential pandemic a Working Group of researchers has been formed. Experts from USDA Bee Research Lab, Beltsville, Penn State University and Florida Agriculture are cooperating on a joint project to detemine the possible cause or causes.

The symptoms are disappearance of older bees, dwindling brood and absence of robbing. Honey supers in dead colonies are not invaded by waxmoth or Small Hive Beetle.

Beekeepers in 22 states have reported the syndrome and their losses have been significant- 70% and higher. Preliminary tests suggest that CCD is communicable and transferable but there is no obvious primary causative agent. It is possible that there is an immune system problem or multiple secondary agents resulting from the stress of the CCD. So far there are lots of questions but no answers and research will be needed to determine the common link.

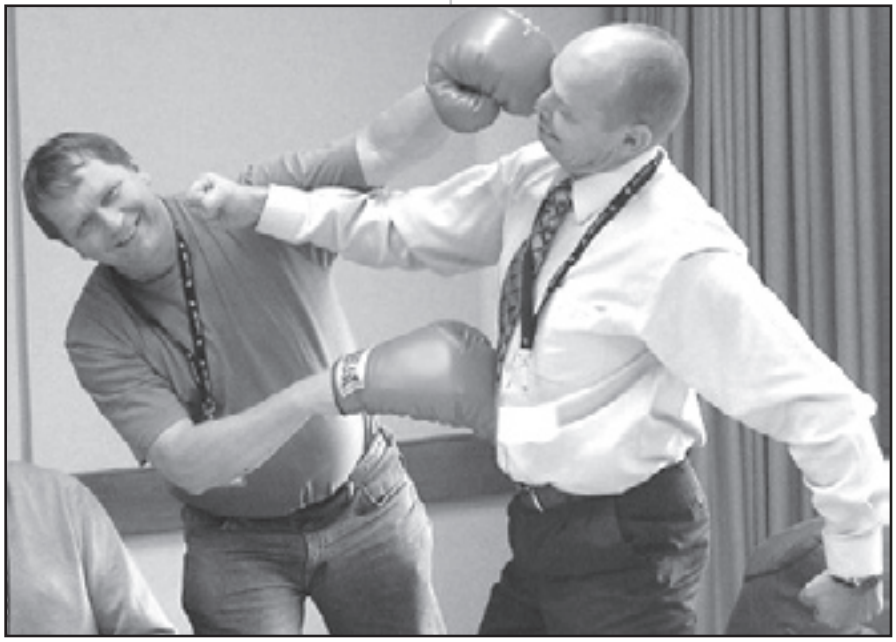
CAPA President's Report

Stephen F. Pernal

It is a pleasure to see you all in Langley and I hope that 2006 was a good beekeeping year for you all.

I have been privileged to serve in my first year as President of CAPA, the Canadian Association of Professional Apiculturists. As president, I have had the pleasure of communicating with Heather Clay, the national coordinator of the Canadian Honey Council, on a wide range of issues. I have always been impressed with her commitment to the beekeepers of this country as well as the stability and leadership she provides for your organization as a whole. I also have had some opportunity during the year to discuss issues with CHC Vice President Ed Nowek, as well as some of the Provincial Delegates. I hope to speak to more of you as the week progresses.

Being an employee of the Federal Government in bee research, I am regularly contacted by other government agencies, the media and organizations in other countries that have interest in, or dealings with, beekeepers in Canada. As such, I can only reiterate that having a strong national



John van Alten and Ron Greidanus at the CHC directors meeting

voice for your organization is crucial. I urge you to continue to support the CHC by participating in its activities and shaping its future.

This year CAPA has organized the 8th National Research-Planning Workshop for Honey Bee and Pollination Research. The last workshop took place in 2001 in Moncton, NB. For this workshop we have compiled a listing of existing resources for apicultural research and extension work in Canada and will ask participants to rank priorities for research over the next five year period. CAPA has also requested participation from the CHC in this exercise in order to assess the research needs as perceived by the industry. CAPA will produce a document from this workshop which will provide direction for research and provide justification for maintaining sources of research funding and retaining extension and research positions into the future. The results of the workshop will also assist CHC to make decisions regarding awarding of funding from the Canadian Bee Research Fund or to document changes in apicultural support when such information is required to be justified to government agencies in the future.

As usual, there were no dull moments in apiculture in Canada again in 2006. One of the highlights was the discovery of a single adult small hive beetle (SHB) on 24 May 2006 in a research apiary at AAFC Beaverlodge. This was the second discovery of this pest in Canada, the first occurring in Manitoba in 2002 when SHB was imported with unprocessed wax from Texas. The colony in which the beetle was discovered in 2006 was founded from Australian package bees. Subsequent efforts from CAPA members and colleagues at USDA-ARS Beltsville confirmed that the beetle was a genetic match to those from Australia and not the U.S. CAPA has been asked to provide scientific guidance to CFIA on how best to mitigate the importation of SHB from Australia in a manner commensurate with the degree of risk you as an industry are willing to accept.

In 2006 CAPA was also asked to review proposed CFIA guidelines for importation of honey bee queens from Chile and the importation of unprocessed beeswax from the U.S. These guidelines were carefully considered by several of our members, including all Provincial Apiculturalists. The recommendations provided do not restrict access to the importation of these items, and do not compromise the degree of risk already accepted by the industry for importation of specific pests and diseases.

CAPA has also been working toward improving our public communication during 2006. Our first initiative is the redevelopment of our website, www.capabees.ca. To accomplish this we have subcontracted the development and maintenance work to the same company which maintains the CHC website. Look forward to an updated look and new content in 2007. Another initiative that CAPA has been working toward is producing a 3rd edition of Honey Bee Diseases & Pests. Our current disease handbook is sold in countries throughout the world and we are in the process of updating the information and providing many more colour pictures in the new edition. We do not have a firm time line on production of this new publication yet. If anyone has good electronic images of honey bee diseases, pests or problems, please contact me if you think they may be of use.

On March 30, 2006 CAPA lost one of its honourary and founding members when Dr. Reginald (Reg) Shuel passed away at the age of 86. Reg was raised in Essex, ON, graduated from OAC in 1941 and obtained a Ph.D. at Ohio State. In 1950, he returned to the University of Guelph as a professor in the Apiculture Department and retired in 1985. Reg was a fixture in Canadian apicultural research and was an authority on nectar secretion. Rest in peace, our friend.

This meeting also marks an occasion to formally recognize the most recent recipient of the CAPA Outstanding Service Award, Dr. Mark Winston, of Simon Fraser University. CAPA conferred this award at the 2006 meeting in Quebec City and decided it would be presented to Mark in Langley this year. We all look forward to honouring such a deserving recipient at the Friday evening banquet.

In closing, I wish to emphasize that CAPA highly values its relationship with CHC to jointly address initiatives and assist in solving problems for the beekeeping industry in Canada. CAPA endeavours to provide non-biased scientific advice to the industry, as requested. Most members of CAPA are also beekeepers in one fashion or another and wish to see the apiculture industry in this country flourish.

Minister Strahl Announces $440,000 For The Canadian Honey Council

Jeff Howard
Press Secretary, Minister Strahl's Office

OTTAWA, Ontario, January 25, 2007 – The Honourable Chuck Strahl, Minister of Agriculture and Agri-Food and Minister for the Canadian Wheat Board, today announced $440,000 in funding that will revitalize the Canadian Honey Council (CHC) and enhance the promotion of the Canadian honeybee industry.

Funding for this initiative is provided to the CHC under Agriculture and Agri-Food Canada's Advancing Canadian Agriculture and Agri-Food (ACAAF) Program.

"Canada's New Government is committed to assisting the CHC by strengthening its viability in the global marketplace," said Minister Strahl. "This funding will help with the international promotion of the Canadian honey industry so it can seize on new opportunities to grow and prosper."

The CHC will deliver on a suite of activities including developing a communications plan, launching awareness projects, preparing a background paper for emerging issues, policy development and research, creating and implementing an action plan for the future direction of the CHC, reporting progress at the 2008 National Convention, and planning for a future international conference.

"Honeybees pollinate our food crops and contribute over $1 billion annually to the agriculture sector," said Heather Clay, National Coordinator of the Canadian Honey Council. "We are committed to strengthening our organization and with the support of ACAAF, will be able to build a more dynamic and sustainable Canadian honeybee industry."

As the vital link between beekeeper associations, industry and government, the CHC is the voice of the honey industry and serves as an advocate for beekeepers at the national level.

More information on the ACAAF program is available at www.agr.gc.ca/acaaf.

Forging a New Direction Progress Report

Steering Committee :Corey Bacon Paul Kittilsen, Ron Greidanus, John Van Alten

Over the past 3 months the Canadian Honey Council has begun re-inventing itself to meet significant challenges to the Council and to the Canadian honey bee industry. Some progress has been made; there is lots more work to be done

Project

The CHC, with funding from the federal government's ACAAF program, is reinventing itself to:

better anticipate and address issues facing the Canadian honey bee industry, and embark on a superior promotion of Canadian honey.

Future success of the CHC will depend on:

- Clear purpose & priorities
- Engaged & supportive membership
- Funding to retain needed staff & address industry issues
- Events serving the membership & advancing the industry

Process

Fall 2006 – Four Working Committees were appointed by the Board to develop and propose options to "forge a new direction" for the CHC, including:

- Purpose, Role & Structure
- Membership & Participation
- Budgets & Funding
- Conferences

Winter 2006/7 – CHC members have opportunities for discussion and input at the 2007 AGM and Conference and through the CHC website.

Spring 2007 – Working Committees identify preferred options to be implemented.

Summer/fall 2007 – Recommendations and Implementation Plans are developed.

Options

The future purpose of the CHC is to:

1 build and promote a dynamic and prosperous Canadian honey bee industry,

2 be the definitive unified national voice for the industry and

3 act as the instrument for achieving a sustainable Canadian honey bee industry in the global economy.

Purpose

Guiding Principle:

The CHC should serve the Canadian honey bee industry, its members,and other stakeholders.

Options:

The primary purpose is for the CHC to be the national voice for the industry, to

- effectively influence government and others
- the secondary purposes are to promote honey bee products &
- provide member services

Major Question:

What mechanisms are needed so that the CHC can be the "definitive unified national voice" and represent the "Canadian honey bee industry" as a whole, while recognizing and respecting regional diversity?

Winter 2008 – The 2008 AGM will receive recommendations for change.

2008 & Forward – Full implementation will proceed.

Guiding the Project: Steering Committee (Ron Greidanus, Paul Kittilsen, Corey Bacon & John Van Alten)

Project Team: National Coordinator (Heather Clay) & Green Isle Consulting Inc.

Project Resource People: Provincial Apiculturists

Roles

Like other national commodity organizations, the CHC will sometimes play a leadership role and other times encourage and support others such as the provincial associations/ commissions, provincial apiculturists, researchers and marketing organizations.

Guiding Principle:

Every role adopted must serve the CHC's stated purpose.

Options:

- influencing/lobbying government and other organizations to develop policy &take action favourable to the Canadian honeybee industry e.g. for hive health,standards for quality & fair labelling, regulating imports
- promoting Canadian honey and other hive products at home and abroad, as well as raising consumer awareness & encouraging development of new products
- providing services to members & other stakeholders, such as communication, information & education (e.g. for food safety & best production practices) & building consensus around issues facing the industry

Major Question:

Is there any other major role that would also serve the CHC's purpose?

National Office

The current national office is insufficient to support the purpose of the future CHC.

Guiding Principle:

Use of modern communications technology and good access to transportation make geographical location of the future office of less importance, though cost and effectiveness still need to be a consideration.

Options:

The new office should:

- stand alone
- make full use of up-to-date communication and information technology
- include a full-time director
- include full-time administrative/communications/financial support staff
- have access to, and resources for, external contracted support as needed

Major Question:

How soon can the national office be established independently with sufficient staff and other resources to support the new direction?

Membership

The Working Committee currently regards the future CHC as primarily a producer organization while acknowledging that the

industry is "bigger than the producers" and strong ties have to be maintained amongst producers, packers, suppliers, and other industry stakeholders.

Guiding Principle:

Eliminate competition for members between the provincial associations/commissions & the national organization, & between industry groups & the CHC.

Options:

- members are industry associations (Australian Honey Bee Industry Council)
- members are individuals & corporations (BC Fruit Growers' Association & many provincial producer associations)
- members are individuals [who are regional association members] & corporations (Canadian Bison Assoc.)

Major Question:

Who should be the members of the future CHC? Just producers? Provincial associations/commissions? Packers, suppliers, pollinators, others?

A Board of Directors made up of producers only would be a departure from the current situation. By-laws now enable representation on the Board from other parts of the industry specifically packers, pollinators and supplier organizations.

Board Of Directors

Guiding Principles:

Members' views should be represented on the Board and, at the same time, the Board should act in the best interests of the industry.

Stakeholders not represented on the Board should be consulted, as appropriate.

Options:

- Board continues to include representatives from provincial associations/commissions and other organizations.
- Formula for representation of producers could be 1 Board member/director per specified number of hives in an area (Province or region) e.g. 1 director for each 80,000 hives.
- Maximum number of directors (regardless of number of hives) from a Province or region could be set to maintain a geographic balance of interests on the Board.
- Executive Committee of the Board is elected by the Directors.

Major Question:

Who must be on the Board to fulfil the future purpose of the CHC?

Participation

Appropriate participation requires that communication be accurate, timely and open. There are two important kinds of communication: within the CHC and between the CHC and other organizations, government, etc. Presently communication between the Board and provincial associations and their members, amongst its own members, and with other stakeholders is sometimes difficult and seems to be lacking.

Guiding Principle:

Proper channels of communication should be established and used, and there should be policy and protocols guiding "who speaks for whom".

Options:

- communication through Hivelights & CHC website
- symposia and other educational/training events
- inclusion of CHC issues (presentation, discussion) at provincial meetings
- AGM
- CHC conferences
- ad hoc and standing committees of the CHC Board

Major Question:

What mechanisms are needed to effectively represent and involve members?

Budget

The Working Committee estimates that $250K - $300K is needed for "core" staff and annual operating costs (e.g. a CEO/National Coordinator with adequate information technology, administrative/financial and communication support).

Guiding Principles:

The operating budget should come from members, who may be beekeepers, provincial associations/commissions, other stakeholder organizations, etc.

Funding for "special projects" should come from governments, allied industries (e.g. blueberry growers) and other partners (e.g. research organizations)

Options:

- Raise membership fees (e.g. different rates depending on type)
- Introduce levies (e.g. provincial per hive, national per pound)
- Charge adequate service fees (e.g. for advertising, project admin., programs, website hosting)
- Earn income from events and products (conferences & trade fairs, Hivelights & labels)

Major Questions:

Are there any other non-government sources of income?

What portion of the operating budget should come from each income stream?

If packers, suppliers and pollinators are not represented on the Board, will they contribute to the CHC operating budget?

Conferences

Conferences are currently difficult to organize and host year after year. The practice of adding the CHC AGM and Conference on to provincial association meetings is economic but may not be the best way to serve the Canadian honey bee industry.

Guiding Principle:

Events should serve the membership and advance the industry by providing a venue to: conduct CHC business, educate members, offer a unique trade show, socialize and raise awareness among the general public about honey bee products and the industry.

Events should provide income for the CHC operating budget.

Options:

- establish a standing Events Committee
- create an events planning manual to be used and updated each year
- use contracts to make clear the ex-

pectations and responsibilities of each organization participating in CHC events

- streamline the current AGM and Conference formats
- optional programs for family members
- host and participate in international conferences on a regular basis

Major Question:

Should AGMs & Conferences be separate?

Should CHC events be independent of provincial meetings?

You Can Help

Get informed by reading the Project documents posted on the CHC website (click on ACAAF).

- Email your comments and ideas to feedback@honeycouncil.ca.
- Participate in Roundtable Discussions at Conferences and Association Meetings.
- Share your ideas with the Working Committee Chairs:
- Purpose, Role & Structure – Ron Greidanus (pattiron@telus.net)
- Membership & Participation – Paul Kittilsen (pl.kittilsen@ns.sympatico.ca)
- Budgets & Funding – Corey Bacon (beeranch@sasktel.net)
- Conferences – John Van Alten (info@dutchmansgold.com)

Fred Rathje Memorial

The Canadian Honey Council presents the Fred Rathje Award each year to a person who has made a significant positive contribution of innovative, creative and effective effort for the betterment of the bee industry of Canada during the past year. This year Dale Hansen received the Award at the CHC Annual Meeting in January 2007.

Dale is a long time beekeeper, starting work with his father who owned Van Han Apiaries. In 1979 he and his wife Sue Hansen together with his brother-in-law, Rick Thomson bought out Van Han Apiaries. They have been partners ever since.

Dale has contributed to the industry in many ways. He has served as BCHPA president. From there, he served as the B.C. representative to Canadian Honey Council. He served as CHC Chairman from 1986 to 1988. While president of the CHC Dale actively pursued the establishment of a nation wide levy on honey. The levy was to be paid by all players in the beekeeping industry with proceeds being used to launch a national honey promotion campaign. Although not successful in this endeavour, Dale's work initiated the move to hire Mary Lye who developed a national honey promotion campaign.

Dale has been active in the honey industry serving on the board of Alberta Honey Co-op and accepted the position of Chairman for several years. He was also Chairman of the board of BeeMaid Honey Ltd.

Dale continues to be active in beekeeping and holds a continuing interest in what is happening in the industry.

Fred Rathje Award Winners

2006	Dale Hansen (BC)
2005	Domingo d'Oliveira (PQ)
2004	Wink Howland (Sk)
2003	Mark Winston (BC)
2002	Doug McRory (ON)
2001	Don Nelson (AB)
2000	John Gruszka (SK)
1999	Doug McCutcheon (BC)
1998	Jean Pierre Chapleau (PQ)
1997	Merv Malyon (MB)
1996	Lorna & Jack Robinson (ON)
1995	Gordon Kern (BC)
1994	Kerry Clark (BC)
1993	Linda Gane (SK)
1992	Babe & Charlie Warren (BC)
1991	Gerry Paradis (AB)
1990	Cam Jay (MB)
1988	Don Dixon (MB)
1987	John Corner (BC)
1986	Gerry Smeltzer (NS)
1985	Paul Pawlowski (AB)
	First year of award

Honourary Members

1950	Hon J G Gardiner (ON)
1950	Tom Shield (ON)
1950	Harry Jones (PQ)
1950	G. H. Pearcey (BC)
1951	P.C. Colquhoun (SK)
1951	C.G. Bishop (PQ)
1955	J.N. Dyment (ON)
1956	F.R. Armstrong (ON)
1963	C.F. Pearcey (BC)
1964	Percy Hodgson
2002	Kenn Tuckey (AB)

Dale Hansen left receives Rathje award from Ed Nowek

Canadian Bee Research Fund

Rob Currie, Chair CBRF committee

The Canadian Bee Research Fund (CBRF) was established to counteract the problems caused by severe reductions in federal and provincial funding for honey bee research. It is a joint project of the Canadian Association of Professional Apiculturists and the Canadian Honey Council.

The Board of Directors is comprised of four members, two from CAPA and two from CHC. The Canadian Honey Council takes direction from the CBRF board of directors and administers the fund as required.

The CBRF has been set up as a long-term endowment fund. Interest generated by the CBRF is made available for annual grants. Beekeepers direct the type of research that they want to support. The CBRF is entirely supported by donations from the apiculture industry and is a unique partnership between CAPA researchers and CHC members.

The projects that received funding for the current year are:

"Management of Honeybee Diseases Using Lysozyme."

Dr. Steve Pernal,
Agriculture Agri-Food Canada,

$5,000

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

Dr. Rob Currie, University of Manitoba,

$6,000

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

Albert J Robertson, Saskatchewan Beekeepers Association,

$6,500

"Canadian Therapeutic Honey TM Development of production process"

Dr. Katrina Brudzynski, Brock University,

$7,500

Government Reports

CFIA Honey Program

Debbie Fishbein, Honey Program Officer, Canadian Food Inspection Agency, Ottawa

Staffing Update

The new Western area honey program officer, based in Edmonton, is Connie Zagrosh. Any western region inspection enquiries can be directed to her.

Recalls

The results of the Chemical Residue Testing are in Tables 1 to 3. In the period April 1, 2005 – Dec 31, 2005 there were 5 recalls on honey – 3 domestic and 2 import. For the period January 1, 2006 – Dec. 31, 2006 there were 5 honey recalls including a Class 1 recall for honey from Ukraine.

Honey Regulations – Amendments

The agency is in the process of amending and adding definitions and standards to the honey regulations. In consultation with industry a number of decisions have been reached. The Codex definition and standard for honey will be adopted. The term "pasteurized" will be revoked.

The changes will include enhancing registration requirements to be consistent with established policies

Focus Group Delivery

The CFIA requires consumer input before any regulation changes are initiated. The agency contracted Decima Research to conduct 4 consumer focus groups: 2 in Calgary in English, 2 in Montreal, one English and one French. The research was conducted between June 7 and June 14, 2006. Participants were of a range of ages, men and women, who had purchased honey or honey products in the last 6 months. Representatives from the Honey and the Fair Labelling Practices Programs observed all 4 focus groups

Focus Groups - Objectives

The objective was to determine if consumers are misled, and to what degree, with respect to the country of origin labelling of honey. If consumers are misled, to what degree, by representations by words, pictures, and graphics related to honey on products that may contain little or no honey ? What labelling information provides an accurate and understandable representation ?

What is the consumer impression of the term "pasteurized" on honey labels and what importance is the statement to consumers?

What was Discussed?

Highlighted ingredients and flavours:

- Product composition and expectations of ingredient vs flavour for honey representations on products such as cereal, snack bars, sauces, bread, chips, etc.
- Expectations on amount of honey in the product (based on representation)
- Whether honey content/expectation was product dependent
- Whether, on examination of the product, consumers were misled.
- The seriousness of the issue.
- How the representation could be improved?
- "Based on what you can see on the front panel, describe for me what the product is made of? Why do you say that?"

Grade Name/Country of Origin

- Expectation of country of origin based on first impressions of honey products of various origins and grade names
- Examination of grades and what they mean
- Importance of country of origin
- Whether the Grade name mislead with respect to Country of Origin.
- The seriousness of the issue
- How the labelling could be improved.
- "Where do you think this product is from? Why do you say that?"
- "Have you ever noticed a Grade on a product before? Which ones?"

Pasteurization

- Meaning of "pasteurized"
- Importance of "pasteurized" in purchasing decisions
- Impact if term removed from label
- What does 'pasteurized' [on a honey label] mean?
- Do you buy specific brands of honey because they are 'pasteurized'? Why?

Table 1 - Chemical Residue Testing

Chemical	Domestic			
	April 05 – March 06		April 06 – Dec 06 (9 months)	
	Tests	Positive	Tests	Positive
Chloramphenicol	218	0%	124	0%
Fluoroquinolones	106	0%	76	0%
Nitrofurans	203	0.5%	145	0%
Tylosin	203	15%(all<WRL)	129	12%(all<WRL)
Erthromycin	203	0.0%	129	0%
Penicillins	183	0.0%	53	0%
Sulfonamides	237	0.0%	123	0%
Tetracycline	86	4%(all<WRL)	88	1%(all<WRL)
Oxytetracycline	86	9%(all<WRL)	88	5%(all<WRL)

Table 2 - Chemical Residue Testing

Chemical	Import			
	April 05 – March 06		April 06 – Dec 06 (9 months)	
	Tests	Positive	Tests	Positive
Chloramphenicol	51	2 %	62	0 %
Fluoroquinolones	17	0 %	49	0 %
Nitrofurans	35	0 %	14	0 %
Tylosin	72	0 %	13	8 % (all<WRL)
Erthromycin	72	0 %	13	0 %
Penicillins	8	0 %	11	0 %
Sulfonamides	115	1 %	49	8 %
Tetracycline	86	0 %	23	0 %
Oxytetracycline	86	0 %	23	0 %

Table 3 - Chemical Residue Testing

Chemical	Surveillance (Targeted)			
	April 05 – March 06		April 06 – Dec 06 (9 months)	
	Tests	Positive	Tests	Positive
Chloramphenicol	154	8 %	151	11 %
Fluoroquinolones				
Nitrofurans	30	3.0 %	55	0 %
Tylosin	127	75.0 %	70	40 % (all<WRL)
Erthromycin	127	2.0 %		
Penicillins				
Sulfonamides	83	5.0 %	96	0 %
Tetracycline	86	0.0 %	112	0 %
Oxytetracycline	86	12 % (all<WRL)	112	17 %(all<WRL)

Focus Group Findings

- Degree to which people were frustrated varied
- Few participants currently make purchase decisions based on country of origin, but
- There is a general desire to know country of origin for allergy and environmental considerations, and to support local producers
- Most participants would prefer country of origin to be marked clearly beside the grade
- Factors that can impact consumer impression include packaging, labelling, common name, brand and trade names, grades, legibility, predominance and presentation of information
- Few participants consult or use "pasteurized" when purchasing honey
- For those participants that do refer to the process, they did not believe that honey was pasteurized only for quality purposes and not for food safety.
- They indicated that they wanted "pasteurized" to appear on the label (as applicable)
- Suggest that people are misled in both areas investigated:
  - Country of origin,
  - Ingredient claims on products that contain honey

Guiding Principles

Any changes in regulations must be consistent with Government of Canada Regulatory Policy

Regulations should produce the greatest net benefit to Canadian society. There must be no unnecessary regulatory burden and minimal adverse impacts on the economy. As well any changes must respect international and intergovernmental agreements.

CFIA principles to guide interpretation of labelling provisions

Labelling should be truthful (products must be labelled in such a manner that

consumers are not misled (quality, origin, etc.). They should promote informed food choice by providing consumers with reliable and comparable information. Market place equity and fair competition must be supported. Labelling must also respect obligations with international trade requirements and not create an unnecessary burden for regulated parties.

Proposals for the Use of the Canada Grade Name and Country of Origin Declaration

The CFIA proposes that

- "Canada" grade declarations be used only on honey of 100% Canadian origin
- New grade names will be implemented for blended and imported honey repackaged from bulk in Canada i.e. Grade No. 1, Grade No. 2, Grade No. 3
- Existing country of origin declaration requirement will be maintained including blend statements which can appear anywhere on the package.
- New font and type height requirements will be introduced to ensure legibility for consumers, i.e. net quantity/grade declarations.

Next Steps

The process has been initiated to provided a Regulatory Impact Analysis Statements (RIAS). Consequential amendments to the Food and Drug Regulations must be addressed. The CFIA will continue to work with the Honey Industry Advisory Group.

Importation of Honey Bees

Maria Perrone
Veterinary Program Specialist- Import, CFIA, Ottawa

Small Hive Beetle was reported in some Canadian apiaries in Alberta and Manitoba. The DNA testing showed they were probably from Australia. The CFIA contacted AQIS and is expecting a response regarding the situation. It is expected that there will not be package bees allowed from Australia in the spring of 2007.

Pesticide Risk Reduction

Catharine Hooper
Pest Management Regulatory Agency, Ottawa,ON

Checkmite Emergency Use registration was granted for all provinces in 2006. One submission was received from the CHC on behalf of all provinces. This allowed the PMRA to respond to the request on a timely basis.

Canadian Honey Production Situations and Trends

Farid Makki
Senior Market Development Advisor
Horticulture and Special Crops Division
Agriculture and Agri-Food Canada

Canadian Honey Production

According to the preliminary data released by Statistics Canada, Canadian honey production in 2006 reached 44.6 metric tonnes (MT), only 4 million pounds short of the 1998 record production. Alberta increased by 18% and Manitoba 48%. Saskatchewan recorded their the highest on record up 39% on the previous year.

Honey Bee population

The Canadian honey bee population peaked at about 700,000 hives in the mid-eighties and dropped to around 500,000 hives in the early nineties. However, in the past decade the number of hives has slowly risen to reach just over 6310,000 in 2006 representing a 2.6% increase from 2005.

The number of Canadian beekeepers has stablized at 8,000. While there are fewer beekeepers, the average number of hives per beekeeper is on the increase. For 2006, it is estimated that on average there were 79 colonies per beekeeper, up from 48 in 1997. Alberta had the highest average in 2006 with 345 hives per beekeeper.

Honey Yields and Prices

With the exception of 1998, which was a record year for honey production with an average yield of 180 pounds per colony, the average yields have been in the 117-142 pounds per colony over the last 10 years. The estimated average yield for 2006 is 156 pounds per colony. With an average of 250 lbs per hive, Saskatchewan has still the highest yields in the country, followed by Manitoba (220 lbs/hive) and Alberta (150 lbs/hive).

Estimates of the value of the 2006 Canadian honey crop are not available yet. However, historical data show a continuing upward trend in the average producer prices for bulk raw honey, rising steadily from $0.86/lb in 1999 to a peak of $2.04/lb in 2003. The price of honey has increased during that period on account of a world shortage of honey, due in part to drought in major producing areas, loss of Chinese honey from the market caused by antibiotic residue concerns as well as anti-dumping actions against China and Argentina in the U.S. However, this upward trend was abruptly reversed in 2004 as a result of a massive influx of low-priced Chinese honey on world markets and particularly in the US, which accounts for about 85% of our export market.

The availability of large amounts of low-priced Chinese and Argentinean honey on the world market has encouraged most North American honey packers to source an ever -increasing portion of their needs from offshore, particularly China. This has resulted in an unprecedented build-up of Canadian honey inventory levels. This factor along with a worldwide decrease in honey consumption has triggered a rapid decline in honey prices in Canada, as well

as in our traditional markets, namely the United States and Europe.

Imports and Exports

Canada is a net exporter of honey. Total Canadian honey exports for the calendar year 2006 were 11 million kg to November 2006. 85% of exports was to the USA. Imports of honey into Canada peaked at 13.4 million kg in 1996, then levelled off to about 2-3 million kg until 2000 and have been growing steadily since then reaching 8.9 million kg in the calendar year 2004. Total Canadian honey imports for the calendar year 2006 were 4.2 million kg, down almost 50% from 2005.

Argentina shipped 1.8 mill kg and China 400,000 kg down from 2.5 million in 2005. Iit appears that since 2002, following the CFIA recall of Chinese honey related to chloramphenicol residues, Argentina has taken the lead from China.

Given the uncertainty surrounding the size of the current year's honey crop in the world's major honey producing areas, the magnitude of North American honey imports in the next few months and the Canadian exchange rate, the best we might be able to conclude at this point in time is that after the abrupt collapse in honey prices in the world and particularly in North America, prices might have bottomed out or be close to reaching those levels. Even if Canadian prices do get higher, the upward movement is very likely to be short lived and not sustainable as packers can always switch to using more, cheaper imported honey.

1

WHEREAS Checkmite and Apistan are showing low efficacy in the treatment of Varroa mites, and whereas Bayvorol has been shown to be effective in treating the Varroa mite.

BE IT RESOLVED that the Canadian Honey Council seek emergency or full registration of Bayvorol by Bayer Canada through Pest Management Regulatory Agency (PMRA)

Moved by John Van Alten
Seconded by Corey Bacon

CARRIED

2

WHEREAS Checkmite and Apistan are showing low efficacy in the treatment of Varroa mites, and whereas Wellmark International is marketing a product called Hivastan with claims to be effective in the treatment of Varroa Mites.

BE IT RESOLVED that the Canadian Honey Council ask CAPA to investigate the suitability of Hivastan in the treatment of Varroa mites under Canadian conditions.

Moved by John Van Alten
Seconded by Corey Bacon

CARRIED

3

WHEREAS there are issues around the availability of queens from mainland U.S.A. and Australia, and whereas there is a need for Canadian beekeepers to secure good quality mated queens early in the season.

BE IT RESOLVED that the Canadian Honey Council ask the Canadian Association of Professional Apiculturists (CAPA) and the Canadian Food Inspection Agency (CFIA) to investigate the feasibility of developing protocols for the possible importation of Honey Bee Queens from Chile.

Moved by John Van Alten
Seconded by Ron Greidanus

CARRIED

4

WHEREAS Canadian Honey producers feel that there is a problem with the current retail honey labeling regulations, and;

WHEREAS the current negotiation seems to indicate that progress has been made to resolve this issue in a timely manner and to the benefit of Canadian Honey Producers

WHEREAS Canadian Honey Council has been involved in ongoing negotiations with Canadian Food Inspection Agency

BE IT RESOLVED that the Canadian Honey Council continue to participate in the negotiation process so that the outcome will be beneficial to the Canadian honey producers, and to provide clear product information to the consumer.

Moved by Ron Greidanus
Seconded by John van Alten

CARRIED

5

WHEREAS labor shortages are occurring in many industries including agriculture;

WHEREAS Human Resources and Social Development Canada has a process to follow in approving applications for seasonal foreign workers as determined by federal regulations that are time consuming and repetitive on an annual basis;

BE IT RESOLVED that Canadian Honey Council urge Human Resources and Social Development Canada office to work

with their counterparts in the provincial and federal government to establish regulations for a three year program for foreign seasonal agricultural workers.

Moved by Ron Greidanus
Seconded Corey Bacon

CARRIED

6

WHEREAS the Risk Assessment has shown low risk of the Small Hive Beetle in the Canadian beekeeping industry, and;

WHEREAS some safety measures can be taken to reduce the risk associated with the attendant workers in queen batteries, and;

WHEREAS bringing queens in batteries will facilitate the use of current conditions for queen imports to a fuller extent;

BE IT RESOLVED that current conditions for queen importation from continental U.S.A. be revised to allow importing queens in battery box.

Moved by Ron Greidanus
Seconded Ron Rudiak

DEFEATED 3/3, 1 ABSTENTION

7

WHEREAS the Risk Assessment has shown low risk of the Small Hive Beetle in the Canadian beekeeping industry, and;

WHEREAS some safety measures can be taken to reduce the risk associated with the attendant workers in queen batteries, and;

WHEREAS bringing queens in batteries will facilitate the use of current conditions for queen imports to a fuller extent,

And

WHEREAS consideration must be given to other beekeeping regions of Canada with regard to concerns on the importation of queen bees;

BE IT RESOLVED that Alberta Beekeepers in conjunction with Canadian Honey Council request Canadian Food Inspection Agency to approve derogation to the existing importation protocol to allow for queen importation in battery boxes on a case by case basis.

Moved by Ron Greidanus
Seconded Ron Rudiak

DEFEATED 3/3, 1 ABSTENTION

8

WHEREAS the Canadian Honey Council is using reserve to operate during the '06-'07 fiscal year;

And

WHEREAS the Canadian Honey Council needs the financial ability to operate during the transition period to the "New" Canadian Honey Council;

BE IT RESOLVED that Canadian Honey Council raise fees for the '07-'08 fiscal year to cover operating deficit.

Moved by Corey Bacon
Seconded Ron Greidanus

CARRIED

9

WHEREAS the Canadian Honey Council, as the national representative body of the industry seeks to have a prominent profile across Canada in the different regions of the industry;

And

WHEREAS as means of communication to the industry, wishes to have Annual General Meeting each year;

And

WHEREAS no location has currently been designated for the 2007-08 Annual General Meeting, and Alberta beekeepers have indicated a willingness to host Canadian Honey Council's Annual General Meeting;

BE IT RESOLVED that Canadian Honey Council take the necessary steps to plan and organize, in conjunction with the Alberta Beekeepers annual IPM conference in Edmonton Alberta, an Annual General Meeting 2008

Moved by Ed Nowek
Seconded Ron Greidanus

CARRIED

10

WHEREAS the risk assessment has shown low risk of the Small Hive Beetle in the Canadian beekeeping industry and;

WHEREAS the Small Hive Beetle is a tropical pest and may not survive in the Canadian climate or become detrimental to the beekeeping industry, and;

WHEREAS some safety measures can be taken to reduce the risk associated with the attendant workers in queen batteries, and;

WHEREAS bringing queens in batteries will facilitate the use of current conditions for queen imports to a fuller extent;

BE IT RESOLVED that current conditions for queen importations be revised to allow importing queens in battery cages.

Tabled motion from 2006

Moved: Ron Greidanus
Seconded Ron Rudiak

TABLED

11

WHEREAS the Small Hive Beetle has been found in Canada;

And

WHEREAS Australian Packages have been distributed in several regions of Canada;

And

WHEREAS there are additional threats of Small Hive Beetle crossing into Canada from the United States because of the close proximity of our respective apiaries (beeyards);

And

WHEREAS Checkmite is the only product shown to be effective in the detection

and control of Small Hive Beetle;

BE IT RESOLVED the Canadian Honey Council ask PMRA to consider adding Small Hive Beetle to the label proposed for full registration of Checkmite for use by Canadian Beekeepers.

Moved John Van Alten,
Seconded Ron Greidanus

CARRIED

ELECTIONS

The nomination committee brought names for each position to the board. Elections were held and the positions for 2007 are

PRESIDENT Ed Nowek

VICE PRESIDENT John van Alten

EXECUTIVE DIRECTORS

Paul Kittilsen and Corey Bacon

Motion to accept the slate of officers
Ed Nowek/ Seconded John Van Alten

CARRIED

ADJOURNMENT

Motion to adjourn the meeting by Ed Nowek, seconded by Corey Bacon.

CARRIED

SECTION 2:

CANADIAN BEE RESEARCH REPORTS

SASKATRAZ 2005 SELECTIONS AND POTENTIAL RELEASE OF BREEDING STOCK TO SBA MEMBERS 2006.

Albert J. Robertson,
Meadow Ridge Enterprises Ltd.,

The 2005 results of our breeding program were presented at our annual SBA convention in Saskatoon (February 1-4), in Quebec City at the Canadian Honey Council meetings (January 24-28) and in Houston, Texas at the American Honey Producers Associations annual meeting (January 10-14). Considerable interest was expressed in Saskatraz genetics at all meetings and some new collaborations involving selections and molecular marker analysis will be taking place in the future.

The objective of our research program is to select productive, gentle, honey bees with some tolerance to mites and brood diseases. In addition, correlation of beneficial traits with molecular markers will be attempted. This will potentially eliminate the time consuming and expensive process now needed to identify lines with tolerance to mites and brood diseases.

Saskatraz was established in 2004 with 35 pre-selected colonies from fourteen different queen breeders, reselected Russian stock, (2000 to 2004) and breeding lines from the Manitoba Queen Breeders Association. In 2005, 14 more selections were placed at Saskatraz with crosses made between Russian and German lines (Dr. Ralph Büchler) in 2004 and with additional selections from Canadian lines.

In 2005, more honeybee semen was imported from Dr. Büchler's program in Germany, with Yves Garez's help. Dr. Büchler's program involves selection for varroa tolerance, honey production, grooming and hygienic behaviour. Susan Cobey assisted us in making 35 new crosses with this semen, (G-08 and G-72) by instrumental insemination of virgin queens from the following selected lines (yellow-green-05, yellow-blue-05, UM-163, 234, 147, SAT 28, 30 and BTP-30).

No chemical mite treatments are being made at Saskatraz and natural selections is being used to identify tolerant phenotypes. Our primary selections made in May 2005, involved wintering ability, (spring populations, brood pattern, etc) gentleness, lack of brood disease and general queen and economic hive characters. Honey production and mite populations were monitored throughout the summer. Honey production was given top priority and Figure 1 shows the results of colony honey production during the

summer of 2005. Three colonies produced over 300 lbs (SAT-17, 14 and 30) and three over 250 lbs (SAT-18, 25, 34). The two colonies with the highest tracheal mite levels (12 to 14%) in October, 2005 being SAT-08 and SAT-31, produced 208 and 142 lbs of honey respectively (Fig 1.). SAT-06 (10% Varroa) and 26 (30% Varroa) showed the highest levels of varroa population growth as determined by alcohol wash in October 2005 and produced 147 and 159lbs of honey respectively (Figure 1).

In 2004 all colonies selected for Saskatraz were thoroughly evaluated for the presence of both tracheal and varroa mites. No tracheal mites were detected in any of the colonies of two independent samples of 100 bees/colony, Therefore all colonies were infected in the fall of 2004 with 200 to 300 worker bees collected from a colony showing 60% tracheal mite infestation (John Gruszka, personal communication). Tracheal mite levels were monitored on a monthly basis from May 2005, to October 2005. Figure 2 shows spring and fall tracheal mite populations detected in individual hives at Saskatraz. Stars designate hives selected for honey production (SAT-34, 28, 30, 23, 14, 17).

Evaluation of colonies for varroa mites in 2004 (July-August) showed wide variations in varroa populations. Eighteen colonies tested positive with trace levels to 50 mites detected by natural drop per day. In seventeen colonies no mites were detected by natural drop analysis in a 28-day test. In order to normalize varroa mite populations all colonies were treated with Apistan for 14 days in the fall of 2004 (October 1-14). Varroa mites were detected in all colonies in October 2004. No further treatments were made and varroa population growth was monitored in each colony from May 7 to October 15, 2005. Monitoring was performed by measuring the natural drop rate of varroa mites on sticky boards as described by Martin, S.J. 1998. (Ecological modeling 109; 267-281) on a weekly basis. Varroa populations were also determined by the alcohol wash method on a monthly basis in samples of approximately 200 to 300 bees per colony.

Figure 3 shows changes in varroa mite populations in selected colonies between May 7, and Oct 15, 2005. Varroa population analyses of 8 colonies are shown in Figure 3, representing high, low and intermediate varroa populations. SAT-26 showed a rapid increase in varroa population 40 days after count initiations. Between the middle of June and September varroa populations increased from very low levels to 5000 varroa /colony. Alcohol wash analyses of SAT-26 (October) showed 30% of the worker bees sampled were carrying varroa, confirming the natural drop analyses. SAT-26 appears very susceptible to varroa infestation and it will be of interest to see if this colony survives the winter. SAT-06 showed a steady increase in varroa population growth from July to September, as did SAT-17. SAT-14, 23, 28, 34 and 30 suppressed varroa population growth throughout the test period. SAT-34 showed an increased varroa drop rate between 110 and 120 days (Sept 7-17) into the analyses, with counts returning to trace levels in the next month. Spring counts will reveal how well these colonies continue to suppress varroa population growth.

Six selections of Saskatraz colonies were made in 2005, based on honey production, suppression of tracheal and varroa mite population growth and other desirable colony traits. SAT-14, 17, 23, 28, 30 and 34 were selected for multiplication of daughters. SAT-23, 28 and 30 were selected early enough so that some queen cells could be produced from embryos collected from these colonies during the summer. Queen cells were distributed to about seven SBA queen breeders for out crossing. We need to expand the multiplication of these selections in the coming years to maintain these breeding lines. This brings us to the second phase of the Saskatraz project-multiplication and distribution of breeding stock.

Part II. Commercialization of Saskatraz Breeding Stock.

Research funds are used to establish, maintain, measure, identify and make selections of superior genotypes at Saskatraz. Selections will continue to be based on honey yield, varroa and tracheal mite tolerance, wintering ability and other desirable colony traits. Research efforts will also continue to explore the identification of molecular markers to assist selection of important traits, eliminating the laborious and costly testing of breeding lines for economic traits. However, research funds do not completely cover the cost of multiplying selected lines or the construction of breeder queens from these selected lines. We might use the seed industry as a model. These costs are normally recovered in part by the sale of breeder seed and a check-off system on seed multiplied in the grain industry and a similar approach is likely necessary in our breeding program. Several options were discussed at out "Bearpit" session and the board of directors will be reporting on what options might fit our association. An attempt will be made to estimate the cost of production of Saskatraz breeders this spring and summer. One option might be attractive would be an auction of both breeding stock and commercial queens derived from Saskatraz breeders at an annual event like the SBA field day. Several breeders could contribute stock and a catalogue could be printed listing the different breeding lines available and their characteristics. This information could be mailed out to beekeepers for review prior to the sale. This system works well in the cattle industry.

The first step in the commercialization of Saskatraz stock is to multiply daughters from the selected lines (i.e. SAT 30, 34, 23, etc.). Queen cells of these lines will be produced and made available to SBA queen breeders. It is critically important that these lines be multiplied and maintained by a number of different breeders. Individual breeders need to cross selected daughters with their best stock (10 to 20 colonies) in a closed population (isolated) mating area. Re-selection of these colonies needs to be done for re-introduction of one breeder every few years back into the Saskatraz location for evaluation. This approach will help to maintain the available gene pool for re-distribution. It is not yet possible to cryopreserve honeybee embryos or semen to maintain important breeding lines. Honeybees cannot be set-aside on a shelf like seeds, to preserve the genetics, but need to be continually propagated. At the same time these breeders will be producing hybrid-Saskatraz queens for sale to the commercial beekeeping industry. These hybrid-Saskatraz lines can also be backcrossed using virgin queens from various selections to reconstruct "near pure" Saskatraz lines, in a similar fashion to procedures used with imported Russian embryos.

The second step in the commercialization of Saskatraz stock is to produce Saskatraz breeder queens for distribution to queen breeders. These breeders will be used to produce large numbers of queens for sale to commercial beekeepers. Two approaches will be taken in the productions of Saskatraz breeder queens. One

approach will be to open mate daughter virgin queens from selected colonies (e.g. SAT-30, 34) to the Saskatraz drone population after removal of mite sensitive colonies that are becoming critically infested (closed population breeding). The second approach will be to use instrumental insemination to combine desirable traits selected at the Saskatraz site. For example virgin queens from colonies selected for honey production could be mated with drones from colonies with tracheal and varroa mite tolerance. Progeny testing of these crosses will be important to study inheritance of desirable traits and for identifying molecular markers. Production of breeding stock with increased honey production and mite tolerance will be of significant value to the commercial beekeeping industry.

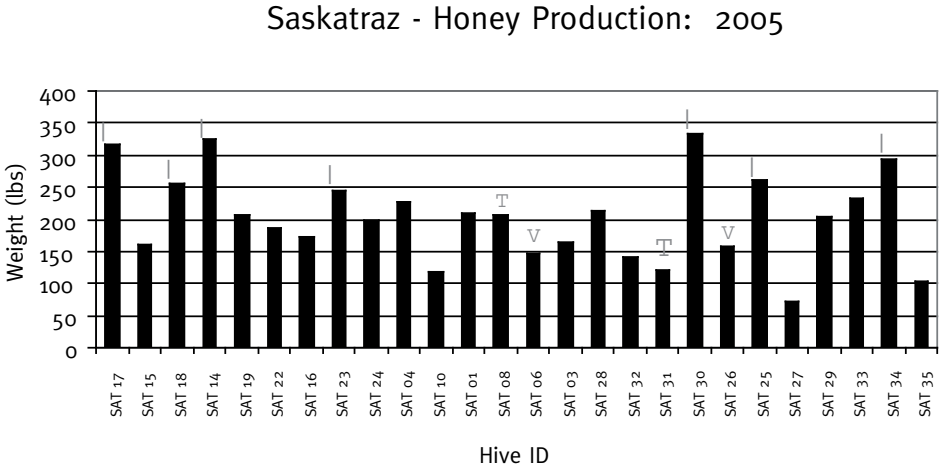
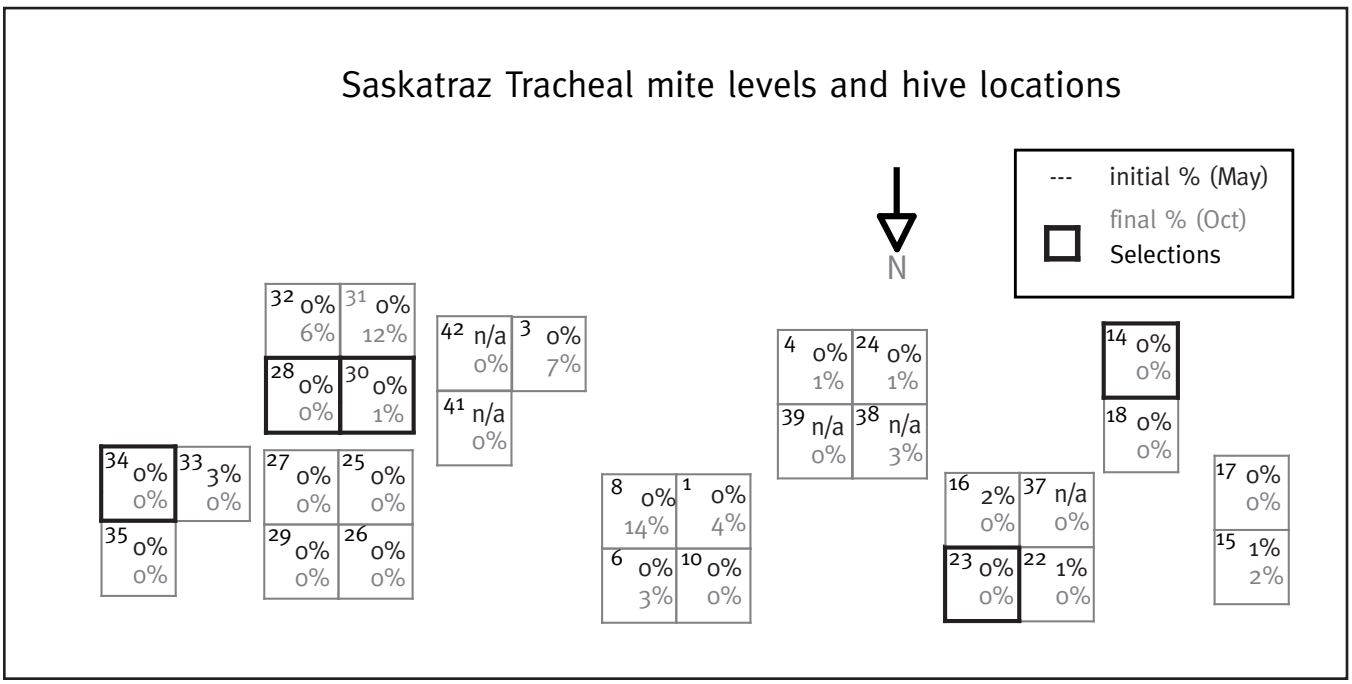


Figure 1. Total net honey production per hive was determined by weighing all supers of honey produced by each colony. Honey was harvested at three time periods between July 15 and Sept 10, 2005. Stars denote hives selected on the basis of honey production, T and V identify colonies showing the greatest increase in tracheal (T) and varroa (V) mite population growth.

Eric Pedersen has indicated he will be willing to work on the Saskatraz project again this summer and continue to evaluate mite tolerance. John Pedersen has also offered his expertise in selection and queen rearing and plans to work with us this summer on selecting and producing breeding stock from Saskatraz. We are fortunate to have John join our group and we are looking forward to spring results. Any SBA producers who have breeding lines available for testing at Saskatraz please contact me. This year arrangements can be made to have pre-selected stock picked up and delivered to Saskatraz.

Figure 2. Per cent tracheal mite infestations were determined on a monthly basis by sampling 100 bees per colony from May to October. May (blue) values for each colony at each location are indicated in the upper right corners of each hive location, stars denote selected colonies; October (red) values are in the centre



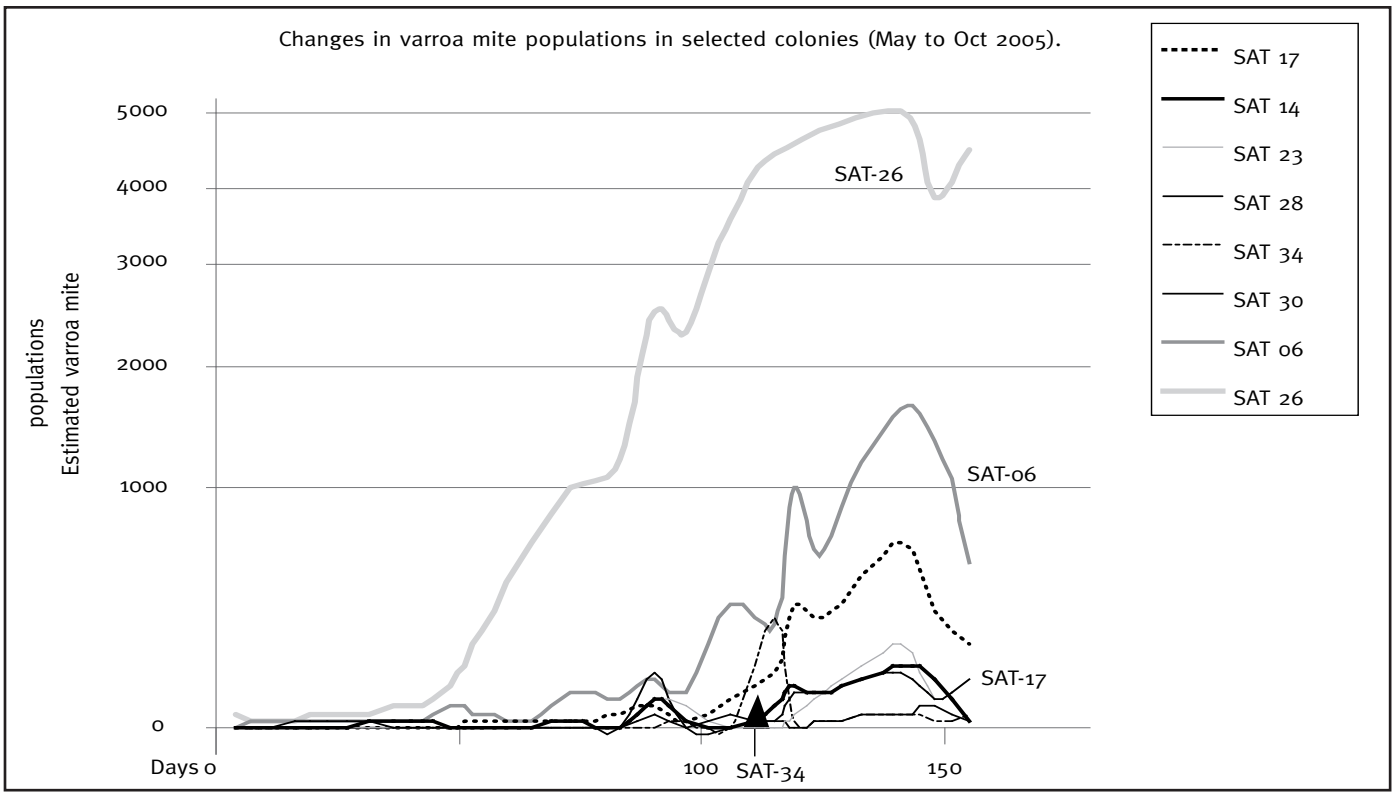


Figure 3. Varroa mite population were estimated by the natural drop method. Varroa mites were counted on a weekly basis between May 7 and Oct 15, 2005. Data from 8 colonies are shown representing high (SAT-26,-06) varroa populations, intermediate (SAT-17), and low population levels (SAT-14,-23,-28,-34,-30). SAT-34 (arrow) showed low varroa counts except for a increased drop rate detected between 110 and 120 days (Sept) into the analyses.

Acknowledgements

The financial support of the Saskatchewan Beekeepers Association, Meadow Ridge Ent. Ltd., Saskatchewan Agriculture and Food and the Canadian Bee Research Fund is gratefully acknowledged. The expert technical assist of Eric Pedersen and help with mite analyses by John Gruszka, Provincial Apiculture Labs in Prince Albert, Saskatchewan helped make this work possible. In addition, we thank Yves Garez for help with honey bee semen importation.

We are also grateful to Wink Howland for assisting with pedigree form development and in the publication of this Special Edition of the Newsletter, and to the SBA board of directors for developing conditions for release of breeding stock.

Management of Honey Bee Diseases Using Lysozyme

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Progress on Research Activities in 2006

The overall goal of our research project is to evaluate lysozyme as an alternative to oxytetracycline (OTC) for the control of the American foulbrood (AFB) and other brood diseases. Since 2005, we have continued to investigate the toxicity of lysozyme to honey bees, Apis mellifera, as well as its efficacy against AFB. The antibiotic nisin, a compound with action against P. larvae and a synergist to lysozyme, was also evaluated for similar effects. Based on demonstrated synergy between lysozyme and other macrolide antibiotics, we also undertook a study to establish whether additive or synergistic effects between lysozyme and tylosin exist. Finally, we modified our in vitro protocols to evaluate the efficacy of lysozyme against Ascophaera apis, the causative agent of chalkbrood disease.

Objectives and Methodologies

Adult Worker Honey Bees

The acute toxicity of nisin was evaluated using the methods as described in our 2005 research report (Hivelights Vol. 19;

Supplement pp. 21-24) and mortality among the nisin doses was compared with a highly toxic reference compound, dimethoate, as well as OTC and lysozyme. Chronic toxicity studies of lysozyme and nisin carried out in 2005 were continued and the percentage of workers surviving each day for each dose tested for 19 days was compared using survival analysis.

Regurgitation trials were carried out and described in 2005 to test the stability of lysozyme in the honey stomach of worker bees over 24 hours. Changes in the quantity or activity of the enzyme after consumption over time were analyzed by Neova Technologies using ELISA and turbidimetric techniques. Differences in amounts of lysozyme between sampling intervals were compared using t-tests.

Larval Worker Honey Bees

AFB

The effects of feeding lysozyme and nisin to larval honey bees and the ability of the enzymes to treat larvae infected with P. larvae were evaluated using an in vitro larval rearing assay described in the 2005 report. Known therapeutic concentrations of OTC and tylosin were included in the rearing assay as positive controls. The proportion of adults emerging, as well as the larval (pre-defecation) and pupal (post-defecation) mortality was compared among concentrations using one-way ANOVA and a posteriori comparisons (Tukey-Kramer HSD).

Chalkbrood

The in vitro larval rearing assay was modified to evaluate the effects of feeding lysozyme to larval honey bees infected with A. apis. Honey bee larvae less than 24 h-old were grafted into Petri dishes and reared to adulthood in an incubator set to 34° C. The larvae were transferred onto fresh food 72 h after the initial graft and monitored until pupation occurred, at which time they were moved to pupation trays (culture plates lined with absorbent tissues) and examined until emergence as adults. Larvae were chilled to 28-30°C for 1 h at pupation. Infected larvae were fed 1.0 x 108 chalkbrood spores mixed into their BLD 72 h after grafting and were fed doses of lysozyme mixed into the BLD throughout the entire assay. After infection, any dead larvae or pupae were observed for signs of A. apis growth. The proportion of adult emergence, larval (pre-defecation) and pupal (post-defecation) mortality, and incidence of infection per tray was compared among concentrations using one-way ANOVA and a posteriori comparisons (Tukey-Kramer HSD).

Synergy between Lysozyme and Tylosin

A fractional inhibitory concentration (FIC) test was used by Neova Technologies to determine minimal inhibitory concentrations (MIC) of lysozyme and tylosin and the combined effect of both substances on P. larvae growth. Six P. larvae strains were grown in Luria-Bertani broth supplemented with thiamine hydrochloride in 96-well polystyrene microtitre plates and inhibition of growth was evaluated visually. Concentrations of lysozyme and tylosin tested ranged from 0-1000 µg/mL 0-1 µg/mL respectively.

Results and Discussion

Adult Worker Bees

Nisin, similar to lysozyme and OTC, was not acutely toxic to adult worker honey bees. In fact, the highest dose tested, 6400 µg failed to result in significant adult mortality within 72 h. Nisin and lysozyme each had a 24 hour LD50 of >6400 µg and OTC a 24 hour LD50 of 3677 µg. By contrast, dimethoate killed bees at extremely low doses with a 24 hour LD50 of 0.34 µg. Furthermore, the LD50 values for dimethoate were within the range of previously published literature values, suggesting our assay conformed to international standards.

Consumption of daily doses of lysozyme ≤ 511 µg per bee did not significantly affect worker mortality after 19 days, however the highest dose of 3822 µg per bee showed almost complete mortality ($F = 74.91$; $df = 14,30$; $P<.0001$). Chronic consumption of nisin at doses ≥ 58 µg per bee significantly differed from the untreated control after 19 days while doses ≤ 40 µg per bee per day did not ($F = 74.91$; $df = 14,30$; $P<.0001$).

After honey bees consumed 50% (w/v) sucrose solution containing 0.16 g/mL lysozyme, a concentration of 236000 ± 41307 ppm of lysozyme was detected at the first sampling interval (Figure 1). Over the course of 24 h, lysozyme in the honey stomach decreased 88.75%. Lysozyme levels in bees fed 0.0016 g/mL decreased from an initial concentration of 1865 ± 296 ppm to 325 ± 296ppm, an 82.57% drop. Mean amounts of lysozyme detected were not significantly different between 0 and 24 h when fed 0.0016 g/mL ($t = 3.100$; $df = 2$, $P = 0.0902$) but differed significantly when fed 0.16 g/mL ($t = 5.65$; $df = 2$; $P = 0.0299$). No change in lysozyme concentrations were detected over the span of 24 hours in the control sucrose solutions held at 34°C.

Larval Worker Honey Bees

During the summer of 2005, we established that lysozyme was not toxic to worker larvae at concentrations < 4% in the basic larval diet, which was significantly higher than the concentration we found that reduced mortality to AFB (0.0025%). Previous studies evaluating chlortetracycline and tylosin have shown that minute changes in concentration can have significant effects on larval survival and adult emergence. As such, we chose to evaluate a large number of incremental concentrations of lysozyme for their effects at suppressing AFB infections ranging from 0.0002 - 0.04%.

After attempting to prevent AFB infections with lysozyme at all of the previous doses, necessitating the in vitro rearing of thousands of larvae, we were not able to detect any reliable therapeutic effects. What was perplexing, however, was the fact that levels of adult emergence in the antibiotic control treatments (0.0025% OTC and 0.03% tylosin) were far below expected levels of 70-90% (pre-defecation $F = 8.01$; $df = 27,18$; $P >0.0001$; post defecation $F = 4.68$; $df = 27,18$; $P = 0.0006$; emergence $F = 1.81$; $df = 27,18$; $P=0.0971$). However, by decreasing the concentration of spores fed to larvae treated with 0.03% tylosin we were able to establish an inoculation dose (1.0 x 107 spores/mL) at which the antibiotic control treatments suppressed the disease to acceptable levels also resulting in adult emergence being similar to the untreated, uninfected controls.

Based on the previous findings, we examined the therapeutic effects of lysozyme against AFB at the optimized spore inoculation dose of 1.0 x 107 spores/mL (Figure 2). Over all concentrations of lysozyme tested, no clear differences could be distinguished from the infected, untreated control (0% lysozyme) for larval ($F = 1.15$; $df = 7,9$; $P = 0.4116$) or pupal ($F = 2.48$; $df = 7,9$; $P = 0.1021$) mortality. The proportion of adult emergence of the

antibiotic controls, OTC and tylosin, corresponded to expected levels of success and was significantly greater than the infected, untreated control (F = 8.94; df = 7,9; P = 0.0020). At the most therapeutic dose of lysozyme (0.005%), only 30-50% of the infected larvae emerged as adults which was neither statistically distinguishable from the infected, untreated control nor the antibiotic control treatments.

Nisin did not prevent AFB at any concentration in BLD when the innocula was present at 1.5 x 108 spores/mL. Infected larvae treated with nisin (0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, and 0.1% BLD) did not differ from the infected control in terms of larval or pupal mortality or adult emergence.

Synergy between Lysozyme and Tylosin

There was a four-fold drop in the amount of tylosin needed to inhibit growth of P. larvae strains IM445 and IM529 when combined with lysozyme but the trend was inconsistent across strains. Tylosin MICs dropped two-fold for strains IM449 and IM526 while strains IM447 and IM528 showed no change at all in the concentration of tylosin required to inhibit their growth.

Lysozyme and Chalkbrood

Larvae infected with chalkbrood fed concentrations of 0.75, 1.5, and 3% lysozyme demonstrated a significant decrease in larval mortality from the infected control and did not significantly differ from the untreated, uninfected control (Figure 3; F = 111.45; df = 4,10; P >0.0001). Adult emergence success at all three concentrations was significantly different from the infected controls (F = 35.66; df = 4,10; P >0.0001), however there was a slight increase in pupal mortality (F = 4.90; df = 4,10; P = 0.019) at 3% lysozyme and a subsequent drop in emergence success. Levels of infection for all three concentrations were similar at ~20% which is significantly lower than the infected control (F = 145.87; df = 4,10; P >0.0001). It is also significantly higher than the uninfected control demonstrating that although highly fungistatic, lysozyme does not completely protect larvae from the effects of chalkbrood.

Conclusions

Although lysozyme and nisin were not acutely toxic to adult honey bee workers, nisin had a higher chronic toxicity than lysozyme, as measured by international standards. Lysozyme's relative lack of chronic

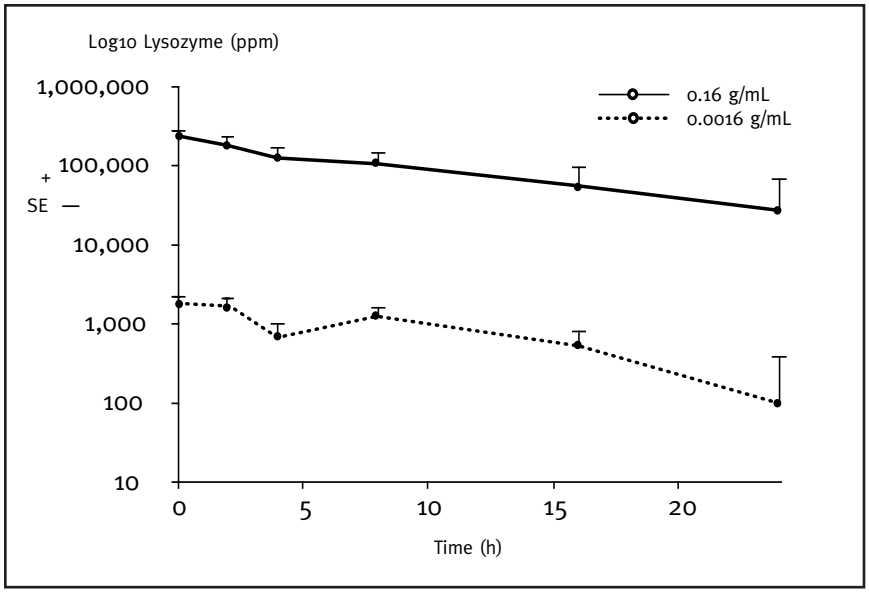

Figure 1. Persistence of lysozyme over the course of 24 h in the honey stomachs of worker bees (7-9 days) fed acute treatments of 0.0016 g/mL or 0.16 g/mL lysozyme in 50% (w/v) sucrose solution. (n = 2 cages per time interval).

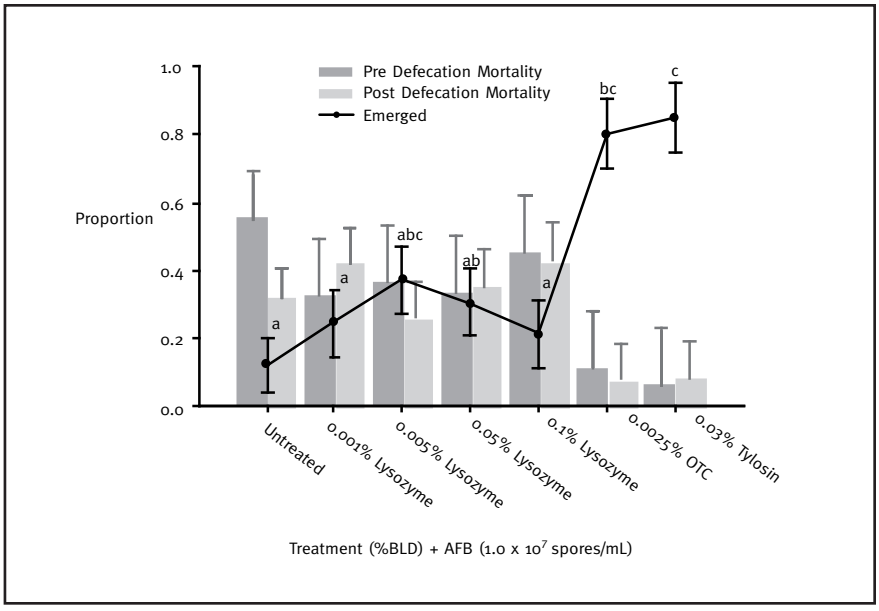

Figure 2. Protective effects of various doses of lysozyme, oxytetracycline, and tylosin against American foulbrood. (Emergence values with different letters indicate significant differences among treatments; Tukey-Kramer HSD α = 0.05; n = 2 trays per treatment).

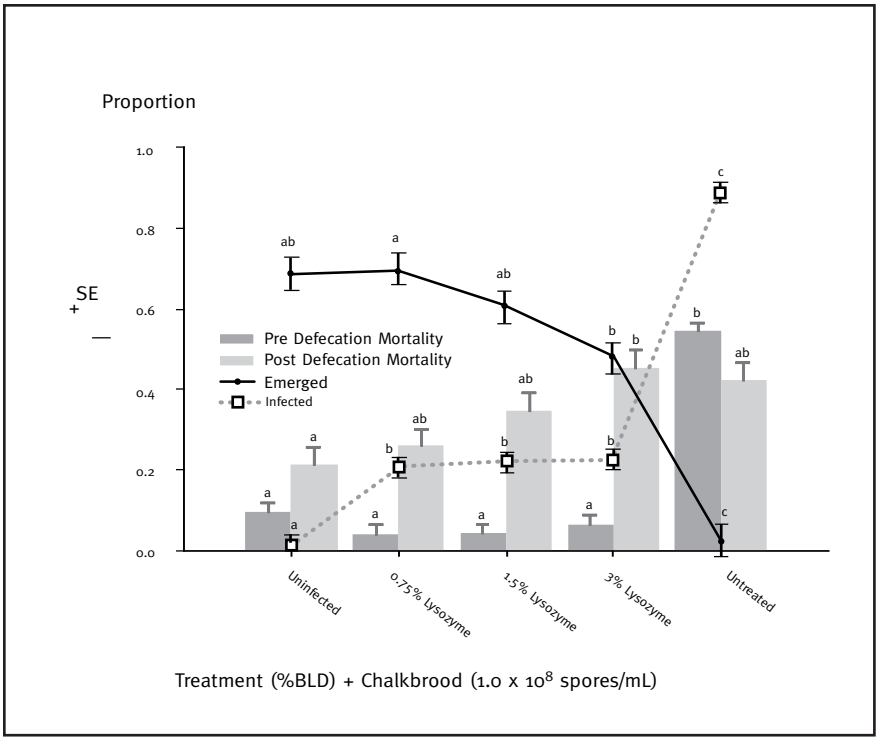

Figure 3. Protective effects of various concentrations of lysozyme against A. Apis (different letters indicate significant differences for pre-defecation mortality, post-defecation mortality and emergence. (Tukey-Kramer HSD ⊠ = 0.05; n = 3 trays per treatment).

toxicity is readily contrasted with nisin when the highest dose that did not reduce survival in the chronic assay is scaled up from a cage of 100 bees to a colony of 50,000 bees. Whereas a dose of 485 g of lysozyme (511 µg lysozyme/bee/day) could be safely applied to a colony, nisin would need to be applied at a dose 12 times weaker (38 g per colony or 40 µg nisin/bee/day). Nonetheless, compared with an established treatment such as oxytetracycline which is applied to colonies at a rate of 600 mg, both lysozyme and nisin appear to be relatively safe to adult bees. The increase in toxic effects of nisin may be attributed the formulation of the commercial product NovasinTM, which contains large amounts of sodium chloride. Sodium chloride is toxic to bees at levels as low as 0.125%.

Successful transmission of AFB treatment from nurse bees to larvae is essential, as young larvae (< 48 h-old) are the only stage susceptible to infection by P. larvae. Persistence and stability of lysozyme in the honey stomach of the adult worker bees engaged in brood feeding would increase the probability of lysozyme reaching the target larval population. Lysozyme decreases in the honey stomach by 82-89% over the course of 24 h but levels of lysozyme detected in the honey stomachs (325 ± 296 ppm and 26550 ± 41307 ppm) after that time interval are still greater than the therapeutic dose of 0.75% lysozyme (7.5 µl/mg BLD) needed to suppress chalkbrood in vitro as well as our partially therapeutic doses for AFB (0.0025, 0.0005%).

Lysozyme and nisin did not significantly protect worker larvae from AFB infection at any of the concentrations in BLD when the P. larvae spore inocula was present at 1.5 x 108 spores/mL. However, established therapeutic concentrations of OTC and tylosin also failed to demonstrate the degree of therapy expected when tested this spore concentration. Research has suggested that variation in larval susceptibly to AFB exists between strains of honey bees and between individual larvae from the same colony. More recently, variation in the virulence and pathogenicity of P. larvae strains has also been documented The mean proportion of larval mortality, 0.99 ± 0.03, using spores isolated from AFB scale found in local diseased colonies differs markedly from the levels of larval mortality seen in previous publications of 0.4 ± 0.15. It would appear that it takes less time for the local strain of P. larvae used in these assays to kill the larval host than the other strains used in similar assays.

Differences in expected therapeutic effects of tylosin could also be seen as a direct result of variation in the concentration of P. larvae spores mixed in the BLD, tested from 103 to108 spores/mL. Adult emergence success in larvae treated with 0.03% tylosin dropped from 80% at an infection level of 107 spores/mL BLD to 13.3% when spore dose was increased to 108 spores/mL. A range of lysozyme concentrations evaluated against the inoculation dose of 1.0 x 107 spores/mL, did suppress AFB to some degree. Adult emergence success at the best dose of lysozyme tested, 0.005%, varied between 30 and 50% which was lower than the emergence levels of 80-90% for 0.0025% OTC and 0.03% tylosin. Therefore, lysozyme does not appear to prevent AFB infections to the extent of other commercial treatments currently in use, but it does appear to have some limited therapeutic value.

Tylosin is an effective treatment against AFB; however, therapeutic doses persist in honey. Synergy between tylosin and lysozyme would reduce the therapeutic dose of tylosin and, in turn, reduce the risk of contaminating honey with undesirable residues. Although lincomycin, a macrolide antibiotic with a mode of action similar to tylosin, is synergised by lysozyme against other gram-positive bacterial species, we found that the synergistic effects between tylosin and lysozyme against P. larvae were limited and inconsistent across strains.

Modifications of the in vitro larval rearing protocol allowed us to consistently infect worker larvae with chalkbrood in a standardized manner and evaluate the effects of lysozyme. Infected larvae treated with lysozyme at the lowest concentration tested (0.75% BLD) demonstrated levels of adult emergence equal to that of the uninfected, untreated control. Repression of chalkbrood infection is not complete at that concentration, but a 4-fold increase of lysozyme (3% BLD) did not decrease proportion of larvae exhibiting clinical signs of chalkbrood symptoms. In fact, emergence success dropped when infected larvae were treated with higher concentrations of lysozyme. Nevertheless, lysozyme is effective in the treatment of chalkbrood at concentrations of 0.75 and 1.5%

Further experiments at the colony level will establish a therapeutic

dose of lysozyme for the treatment of chalkbrood, a disease for which there are currently no registered chemotherapeutic agents. Trials are planned for the spring of 2007 which will allow us to determine effective application methods and dosage schedule.

Acknowledgements

Funding for this project was provided in part by the Canadian Bee Research Fund and Neova Technologies. Additional funding was also provided by the Matching Investment Initiative Program of Agriculture and Agri-Food Canada, the Alberta Beekeepers' Commission and Bee Maid Honey. We also acknowledge the assistance provided by other members of the Apiculture Program at AAFC Beaverlodge, especially Adony Melathopoulos, Sterling Smith, Robert Albright, Devon Coupland, and Diana Munro.

The Importance of Stock Selection

Albert J. Robertson,
Meadow Ridge Enterprises Ltd.,

Honey bees are not native to North America. The bees we have are a mixture of races imported primarily from Europe. The prairie climate has severe winters and short intense honey flows and some of the European stock (Italian stock in particular) did not evolve in a climate similar to ours and does not winter particularly well in our climate.

Over the past 35 years we have assisted nature in selecting a suitable stock for the prairie climate as we selected for winter survival (as well as honey production, gentleness, etc.). When we started wintering in Saskatchewan the package stock that we used had 25 to 40% winter loses. After 15 years of selection for winter hardiness, loses were reduced to less than 10%. With the arrival of first the honey bee tracheal mite and then the varroa mite, colonies now have two added stresses, which, combined with our climate, cause the colonies to die within two years.

As beekeepers we strive to keep our hives productive and colonies alive by using chemical and organic products to control the mites in the hive. However, the varroa mite is becoming immune to some of the currently registered chemical control products and in some parts of North America these chemicals no longer control the varroa mite at all.

The ideal solution is to develop a strain of honey bee that has a natural tolerance or resistance to these mites.

Saskatraz will do this better and faster than any individual beekeepers could do in their own operations and with little economic impact to survival or honey production. The Saskatraz project recently received funding from the Ag Development Fund of Saskatchewan Agriculture and Food (approximately $40,000 per year for three years) which will allow the Saskatchewan Beekeepers Association to continue with this project and increase the sustained effort to find mite resistant stock.

The project is promising and already in the first year there appears to be some resistance to tracheal mites. The project has found stock, both from selected Saskatchewan stock and from other stock in the Saskatraz selections, which is exhibiting tracheal mite resistance.

Varroa mite resistance will take some time to select. Saskatraz has incorporated stock from Russian bees (through the USDA program at Baton Rouge), winter hardy Saskatchewan selected stock, selected stock from the Manitoba Bee Breeders/University of Manitoba stock selection program, hygienic selections from Ohio State and Minnesota and pure Carniolan stock from Germany (through semen imports). This a very large base of stock selected for hygienic behaviour and mite resistance from around the world.

Saskatraz has a closed breeding population that will accelerate and enhance the selection for varroa and tracheal mites (as well as other traits such as winter hardiness, honey production, gentleness). Each year progeny from the best colonies will be multiplied and made available for sale to beekeepers.

It is my hope that Saskatraz stock will be adopted by all beekeeper in Saskatchewan. This will require a sustained effort over the next five years to incorporate the best of each year once it is released through the project. One needs to remember that mite resistance will not be accomplished in one year. It will take at least five or six years to see the benefits in any particular operation.

A selected breeder queen's genetics will be quickly diluted within the population of a commercial operation. If one uses nucs or queen cells, then perhaps a third to a half of the colonies will be headed by the new genetics in the first year. However, this will need to be sustained for two or three more years to insure that the selected stock becomes established in all the colonies. As well, remember that most of us have stock that has not been selected and the mating from these none-selected drones will continue to linger in the population.

Hopefully there will be at least twenty or thirty people (or more) from across the province who will get the yearly releases from Saskatraz and raise queen cells for their own operation as well as for sale to others within their area. If this does in fact happen then I foresee, five years from now, where the Saskatraz selections will have been spread across the province and where we will see significant mite resistance within the entire Saskatchewan bee population.

It is my hope that before varroa mites become resistant to all the registered chemical products Saskatraz stock will be wide spread within the province with the ability to control 25 to 30% of the varroa mite levels within a colony, and there will be no need to apply tracheal control treatments. If this can be accomplished then, when we no longer have a chemical control the organic products (Formic, Oxalic and others) along with other hive manipulation such as screen bottom boards will allow us to effectively control the varroa mite populations without any increase in mortality or lowered honey production. We know that the organic products currently used to control varroa mites can be 70 to 85% effective and if we have a stock that, on its own, will control 25% or better of the varroa mite populations, then we should be able to control varroa mite levels where they do not impact our colonies.

It is early in the life of the Saskatraz project and already we are seeing some significant stock improvement and some significant mite resistance (particularly for tracheal mites). This project is very intense in terms of monitoring, evaluating, managing and propagating the selected stock. The initial years of funding were conducted directly by the Saskatchewan Beekeepers Association. The ADF funding for the next three years is a grateful relief and will go a long ways toward covering the costs. However, the SBA would like to encourage all beekeepers to benefit from this selective breeding and also contribute to the future and ongoing development costs. Breeder stock available directly from the Saskatraz project will have a surcharge of $10.00 per cell and $30.00 per mated queen that will go into the project coffers to continue the program. For queen producers who buy the breeder stock and propagate queens and cells for other producers, there will be a check off of $1.00 per cell and $2.00 per mated queen from the progeny of this breeder stock that will also be reinvested in the project.

The first year selections will be available this summer; I encourage all commercial beekeepers to become involved in acquiring some of this stock for their own operation and propagating it for themselves and others in their area. We have an opportunity to enhance our mite resistance during the next five years before we loose all chemical controls. I think it is very forward thinking of the association and the hard work and selection being done for Saskatraz will be beneficial to every producer if we get blanket coverage across the province and we continue to use Saskatraz selected stock (rather than everyone doing it on their own). In five or six years time we should be at a point where the stock is thoroughly entrenched into the bee population in Saskatchewan and we can continue to enhance our own mite resistance and profitability in the future years.

Canadian Therapeutic Honey TM

Dr. Katrina Brudzynski
Brock University, St. Catharines ON

The goal of this presentation is to provide scientific evidence and business perspective to support the feasibility of developing Canadian honeys into a value-added-product for the health care industry. The project follows our demonstration that Canadian honeys possess antibacterial activity and therefore can be used as a natural antibacterial agent. New Zealand Active Manuka honey may serve as a good example. It has been successfully introduced into main-stream medicine as honey-based wound dressings and honey-based health products, bringing millions of dollars of profit to New Zealand's beekeepers. The North American wound care market reached $4 billion last year and is growing at a fast pace. It creates a window of opportunity for Canadian Therapeutic Honey. This presentation provides an overview of steps that have to be taken to produce medical-grade, active Canadian honey for clinical applications.

Appendix I - Consolidated Balance Sheet

CANADIAN HONEY COUNCIL BALANCE SHEET

October 31, 2006 with comparative figures for 2005 (Unaudited)

	General	Projects	Fred Rathje Memorial Fund	Total Fund 2006	Total Fund 2005
ASSETS					
Current assets:					
Cash	$ (14,385)	86,199	(337)	71,477	38,471
Short-term investments	37,181	70,651	6,898	114,730	106,322
Accrued interest receivable					1,062
Accounts receivable	7,193			7,193	5,989
Prepaid expenses					4,425
	$ 29,898	156,850	6,561	193,400	156,269
LIABILITIES AND FUND BALANCES					
Current liabilities:					
Accounts payable and accrued liabilities	3136			3,136	2,944
Defered revenue	7,153	58,776		65,929	55,063
Total current liabilities	$ 10,289	58,776		69,065	58,007
Fund Balances:					
Reserves for future expenditures		74,296	5,440	79,736	85,734
Unappropriated	19,700	23,778	1,121	44,599	12,528
Total fund balances	19,700	98,074	6,561	124,335	98,262
	$ 29,989	156,850	6,561	193,400	156,269

CANADIAN HONEY COUNCIL STATEMENT OF FUND BALANCES

Year ended 10/31/2006 with comparative figures for 2005 (Unaudited)

	General Fund	Projects Fund	Fred Rathje Memorial Fund	Total 2006	Total 2005
Unapproopriated fund balances, beginning of year	$ 5,795	5,701	1,032	12,528	24,868
Excess (deficiency) of revenues over expenditures	13,905	12,079	89	26,073	(5,521)
Transfer (to) from reserves for future expenditures		5,998		5,998	(6,819)
Unappropriated fund balances, end of year	19,700	23,778	1,121	44,599	12,528

Appendix II - General Fund Balance and Statement of Revenues and Expenditures

Canadian Honey Council Statement of Revenues and Expenditures

Year ended 10/31/2006 with comparative figures for 2005 (Unaudited)

	General Fund	Projects Fund	Fred Rathje Memorial Fund	Total 2006	Total 2005
Revenues:					
Membership fees	$ 82,282			82,282	70,875
Project administration fee	18,096			18,096	
Hivelights	16,535			16,535	18,251
Annual meeting	3,025			3,025	4,596
Interest income	1,784	2,529	339	4,652	1,775
Promotional Materials	1,070			1,070	45
Miscellaneous	400			400	
Anti-dumping project		41,274		41,274	
Project to Promote Consumption of Canadian Honey		39,815		39,815	
Canadian on Farm Food Safety Program		24,351		24,351	9,949
Oxalic revenue		5,250		5,250	14,503
Coumaphos registration		562		562	
	123,192	113,781	339	237,312	119,994
Expenditures:					
Annual meeting	593			593	100
Anti-dumping project		41,274		41,274	
Apimondia committee	1,116			1,116	1,637
Awards and donations			250	250	357
Canadian on Farm Food Safety Program		656		656	9,949
Coumaphos registration		562		562	
Credit card charges	656			656	727
Interest and bank charges	180			180	177
Hivelights	30,058			30,058	30,128
Office expenses	5,062			5,062	3,132
Oxalic project		3,922		3,922	8,869
President's honorarium	2,000			2,000	2,000
Professional fees	3,128			3,128	2,726
Project to Promote Consumption of Canadian Honey		45,513		45,513	
Quebec facilitated meeting		9,775		9,775	
Rental	1,200			1,200	1,208
Telephone	2,145			2,145	2,306
Travel expenses	8,788			8,788	3,010
Wages and Benefits	54,361			54,361	59,189
	109,287	10,702	250	211,239	125,515
Excess (deficiency of revenues over Expenditures	$ 13,905	12,079	89	26,073	(5,521)

Appendix III - Canadian Honey Production, Statistics Canada

Estimates of the Number of Beekeepers, Colonies of Bees, Production of Honey and Value in Canada[1] by province[2], 2005 and 2006 with five year averages, 2001 – 2005

Abrégé des statistiques provinciales de la production du miel au Canada, 2005 et 2006 et moyenne quinquennale 2001 à 2005

Production and value of honey[1] / Production et valeur du miel[1]	Beekeepers[2] / Apiculteurs[2] Number / Nombre	Colonies[2] / Ruchers[2] Number / Nombre	Honey -Miel Total Production[3] / Production de miel total[3] lb '000 / liv '000	metric tonnes / tonnes métriques	Value[3] / Valeur[3] $'000
PrinceEdward Island - Île-du-Prince-Édouard	..	..	..	..	..
Average/Moyenne 2001 - 2005	33	1,755	84	38	
2005	25	1,180 r	52 r	24 r	115
2006 p	20	1,150	48	22	
Nova Scotia - Nouvelle-Écosse					
Average/Moyenne 2001 - 2005	372	19,456	727	330	
2005	335 r	18,800 r	730 r	331 r	1,900
2006 p	325	19,500	539	245	
New Brunswick - Nouveau-Brunswick					
Average/Moyenne 2001 - 2005	228	5,913	266	121	
2005	230 r	6,330 r	223 r	101 r	317
2006 p	223	8,306	326	148	
Quebec - Québec4					
Average/Moyenne 2001 - 2005	252	31,335	3,063	1,390	
2005	258 r	33,586r	3,850r	1,747 r	6,257
2006 p	378	41,431	4,284	1,944	
Ontario					
Average/Moyenne 2001 - 2005	2,700	74,140	8,855	4,018	
2005	2,600	76,000	8,938 r	4,055 r	14,309
2006 p	2,600	76,700	8,475	3,845	
Manitoba	..	..	..	..	..
Average/Moyenne 2001 - 2005 5					
2005	610	84,000	12,600	5,717	0
2006 p	623	85,000	18,700	8,485	
Saskatchewan	..	..	..	..	..
Average/Moyenne 2001 - 2005 5					
2005	1,085	100,000	18,000	8,167	0
2006 p	1,069	100,000	25,000	11,343	
Alberta					
Average/Moyenne 2001 - 2005	721	239,400	32,087	14,559	
2005	728r	251,000 r	31,877 r	14,463 r	31,428
2006 p	725	250,000	37,500	17,015	
British Columbia - Colombie-Britannique	..	..	..	..	..
Average/Moyenne 2001 - 2005 5					
2005	2,100	44,645	3,337	1,514	9,012
2006 p	0	0	0	0	
Canada4					
Average/Moyenne 2001 - 2005 5					
2005	7,971 r	615,541 r	79,607 r	36,119 r	63,338
2006 p	5,963	582,087	94,872	43,045	

(1) Figures are compiled by Statistics Canada from provincial data, with the exception of N.B. and P.E.I. where data are collected through a Statistics Canada mail survey. Les chiffres sont compilés par Statistique Canada à partir de données provinciales, à l'exception des données pour le Nouveau-Brunswick et l'Île-du-Prince-Édouard, qui sont recueillies par Statistique Imported au moyen d'un sondage par la poste.

(2) Beekeeper and colony numbers include pollinators that may not extract honey. Les chiffres pour les apiculteurs et les colonies incluent les insectes pollinisateurs qui n'extraient pas nécessairement le miel.

(3) Production and value figures exclude inventory. Les chiffres pour la production et la valeur excluent les stocks.

(4) Does not include Newfoundland and Labrador -Ne comprend pas Terre-Neuve-et-Labrador

(5) Data received from Manitoba, Saskatchewan and British Columbia were incomplete for 2005 and 2006. As a result, the five-year averages for these provinces and for Canada cannot be calculated. Les données reçues du Manitoba, de la Saskatchewan et de la Colombie-Britannique sont incomplètes pour 2005 et 2006. Par conséquent, les moyennes quinquennales de ces provinces et du Canada ne peuvent pas être calculées.

r Figures are revised - Chiffres sont révisés

P Preliminary –Nombres provisoires

.. Figures not yet available - Chiffres pas encore disponible

Note: 1 Pound = 0.453 kilogram; 2,204,000 pounds = 1 metric tonne.

Nota: 1 livre = 0.453 kilogramme; 2 204 000 livres = 1 tonne métrique.

Appendix IV - Canadian Bee Research Fund Financial Statement

Canadian Bee Research Fund

2006 Financial Statement Consolidated Balance Sheet
as at December 31, 2006

	2006	2005
Assets		
Current Assets		
Cash	7,154	3,961
Long-Term Investments	467,566	465,055
	$474,720	469,016
Liabilities		
Current Liabilities		
Accounts payable	938	910
Net Assets		
General Fund Balance	6,216	6351
Endowment Fund Balance	467,566	461,755
	$474,720	469,016

Canadian Bee Research Fund

General Fund Statement of Operations and Changes in Fund Balances For the year ended December 31, 2006

	2006	2005
Revenue		
Donations	8,141	3,913
Investment income	18,370	
Gain (loss) on disposal of investments	175	
	26,686	15,375
Operating Expenses		
Bank charges	10	8
Loss on Disposal of long-term investments		9,570
Office	55	61
Professional fees	945	665
Research grants	20,000	25,000
	26,686	15,375
Net Income for the year	5,676	(19,929)

67TH CANADIAN HONEY COUNCIL

AND

CANADIAN ASSOCIATION OF PROFESSIONAL APICULTURISTS

ANNUAL GENERAL MEETING AND CONVENTION

CARRIAGE HOUSE INN

CALGARY AB.

JANUARY 23 – 26, 2008