

The Bee Cause



Volume 10, Issue 3

March 2013

- Next general meeting is 7:30 Tuesday, March 12th at the **River Heights Community Centre, 1370 Grosvenor Ave., Winnipeg.**
- (in room right off main-door)

Speaker: Waldemar Damert - raising queens + more

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Pollen diversity collected by honey bees in the vicinity of *Vaccinium* spp. crops and its importance for colony development¹ *Botany*, 2012, 90(7): 545-555, 10.1139/b2012-049 Méliissa Girard,^a Madeleine Chagnon,^b Valérie Fournier^a, ^aCentre de recherche en horticulture, 2480 Boul. Hochelaga, bur. 2210, Pavillon de l'Environnement, Université Laval, Québec City, QC G1V 0A6, Canada. ^bPavillon des sciences biologiques (SB), C.P. 8888, Succ. Centre-Ville, Université du Québec à Montréal, Montreal, QC H3C 2P3, Canada.

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¹This article is part of a Special Issue entitled "Pollination biology research in Canada: Perspectives on a mutualism at different scales".

Abstract

Access to a rich diversity of flowering plants is very important for the development of honey bee colonies introduced in crops for pollination. The aim of this observational study was to determine the impact of surrounding pollen diversity on the health of honey bee colonies introduced in lowbush blueberries (*Vaccinium angustifolium* Ait.) in June and cranberries (*Vaccinium macrocarpon* Ait.) in July. The results suggest that monocultures of lowbush blueberries are not suitable for optimal brood rearing. In the blueberry environments we studied, the dominant pollen collected by honey bees were *Alnus* Mill. spp. and *Taraxacum officinale* F.H. Wigg., which are deficient in some essential amino acids. Significant reduction of brood rearing during honey bees' stay in blueberry monocultures in June may, therefore, be explained by nutritional deficiencies. In July, the polliniferous flora in the vicinity of cranberry monocultures was poorer but of better nutritional quality. Pollen analysis allowed the identification of Brassicaceae, *Trifolium* L. spp., and *V. macrocarpon* as the three dominant taxa collected by honey bees during this period. The complete lists of plant taxa foraged by honey bees for pollen during the pollination of lowbush blueberries and cranberries are provided.

Now from the February article on the Winter Bee we see how important the pollen proteins need to be for winter survival and

quality foraging. The remainder of this note focuses on the perspectives of current Canadian research. Points of study and who is doing what.

Pollination biology research in Canada: Perspectives on a mutualism at different scales
Pollination biology is a field that is somewhat unique; it has the potential to be approached equally from both sides of a trophic mutualism—that of the biology of the pollinators themselves as well as of the plants that they pollinate. Additionally, pollination biology is researched from the perspective of individual species, the perspective of the assemblage of species within communities, and the distribution of pollination related traits. Within Canada, we have research occurring in all of these fields, studying pollination both in natural and in agricultural systems. This special issue was inspired by the symposium "Canada's Pollinator Biodiversity and Pollination Services" held at the Canadian Society for Ecology and Evolution/ La Société Canadienne d'Ecologie et d'Evolution 6th Annual Meeting, 12–15 May 2011, Banff, Alberta, and is dedicated to highlighting some of this ongoing research.

Pollination biology from the plant and pollinator's perspectives In the subfield of pollination biology, the exercise of analyzing the efficiency of pollination is dominated by studies that examine pollination from the plant's perspective. Here, the pollinators themselves are viewed as the agents of an (**continued on pg 4**)

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Presidents Comments -- March 2013

There has been a heavy snow blanket on all the outdoor wintered hives and they should have wintered well if they were strong and healthy going into winter. And this of course required you, the beekeeper, to do the right things at the right time last fall in regard to feed and medication. Indoor hives should have fared well despite the cold and wind of January, so when the spring warm days arrive, don't hesitate to move them outdoors. They will dwindle, but recover quickly will fresh pollen and nectar.

The request to the City Council of Winnipeg in regard to Urban Beekeeping was heard formally on January 14th. Jim Campbell and myself made presentations to the four Councillors responsible for Bylaw Changes: Eadie, Smith, Fielding and Steen. Their final decision was split, so the motion will NOT go forward to the general council meeting for further discussion for a positive bylaw change. The variety of reasons presented by the Animal Control Office were not very reasonable nor well informed. However that is their job, and the fact the City Entomologist was not a noticeable part of this process is revealing. The process will have to begin again, and hopefully more of the Councillors will see the merits of a bylaw change and accept honeybees as a necessity in any urban area, as do many cities in Canada and the USA.

The Small Hive Beetle made an appearance in Southern Manitoba last fall. The Provincial Apiarists are very concerned about this insect and will be vigilant in determining the winter effect on the SHB life cycle of this new problem. There may be some quarantine areas established that will minimize the potential spread of the Small Hive Beetle.

I did find and consume honey in all the places I visited in Cuba during a months holiday and travel. The honey is medium dark in colour, and always a bit runny, perhaps due the local humidity. I wasn't able to contact a local beekeeper, but did see honey for sale in a variety of shops, but not **ever** in a local market. Bees that I saw were friendly and busy on the few flowers about. The rainy season starts in late April, and I would expect that is when the honey flows occur.

The MBA convention is on the first two days of March, and there should be some interesting topics for discussion and to share at the March RRAA meeting. One of the featured speakers is a large beekeeper from North Dakota who operates twelve thousand hives scattered all over North Dakota and California.. I wonder how many of his hives are placed close to the Manitoba border. The other speaker is from the OBA Tech Transfer Research Team and will be discussing queen fertility and testing as well as how to deal with pesticide incidents

Waldemar Damert is the featured speaker at the March RRAA meeting. He has been a RRAA member for several years. His apiary is on Highway 12, close to the short way into Beausejour.. He is a very experienced beekeeper and raises a large number of very high quality queens. His operation is always spotless, and he has good winter success with his bees. He is likely to have queens and nucs for sale this year and it is a good opportunity to introduce new stock into your operation.

The snow will soon be gone, and we will all be into another beekeeping season. How similar this spring will be to that of 2012 remains to be seen, But there is a prediction that water and potential floods will be an issue this year so be prepared to keep your bees on high ground until June.

Best wishes to all---- Charles Polcyn RRAA 2013 President. —/\\—

Minutes of the RRAA General Meeting River Heights Community Club – February 12, 2013

Chair: John Russell
Recording Secretary: Art Quanbury

Approval of Minutes of January 8, 2013
Moved: Chris Argiriou (sp?)
Seconded: Gilles LaMontagne

John explained that since there was no designated speaker for the evening the time would be spent discussing various topics of interest and some housekeeping issues of the Association including what types of speakers and topics members were interested in and how to use the new logo design to increase public awareness (branding) of the Association.

MBA Update by Jim Campbell Skunk Problems

Jim reported on MBA discussions with Manitoba Conservation Ministry and other provincial government bodies on changes to labeling information on cyanide and strychnine poisons to allow them to be used to control skunks around hives. A discussion followed on various ways to discourage skunks. They included: a one foot high fence of stucco wire around the hives, traps (either live traps or double spring traps). It was stressed that killing traps should not be used if there is a possibility of pets being caught and that regulations require all traps be inspected daily to provide for their most humane use. Other members have also used carpet tacks in boards or other means to create a spiky surface to discourage the skunks from getting at the hives. If anyone has other means that have worked for them they should be shared by providing details to Ken, the Newsletter editor.

Soybeans

A discussion took place on the effect on beekeepers of the increase in soybean crops in Manitoba. Very few members had any experience with hives close to soybean crops but some mentioned a possible decrease in honey production and a reduced quality in honey taste.

Volunteers Needed

The MBA is involved in "Ag. In the classroom" days sponsored by Dept. of Agriculture. Volunteers are needed for the breakfast program from 8:45 am to 11:00 am. Volunteers are also needed during literacy week (March 4 – 8) for individuals to read in schools. Jim will send out an email to members with specific details but anyone interested in volunteering for either of these activities should contact Jim. His contact information is in the Newsletter.

Canadian Honey Council

The CHC is developing a best practice book related to food safety standards for honey production. Once the book is published the MBA will be involved in the dissemination of the information.

MBA Symposium

The MBA is holding a symposium on March 1-2. Jim Miller, who runs a large operation in California will be the guest speaker on the topic of the small hive beetle. This beetle is now prevalent in warmer climates but so far does not seem to have survived our Manitoba winters. However, it has been discovered in the Mordean area and the area has been quarantined, meaning that no bees may be exported out of that area, but bees may be brought into the area. The MBA is trying to be proactive in preventing the spread of this beetle.

Logo Discussion

Three different colour combinations of the logo were agreed on at the last meeting. The different coloured backgrounds would be used depending on where it would be used (T shirts, letterhead, decals, etc). Suggestions were made for using it on various items for promotional purposes; T shirts, caps, mugs, pens, notepads, crests, window decals, etc). Members showed a strong interest in having T shirts and baseball caps made with the logo on them. Costs would not be high and large numbers of products would not have to be ordered. It is hoped that some products would be available in the next 30 to 45 days. It was felt that the T shirts would be particularly useful for the bee days at the Forks. Any suggestions that members may have for logo use should be sent to Ken, the Newsletter editor.

Web Site Information

Jim Campbell reported that he had included information on the web site related to start up costs for keeping bees.

Next Meeting Topic – Spring management

The usual topic at the spring meeting is on spring hive management. Often, a speaker from the University gives a presentation but it was suggested that a presentation that included the knowledge and experience of our own members would be appropriate.

Door Prize winners

Jar of Jalapeno flavoured honey – Stan Grysiuk (careful Stan, we hear it is pretty hot)

Mug with honey and tea packages – Keith Bamford

Squeezy foam bee – Armand St. Hilaire

Adjournment

The meeting adjourned at 9:15 pm. Next meeting is Tuesday March 12, 2013 at River Heights Community Club. Time is 7:30 pm.

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MBA Report - January 2013

Jim Campbell, MBA Representative

Manitoba Beekeepers' Association (MBA) held their 107th Annual Convention and Symposium at Radisson Hotel Downtown Winnipeg on March 1-2. Over 70 people came together to hear speakers from Canada and USA.

Symposium guests heard John Miller, President California Beekeepers' Association, and Commercial Beekeeper with over 10,000 colonies, tell stories of his experiences in the beekeeping business. He lamented participating in a documentary about beekeeping, as the editor used comments and footage that didn't reflect well on our industry. He noted encroachment of corn and soy crops into traditional nectar producing fields.

In another report, Dr Rob Currie noted funding from RRAA will help extend a project permitting spring sampling to be done on winter bee survivability.

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(from Pg 1) ecosystem service, and the parameters of their abundance and distribution are secondary to their ability to effectively pollinate a plant species. In some of these studies, this viewpoint is easy to understand. In terms of taxa of agricultural importance, such as *Vaccinium*, the aim of the research is often to increase

the fruit yield. In this special issue, Stephens et al. (2012) have provided important data on the pollen:ovule ratios of several *Vaccinium* species and how such parameters are likely to influence plant mating system, and also how efficiently pollinators will be able to transport pollen in this system. Nicholls and Dorken (2012) examined how floral structure, in particular the presence of a staminode, can affect pollinator visitation and pollen receipt in *Aralia nudicaulis*, contributing to our understanding of the importance of pollinator abundance for plant reproductive success. The (rarely) explored flip side, however, is how well pollinators themselves can survive on the monoculture of pollen available in agroecosystems. Here, Girard et al. (2012) provide one of the first explorations of how the surrounding natural landscape can influence managed pollinator brood size by influencing the diversity of pollen available to the pollinators.

Pollination biology in differing environments, Canada is well known for its extreme, albeit beautiful, ecosystems. In addition to providing a rich playground for adventurous field studies, the changeable, and sometimes stark, landscape offers an opportunity to examine the effects of spatial and temporal heterogeneity in mutualisms, as well as the unique pressures on populations at range boundaries. Lortie and Reid (2012) examine alpine communities in British Columbia, in particular the effects of floral traits of a cushion plant species, *Silene acaulis*, on the fitness of co-flowering plants through facilitation. Van Drunen and Dorken (2012) examine how among-population variation in sex ratio and spatial variation in interplant distances could affect pollen receipt. Finally, Bedford et al. (2012) examine how the effects of recent climate change will make some areas even more climatically extreme, and how this may impact the phenological overlap between plants and their pollinators. Pollination effectiveness at a macro-scale, understanding the aforementioned species-level processes is interesting in its own right, yet also provides the raw material necessary to uncover general patterns regarding plant and pollinator relationships. When a plant species evolves along a particular niche axis (e.g., tolerance for alpine environments), the new niche can also involve a concurrent switch to new pollinators. For example, so-called pollination “syndromes” are suites of traits thought to be the product of selection pressures manifested by similar pollination environments. The evidence for correlated evolution among different plant traits is examined in this special issue in the context of traits frequently associated with early spring flowering (e.g., light floral colour, perenniality, woodiness) and their correlation with a spring phenology (Hensel and Sargent 2012). Furthermore, Davila et al. (2012) explore how plant traits and the diversity of the pollinator community jointly affect pollen limitation in plants. Finally, Elle et al. (2012) illustrate how

network analysis—examining not just the diversity of pollinators of a particular species, but also how the composition and preferences of available pollinators divides amongst all of the co-flowering plants in a community—represents the next frontier of pollination biology.

While a single special issue can only give a small sample of the ways in which pollination biology is currently being addressed, we hope readers appreciate the breadth of approaches in Canada and around the world. The critical interplay between plants and pollinators offers a multitude of different levels at which pollination can be viewed, ranging from species biology right up to landscape and regional levels of comparisons. Understanding how large-scale patterns of diversity can influence the ecology and evolution of a focal species (and vice versa) represents a large outstanding question in evolutionary ecology and one in which pollination biology can offer unique insight.

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This paper appears in the April 2012 issue of *Botany* and can be found at <http://www.nrcresearchpress.com/doi/abs/10.1139/b11-112>.

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vi *Botany*. Vol. 90, 2012

References

Bedford, F.E., Whittaker, R.J., and Kerr, J.T. 2012. Systemic range shift lags among a pollinator species assemblage following rapid climate change. *Botany*, 90(7): 587–597.

Davila, Y.C., Elle, E., Vamosi, J.C., Hermanutz, L., Kerr, J.T., Lortie, C.J., Westwood, A.R., Woodcock, T.S., and Worley, A.C. 2012. Ecosystem services of pollinator diversity: a review of the relationship with pollen limitation of plant reproduction. *Botany*, 90(7): 535–543.

Elle, E., Elwell, S.L., and Gielens, G.A. 2012. The use of pollination networks in conversation. *Botany*, 90(7): 525–534.

Girard, M., Chagnon, M., and Fournier, V. 2012. Pollen diversity collected by honey bees in the vicinity of *Vaccinium* spp. crops and its importance for colony development. *Botany*, 90(7): 545–555.

Hensel, L.E. and Sargent, R.D. 2012. A phylogenetic analysis of trait convergence in the spring flora. *Botany*, 90(7): 557–564.

(continued on Pg 6)



Editor's Note by Ken Rowes

You may not have noticed, but our new logo adorns the newsletter front page.

In this issue the focus is on pollination due to the international interest lately in pollination biology in Canada. As you will see this topic spreads over several decades and has an ever changing development derived from plant species and the manipulation of commercial production demands, and what are the honey bees preferences.

The word is that wintered bees are not doing as well as expected. Some say hives were light while others say nosema has been bad. So our shift will concentrate on spring management.

There are a few larger beekeepers down sizing and you find many more spring colonies and more equipment for sale in the classifieds.

Please spread the word that the Red River apiarists' Association is planning a **50th anniversary** celebration 26 April 2013. If you know of any old RRAA members please let them know. Check the notice on page 7.

Praying your bees are well, equipment plans are done or arranged and your spring management set. **Bring your questions to a meeting!**

CLASSIFIEDS

1 For Sale: Complete honey extracting line 48 Frame extractor, uncapping table, sump, tank, pump, pipes. **Contact Lance at 204-712-6783, lancewld@gmail.com**

2 For Sale: 20 Supers (used) for sale; \$25 each; two (2) for \$40 p/u; or delivery extra. Frames (used) \$6.00 each. Bee pollen for sale. **Call 204 878-4353 Glenn & Margaret or margandg@mymts.net**

3 For Sale: Just a quick note saying that we have approx. 200 supers of drawn plastic comb for sale @ \$32 each. Can deliver to Winnipeg. Supers are in good to average shape and all the frames are fully drawn out plastic frames. We have no AFB history. **Paul Gregory paul@interlakeforageseeds.com**

4 For Sale: 50 frame Maxant extractor for sale with a brand new spare fibre drive wheel. I was hoping to get \$2000 for it OBO contact : **wrobertson86@outlook.com -Wade Robertson**

5 Wanted: Looking for good used Cowen type hori-

The Bee Cause is the official publication of the Red River Apiarists' Association for distribution to its members and their colleagues in the beekeeping industry. It is published eight times a year on a monthly basis except December and the summer months of June, July, and August when membership meetings do not occur.

Articles can be best submitted in word documents as email attachments. Though they may be edited for spelling and basic grammar, no changes will be made to their contents, message and opinions. They are those of their originator and not of the Red River Apiarist Association.

Deadline for any submission to this newsletter is the second Saturday preceding the membership meeting to allow for publishing and mailing delays. Regular membership meetings are normally scheduled 7:30 PM on the second Tuesday of every month at the River Heights Community Centre located at 1370 Grosvenor Avenue in Winnipeg except the months as noted above.

The Red River Apiarists' Association, formed in 1963, represents the beekeepers of the Red River Valley and environs in southern Manitoba. The association provides a forum for the promotion of sound beekeeping practices through education, networking opportunities, meetings, field days, workshops, presentations by local apicultural experts, as well as the dissemination of this monthly newsletter.

We are on the web!
www.beekeepingmanitoba.com

zontal 28 to 60 frame extractor, plus sump and pump. Call **Don Friesen, Rosenfeld, at 204-746-8863 or e-mail stonefield71@hotmail.com**

6 For Sale: 20 Pail feeders with screened lids, in good condition. Contact: **Lance 204-712-6783, lancewld@gmail.**

7 Wanted: 2 or 4 frame stainless steel extractor, crank or motorized contact Dennis Ross at 204 878-2924 or rosskr@my mts.net

8 For Sale: 12 hive top feeders, 19 queen excluders, 4 super extractor. Contact Doug at Tel 757-4694 or doug.henry1@gmail.com

9. For Sale: hives 1 super with equipment and bees - \$200. 5 frame nucs - \$150, 4 frame nucs \$125, 3 frame nucs \$120. available May 15 depending on weather. **contact Dennis Ross 878-2924 e-mail rosskr@mts.net**

10. For Sale: custom made Bee-gloves \$17. **Contact ken Fehler 204-667-9013**

11 For Sale: Strong 4 frame nucs, with laying queens. Will accommodate 3 or 5 frame nucs. Available approximately May 15 weather permitting. Ph **Chris Argiriou 296-4848 (cell) or 885-**

4588 (home).

12 For Sale: Man Lake SS Extractor 9/18 frame. Asking \$1300, used twice. **Contact Janice at 204-895-9667.**

13 For Sale: Bee Equipment, Nucs, Plastic Feeder Frames, Box & Frame Parts. Contact **Charles Polcyn at (204) 284-7064 or by Email- charles_polcyn@ymail.com**

13 For Sale: 150 single hives with Manitoba queens, insulated tops & screened bottoms, 400 honey supers with drawn comb on plastic foundation, ~ 200 - 21/2 gallon feeder pails, numerous 4 frame nuc boxes and queen excluders, **contact Vern Derraugh 204-755-2250 or Derrco@highspeed.com**

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of the Bee, with celebrations taking place the Saturday prior. Members of the Red River Apiarists' Association staffed the display at The Forks. Theme- "**Honey Bees - Good for Us**". Although the official Bee Day is Wednesday May 29, the public celebration will take place on Saturday 25 May, 2012, since this is more convenient for visitors to attend. The reasons for the public awareness campaign are described in previous years' reports as indicated below:

Come On Out for the fun of it.
See Live Honey Bees on display!
Hear the Buzz they make!
Feel the Warmth they generate!
Meet and talk to people keeping Honey Bees at their farm.
Taste and Purchase Honey derived from various flowers.

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(from Pg 4)

Lortie, C.J. and Reid, A.M. 2012. Reciprocal gender effects of a keystone alpine plant species on other plants, pollinators, and arthropods. *Botany*, 90(4): 273–282.

Nicholls, E.I.E. and Dorken, M.E. 2012. Sex-ratio variation and the function of staminodes in *Aralia nudicaulis*. *Botany*, 90(7): 575–585.

Stephens, D.T., Levesque, D.E., and Davis, A.R. 2012. Pollenule ratios in seven species of *Vaccinium* (Ericaceae) and stamen structure in *Vaccinium myrtilloides* and *Vaccinium vitis-idaea*. *Botany*, 90(7): 599–614.

Van Drunen, W.E. and Dorken, M.E. 2012. Sex-ratio variation versus interplant distances in the regulation of pollen deposition and seed production in dioecious *Cirsium arvense* (Asteraceae). *Botany*, 90(7): 565–573. *Botany*

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DAY OF THE HONEY BEE IN 2013

WHEN: Takes place Saturday 25 May 2013, 9:30 a.m. until 6:30 p.m.

WHERE: Forks Market, Winnipeg; Centre Court (Centre Aisle-West end).

WHAT: Celebrate the Importance of Honey Bee for pollination (and the foods we eat).

WHO: Food consumers, families, gardeners, farmers, students and fruit growers are invited

WHY: To see and learn which foods, fruits, vegetables and flowers depend on pollinators.

The Manitoba Beekeepers' Association (MBA) plan to request the Manitoba Provincial Government and Rural Municipalities (St Andrews, Rosser, & Rockwood, Gimli, and Whitemouth) around Winnipeg proclaim May 29 as The Day

Fungus Fights Deadly Bee Mites in a Two-Pronged Attack

Summary: Fungi used in the biological control of a destructive honey bee parasite may protect bees by both infecting the mites and preventing suppression of the bee's own immune response.

(October 22, 2012) – Guelph, ON

A fungus normally used to control insect pests may help honey bees protect themselves from a destructive mite by both infecting the mites and preventing suppression of the bee immune system, says a team of bee researchers at the University of Guelph.

The *Varroa* mite is a devastating bee pathogen that, if left untreated, can kill an entire honey bee colony. Beekeepers typically treat their colonies with miticides to control the mites, but resistance to these chemicals has become widespread. The *Varroa* mite is believed to be a leading factor in the high winter mortality experienced in Canadian bee colonies in recent years.

"Beekeepers have an urgent need for effective, bee-friendly *Varroa* treatments. Naturally-occurring entomopathogenic fungi could be an effective, biologically-based control method. They are non-toxic to humans and can be mass-cultured," explains Mollah Md. Hamiduzzaman, a post-doctoral researcher in the School of Environmental Sciences and lead author of the study.

Hamiduzzaman and colleagues looked at gene expression in honey bee larvae exposed to regular mites and mites inoculated with fungus. Infection with *Varroa* typically leads to lower expression of genes involved in the bee immune response, leaving bees less able to fend off the parasite. When mites were first inoculated with the fungus, however, expression of three important immunity genes jumped 2-3 fold over normal levels. "The results suggest that the fungi could reduce damage from *Varroa* mites by both infecting the parasites, and preventing the mites from suppressing the bee's natural immune response," says Hamiduzzaman.

Because the fungi are

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(from Pg 6) natural insect pathogens, however, the honey bees can also be vulnerable to infection from the fungus. According to Ernesto Guzman, an entomologist and collaborator on the study, "the trick is to find a fungus that kills *Varroa* at doses that are relatively harmless to the bees". The team looked at several strains of fungus and identified one strain of *Metarhizium anisopliae* that causes high mite mortality (over 90%) and relatively low bee mortality (24%). Guzman says it may be possible to find other strains that are just as effective against mites but less harmful to honey bees.

Another interesting possibility, adds Guzman, is to isolate the factors that trigger the enhanced bee immune response from the fungus. "These compounds could potentially then be applied to hives to trigger a natural defence against *Varroa* infections."

Graduate student Alice Sinia and pathologist Paul Goodwin also collaborated on the study. The results have been published in the most recent issue of the *Journal of Invertebrate Pathology*.

This project was supported with funds from the Natural Sciences and Engineering Research Council of Canada and the Ontario Ministry of Food and Rural Affairs. The study is contribution #61 to the Canadian Pollination Initiative (NSERC-CANPOLIN).

Hamiduzzaman, M.M., A. Sinia, E. Guzman-Novoa and P. Goodwin. 2012. Entomopathogenic fungi as potential biocontrol agents of ecto-parasitic mite, *Varroa destructor*, and their effect on the immune response of honey bees (*Apis mellifera* L.). *Journal of Invertebrate Pathology* 111(3) 237-243. (published online: <http://dx.doi.org/10.1016/j.jip.2012.09.001>)

Primary Contact: Ernesto Guzman-Novoa (eguzman@uoguelph.ca) (519) 824-4120 x53609

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Lyme Disease

Lyme Disease is carried by 4 to 20 % of the Deer Tick population, and if you are bit by one of those Deer Ticks (smaller than a Wood Tick) and within 24 hrs develop a red rash/ bulls eye at the tick bite site, SEE a doctor immediately for an antibiotic treatment of Doxycycline for at least 15 days. But there is not always a rash at the tick bite, so do not wait to see a Doctor., get on an Antibiotic Treatment quickly. . The Deer Tick bite or the Deer Tick is perhaps recognized by the Doctor, but the actual tick is sent on to Ottawa for a confirmation of carrying the Lyme Disease bacteria. This process usually takes 5 months.

Celebrating 50 Years

RRAA Exec

Red River Apiarists' Association is inviting all current and former members to a social evening on Friday April 26, 2013. This event will celebrate our 50th Anniversary!

The Anniversary Celebration is planned for 7:00 p.m. at our regular meeting room on the main floor River Heights Community Centre, 1370 Grosvenor Ave, Winnipeg.

Let Charles, Jim or Ken know if you plan to attend, and if you want to display historical mementos about our clubs' past events.

Your health can be seriously compromised within 36 hrs if the Deer Tick was a host for the Lyme Bacteria, and there is NO Cure for a Lyme Disease Bacteria once it is established in your body.

Lyme Disease is spread by the Deer Tick, which is carried by a variety of hosts, including deer, other animals and some species of birds.

As the snow departs, all of us beekeepers will be in the bee yards doing the usual spring work with our hives.

Be alert, dress properly and examine your self and your partner for ticks. Any sign of a tick.- the wood ticks are larger than the Deer Ticks, but do latch on in a similar manner and should be dealt with in the usual manner Lorne Peters had two incidents with Deer Ticks last summer, and went for treatment immediately. Things cleared up and his immune system was not compromised.

All of us need to be aware of this potentially dangerous problem in our bee yards, which are usually safe for us. But as Bob Dylan said in one of his songs " The times- they are a Changing".

This information was shared by Lorne Peters with Charles Polcyn at the MBA convention on March 1st, 2013.

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Manitoba Inspection Results Winter 2012/2013

David Ostermann Pollination Apiarist

Inspection Results (AFB) – This year 115 operations and 2900 hives were inspected in the province. AFB was found in 8 operations. Two (2) of these had rAFB with one of them being a new occurrence. A number of other operations were inspected in the same areas, and no other disease was found. MAFRI staff will work with the beekeepers to manage the disease, and the areas will be a focus next year. Oxytetracycline remains the only registered product for AFB control in the province. AFB and rAFB have the same appearance in a hive, both may be found in an operation, and diagnosis of AFB resistance to antibiotic requires laboratory analysis.

Lab Results & Extension Calls – Varroa levels in the province were similar to last year, overall (Fig. 1). Nosema levels were mostly lower than last year (Fig. 2). Tracheal mite was not found or was at low levels in most samples this year and last year (Fig. 3). Figs 1-3 include data from about 250 varroa samples, 300 nosema samples, and 150 tracheal mite samples from beekeepers. These may be submitted prior to, during or following a treatment. Therefore it's not always apparent what the reason may be for lower nosema this year compared to last year, for example. Most samples come in through the inspection program in the spring.

There were extension calls about varroa control this year. Beekeepers are encouraged to monitor levels and treat to keep mites below threshold. Methods of monitoring as well as spring/fall thresholds can be found in this video at <http://manitobabee.org/hive/category/videos/>.

Among the calls were problems using Mite-Away Quick Strips (MAQS™) in Manitoba, as well as outside the province. For example there were reports of over 30% of queens damaged or lost in a yard when using the product according to label instructions. Beekeepers are encouraged to report incidents of colony damage to the Pest Management Regulatory Agency (PMRA) (<http://www.hc-sc.gc.ca/cps-spc/pest/part/protect-proteger/incident/index-eng.php>).

There were also reports that Apivar did not work in some operations in the province and other places in Canada. In many cases, these were investigated and it does not appear that resistance caused the higher than expected level of varroa and bee losses. It's believed however, that mite resistance to Apivar is more a question of 'when' rather than 'if'.

It's important for beekeepers to rotate/alternate treatments to mitigate resistance, as always. There's no doubt this can be difficult and some treatments have negative effects or don't always work, but using the same product many times repeatedly is the quickest way to develop resistance. If uncertain about using a product for the first time on all hives, perhaps consider trying it on a smaller number of hives first. For more information on this article contact David at 204-945-3861 (Winnipeg).

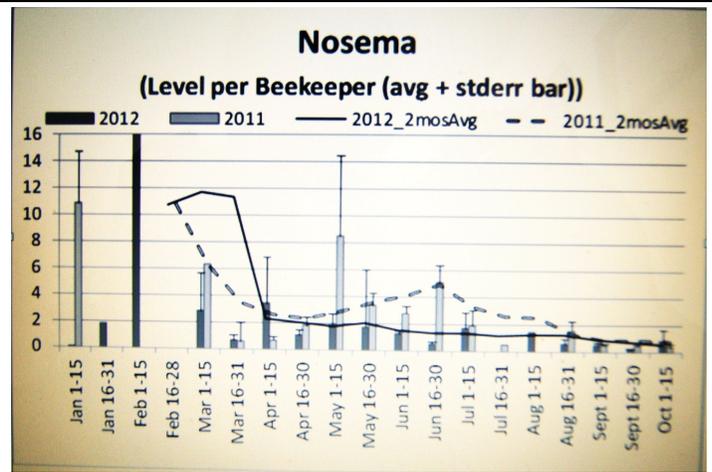


Fig. 1. Varroa levels in 2012 (dark bars & dark trend line) compared to 2011 (light bars & dotted trend line).

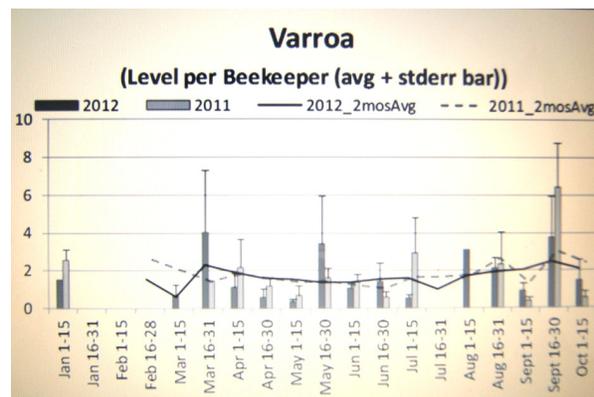


Fig. 2. Nosema levels in 2012 (dark bars & dark trend line) compared to 2011 (light bars & dotted trend line).

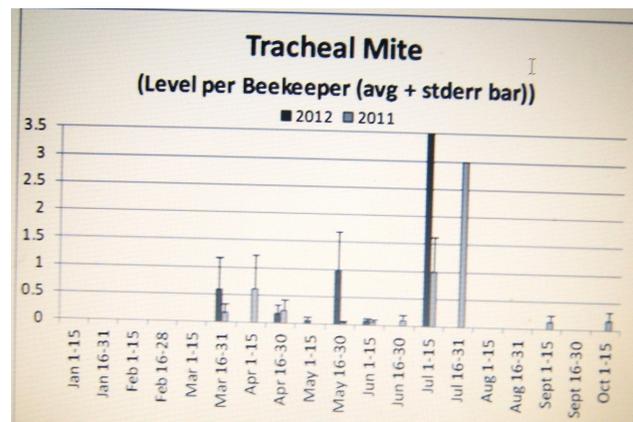


Fig. 3. Tracheal mite levels in 2012 (dark bars) compared to 2011 (light bars).

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Studies of pollen collection by honey bees (*Apis mellifera* L.) in a Wisconsin Apple Orchard. David W. Severson and J. E. Parry ABJ Jan. 12. 1981

The apple blossoms did not do well for bees as did surrounding flora in this study. It was apparent that apple was not the principal pollen source for bees for a significantly higher amount ($P < 0.001$) of the pollen was collected from oak trees within and around the orchard perimeter. It appeared likely that in oak biomes much of the pollen collected by bees and attributed to "fruit bloom" including apple may be from oak as their respective pollen pellets are similar in colour and easily confused.

Dandelion (*Taraxacum officinale* Weber) pollen was also collected in greater amounts than apple, although the difference was not significant ($P = 0.05$). These plants were profusely distributed on the orchard floor.

Thus they questioned the pollen collection as an adequate indicator of pollination efficiency. Potential pollination by honey bees foraging for nectar would be excluded in this type of study, but probably would contribute to pollination success in some varieties. However, due to floral structure of some apple varieties honey bees foraging for nectar fail to contact the pollen and detract from pollen efficiency. This indicates a need for pollen foragers in numbers sufficient to carry out the entire pollination effort.

Apple trees bear a tremendous number of blooms, and only 5 to 10 per cent of which need to set fruit to provide an adequate harvest (Horticultural Education Association 1961). A 5 % fruit set equals 55,000 pollinated flowers per acre. Since one honey bee will visit 700 flowers while making eight foraging trips per day (Free 1960) two strong colonies per acre should be sufficient to pollinate a commercial orchard (USDA 1968). However, it is likely that competitive floral species would reduce the level of pollination.

Studying plant competition Free 1968, indicated that a higher proportion of bees visit a crop if the colonies are moved to a site which has recently come into flower. Bees in this study were collecting oak pollen prior to being moved in significantly higher amounts than other sources ($P < 0.001$). The amount of oak pollen collected increased when moved on to the orchard. Interestingly the bees maintained their foraging fidelity to this abundant and easily accessible pollen source and concentrated on it.

Dandelion provided 21.7 % of the pollen collection the week preceding the pollination effort. This suggested that when in the pollination practise there is a need to consider competitive species in the area along with the previous foraging regime of the colonies. They suggest that colonies may be selected for pollination from areas differing in dominant flora from the pollination site.

In a general view out side of a fruit orchard the data reveals a

possible selection for dominant pollen sources like oak and dandelion and willow in season.

References:

USDA. 1968. Using honey bees to pollinate crops. USDA Bull. 549. 7p.

Free, J. B. 1958. The effect of moving colonies of honey bees to new sites on their subsequent foraging behaviour. J. Agric. Sci. 53:1-9.

1980. The pollination of fruit trees, Bee World 41:141-151, 169, 186,

1966. The pollinating efficiency of honey bee visits to apple flowers. J. Hort. Sci. 41:91-94.

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Flower choice by honey bees

As we view the floral pollen and nectar species of the new year (2012), can there be a lack of these products in the commercial species? A seed for thought.

So here is some **facts on flower choice by honey bees.**

Gonzalez et al. 1995 looked into flower choice of honey bees. Bees foraging for nectar were expected to choose different inflorescences from those foraging for both pollen and nectar, if inflorescences consist of differing proportions of male and female flowers, particularly if the sex phases of the flowers differ in nectar content as well as the occurrence of pollen. They tested the prediction using worker honey bees foraging on *lavandula stoechas*. Female flowers contained twice volume of nectar of male flowers. As expected bees foraging for nectar chose more female inflorescence as well bees foraging for both pollen and nectar chose inflorescences with relatively greater number of male and female flowers. They noted that the time spent on the male flowers was correlated with the number of male flowers and not with the number of female flowers. They concluded the preferences were based on corolla size rather than directly on sex phase. They concluded despite the importance of dietary protein content to bees, bee species collect pollens that differ widely in protein content and do not show an apparent association with protein-rich species

T'AI H. ROULSTON et al. 2000 reported that pollen ranges from 2.5% to 61% protein content and that most pollen proteins are likely to be enzymes that function during pollen tube growth and subsequent fertilization, but the vast range of protein quantity may not reflect only pollen-pistil interactions. Because numerous vertebrate and invertebrate floral visitors consume pollen for protein, protein content may influence floral host choice. Additionally, many floral visitors pollinate their host plants. If protein content influences pollinator visitation, then pollinators are hypothesized to select for increased protein content of host plants. Additionally, many floral visitors pollinate their host plants. If protein content influences pollinator visitation, then pollinators are hypothesized to select for increased protein

content of host plants. We analyzed or gleaned from the literature crude pollen protein concentrations of 377 plant species from 93 plant families. Using this database, they compared pollen protein concentration with (1) pollination mode, (2) pollen collection by bees, and (3) distance from stigma to ovule, after accounting for phylogeny through paired phylogenetic comparisons and a nested ANOVA including taxonomic rank. They found that pollen protein concentrations were highly conserved within plant genera, families, and divisions.

They also found that bees did not collect pollen that was unusually rich in protein, whether they pollinated or merely robbed their host plant. Plant species with vibratile pollination systems, which require visitation by pollen-collecting bees in order to transfer pollen, tended to have very protein-rich pollen, but it was not clear whether this was due to plant enhancement of pollinator rewards or to the possession of very small pollen grains.

Both mass of protein per pollen grain and pollen grain volume were correlated with stigma- ovule distance. We suggest that the need for growing pollen tubes probably plays a more important role in determining pollen protein content than rewarding pollinators.

References;

A. Gonzalez, C. L. Rowe, P.J. Weeks, D. Whittle, F.S. Gilbert, C.J. Barnard. Flower choice by honey bees (*Apis mellifera* L.) sex-phase of flowers and preferences among nectar and pollen foragers. *Oecologia* (1995) 101: 258—264.

T'AI H. ROULSTON,¹ JAMES H. CANE, AND STEPHEN L. BUCHMANN
 WHAT GOVERNS PROTEIN CONTENT OF POLLEN: POLLINATOR PREFERENCES, POLLEN-PISTIL INTERACTIONS, OR PHYLOGENY.
Ecological Monographs, 70(4), 2000, pp. 617-643. —/\—

MANITOBA HONEY SHOW-SEP 27-29, 2013

**Theme for 2013--"MANITOBAS' BEES ARE BUZZING"
 To be held at The Forks Market, WINNIPEG, MANITOBA, CANADA**

Visit the Centre Court area, Forks Market. (typically open from 9:00 a.m. to 6:00 p.m. daily).

Talk directly with Artisan Beekeepers (Manitobas' Honey Producers).

Learn the value of, and need to protect Pollinators for the Food we eat.

Discover various forms Honey comes in for us to use.

See colourful Bees Wax creations you can make at home

Watch Live Bees in action.

Hear Bees Buzz around their home.

Learn which flowers bees love to visit.

Discover What's in a Bee Friendly Garden.

Find out how you help Protect Honey Bees!

Read about fruits and vegetables pollinated by Bees in rural/urban settings. —/\—

**Red River Apiarists' Association
 Winnipeg, Manitoba
 2013 MEMBERSHIP APPLICATION**

I apply for membership in the Red River Apiarists' Association. Membership includes one-year subscription to the newsletter "The Bee Cause" (8 issues)- \$25.00.

Name _____ Tel. _____

Address _____

City _____ Prov. _____ Postal Code _____

E-mail address _____

Signature _____

New Member [] Renewal [] Student [] [free 1st year]

Other. Please specify. _____

This completed form may be brought to the meeting or mailed with your cheque to :

**John Speer, RRAA Treasurer
 Box 16, Group 555. Winnipeg, Manitoba R2C 2Z2.**

Make cheques payable to Red River Apiarists' Association.

Please do not send cash in the mail., MB R2C 2Z2