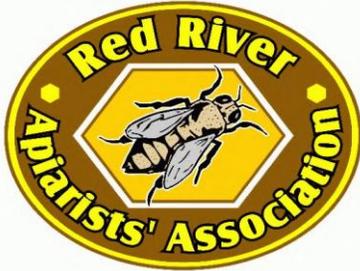


Red River Apiarists' Association

57 Years



The Bee Cause

February 2020

2020 Issue 2

Trial By Fire: The Fate of the Bees of Notre Dame

Fire, toxic fumes, and a lack of any human intervention for 6 months would not bode well for most colonies but Sibyle Moulin who tends the 3 colonies on the sacristy roof reports that they seem to be doing quite well. The fire that tore through the famous cathedral in spring of last year left the site off limits for more than twenty weeks due to structural instability and presence of lead particles from the destroyed ancient roof. Although untouched by the flames themselves, damage from the fires

heat, or from the firefighters frantic efforts to control the blaze was the biggest concern. Well-wishers all over the world, were moved by reports that the bees had not abandoned their queens in the face of danger, but had gorged on honey and hunkered down to protect their colonies.

Drone footage in the aftermath of the fire showed the hives were intact, but it took several weeks of detective work to establish if the colonies had survived the proximity to temperatures estimated to have reached 800C(1,470F) at their peak. Moulin says beekeepers had to piece together clues in film footage taken of the cathedral.

“We examined satellite images and we saw the hives were intact and hadn’t been knocked over and



there were no puddles of wax underneath them. As the wax melts at around 70C we knew they hadn't been affected by the heat. "Then we were sent some film from some of the people working on securing the cathedral and we could see bees going in and out of the hives.

In July, Moulin retrieved 66kg of honey from the three hives, samples from which have been sent to laboratories in Canada to be tested for lead.

"At first the authorities wanted us to remove the hives, but they've seen [the cathedral] through the catastrophe and they're still there, so it seemed more intelligent to leave them alone."

-This abridged article was written by Kim Willsher and originally published in The Guardian. Full article:
<https://www.theguardian.com/environment/2020/jan/31/they-survived-fire-and-lead-poisoning-so-what-happened-next-to-notre-dames-bees-aoe>

Next meeting:

February 11th, 2020

*Elmwood Legion 920 Nairn Ave.
Wpg, Mb*

Novice Group meets at 6:45

*pm **Downstairs***

Main Meeting: starts at

7:30 pm

Guest Speaker:

John Russell

"Honey:

*Small Crop Processing
and Marketing. "*

Inside This Issue:

- Students contributing to tech: Page 3
- The Australian fires & Bees: Page 4
- Presidents Message: Page 6
- November Meeting Minuets: Page 8
- A New Mite Solution? Page 9
- The Cruelty of Almonds: Pages 10-13
- Classifieds: Pages 14 & 17
- MBA Report: Page 15
- Mead Corner: Page 16
- The death of Homero González: Page 17

REMINDER!

RRAA NOVICE MEETING
STARTS AT 6:45pm SHARP!

DOWNSTAIRS! NOTE THE CHANGE!!

All members not attending are asked to wait upstairs in the legion hall until 7:30
Have a beer, or a coffee and socialize, but please do not disturb the novice class.

Respect the Legion Rules:

- No outside beverages.
- Remove your hat upon entering
- Sign in at the Bar.
- Do not take purchases downstairs at 7:30



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**-R.R.A.A. Membership
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Page 18**

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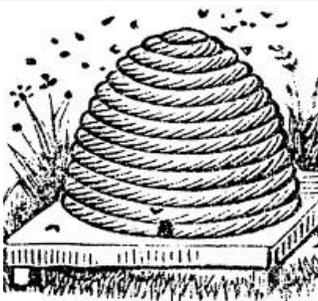
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ASSINIBOINE STUDENTS DESIGN SENSOR SYSTEM TO HELP

BEEKEEPERS SAVE THEIR QUEENS

The queen bee is a vital part of any hive; without her, the colony won't survive. If worker bees and drones can't find their queen, they will fan their wings to move air around the hive, hoping to find her scent. In the process, they create more noise than a hive that has its queen. That's just one of the signals for bees and beekeepers that Assiniboine students Adam Lennox and Kent Collins are trying to capture with their Bee Aware project.

Bee Aware was the capstone project for the pair as they recently completed their second year of Communications Engineering Technology at Assiniboine Community College. Lennox and Collins have designed a wireless sensor network to be installed inside bee hives, providing instant feedback to beekeepers. The students are collaborating with 4K Honey, a producer located about 80 kilometers southeast of Brandon. Collins knows two of the owners, inspiring him to try to help them out.

"I know last year, they had cows knock over some of their hives. It was the end of the year. It was cold out, so they all died. Basically, the bees would leave the cluster, make it about 10 feet and die. If the beekeepers could have got there earlier, maybe they could have saved them," Collins said. One of the sensors used is an accelerometer that can detect movement in any direction as well as any vibrations. If everything in the hive is humming along routinely, the sensors report the status of the hives to the beekeepers twice a day. If the data collected indicates the possibility of an urgent event, then a notification is sent to the beekeeper immediately. These events could be the death of a queen bee, a cow knocking over a hive or someone trying to steal the hive. Another sensor uses a laser beam to be able to tell when bees are leaving the hive and when they return.

"At different times of the season, the bees will get different flowers. They'll take clover, then they'll take canola, then they'll take buckwheat. They'll leave the hive at different times," Collins said. "What I want to do is log the times when they leave and the times when they come back. How long is their day? Does it get shorter with the sunlight? Do they care about sunlight? Or do they just do it until they're done?" he asked. Collecting this information will allow the beekeepers to apply data analytics to improve operations and increase yields and profits.

Collins is designing the sensors, while Lennox is designing the network that will deliver the sensor information to the beekeepers by email or text on their computers or smartphones. The sensors in the hives send data to a microcontroller unit that will collect the information from up to four hives. These units will then transfer data to a collector device in each yard, using Bluetooth technology for short distance communications. With this system, there could be up to 10 hives per yard, Lennox said. The collector device in each yard then sends the data to a central gateway, which could be up to 10 kilometers away using

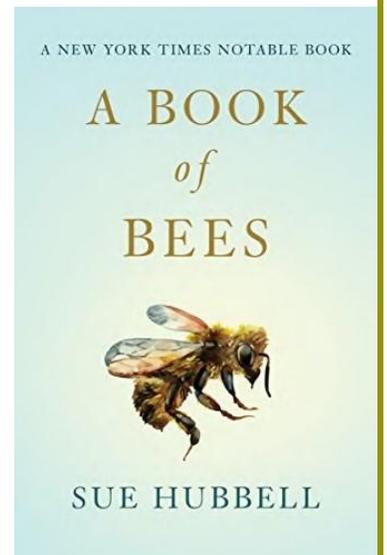
longdistance wireless protocol on a low-power wide area network. Data and notifications are then forwarded to the beekeeper by email or text message. It could also be uploaded to a web page, where they could view that data at any time as well,” Lennox said. The system uses solar panels to recharge batteries, saving farmers from having to replace batteries several times a month. This also allows for installation in hives in remote areas that do not have electrical service installed.

Collins and Lennox estimate they can deliver the system to 4K Honey for less than \$1,000 in capital costs and with low ongoing operating costs. Keeping an eye on the hives remotely would free up the beekeepers to perform other tasks. –A.C.C.

Recommended Reading:

One of the first really good beekeeping story tellers whom I remember encountering was Sue Hubbell. Her books, *A Country Year: Living the Questions* (1986) and *A Book of Bees and How to Keep Them* (1988) showed me that books about beekeeping don’t need to be dry renditions of mechanics and simplified biology. They can be entertaining, motivating, and thought-provoking, while also providing the truth about real-world bee management challenges. Her beekeeping began when she and her husband spent a year (1972) roaming America and ended up in the Missouri Ozarks, suddenly owning 90 acres and 300 hives of bees. Her beekeeping really began when Mr Hubbell moved on, leaving Sue divorced and the sole proprietor of all those bees.

She ran the farm alone, learning to fix machinery and manage the bees and honey sales. She wrote about her midlife adventures in *American Bee Journal* in the late 1970s and later in her books. At the time, I was a no-nonsense commercial beekeeper with little time for fun stories about hippie-style beekeeping. But that wasn’t Hubbell’s style at all – and her message was all about hard work, common sense, and love of nature. I actually enjoyed her articles in *ABJ* and sought out her books. I wasn’t disappointed. You can find a long list of her work (8 books and a hundred articles) at suehubbell.com, and you’ll see that she wrote for *New York Times*, *The New Yorker*, *The Smithsonian Magazine*, *Time*, *Harper’s*, and *Discover*, among others. - R. Miksha



Bees and the Australian Fires

Abridged from Ron Miksha's Bad Beekeeping Blog
Badbeekeepingblog.com

Australia is on fire. When I heard about the thousands of people who were fleeing – some being rescued from beaches by the navy – and then saw photos of black smoke, red skies, and stampeding kangaroos, I worried about the firefighters, homeowners, and displaced people. Then I began to worry about the bees of Australia.

The country has hundreds of species of bees, many residing in eucalyptus forests, which are comprised of oily trees capable of igniting like candles. Australia's native bees are being consumed by flames, even as you read these words. The bush fires have killed trillions of insects and half a billion landscape, 60,000 km² (24,000 square miles), burned so far. That's an area larger than the state of West Virginia. It's an area equal to 15% of all the arable land in Australia. The entire country is affected by ash and drifting smoke. Some of the soot has travelled at least 2,000 miles to New Zealand, causing mountain-top glaciers to turn grey. Even without fire, honey bees have a rough time surviving the heat. 120 °F is the temperature that honey combs, laden with honey and brood, begin to sag. Comb will eventually be wrecked in the hive, especially if covers aren't shaded or insulated. Before 100 °F, most bees quit foraging and those that are flying carry water to cool the colony.

Australia's drought – now in its fifth or sixth year – was devastating this spring. Even without bush fires, honey bees have been doing poorly because flowers have dried out. Due to the lack of rain, beekeepers have been losing money in Australia for several years. In Tasmania, honey production has dropped by 90% due to drought and smoke. Now it's much worse.

It's much worse because bee yards have been ravaged, colonies killed, equipment torched, combs destroyed. I haven't heard all the bad news, but what I've heard is sobering. Beekeepers are emotionally drained. They live their lives around bees. They build their equipment themselves, by hand. They care for their honey bees, work to prevent diseases and strive to keep their little helpers safe and healthy. Beekeepers become attached to the wonders of the hive and the bees themselves.

So, it's devastating when you can't help the bees. Late last month, when a beekeeper tried to move his hives out of a threatened forest (fires were 60 kilometres away), he found the road barred by police who wouldn't let him enter. Fire fighters said it was too dangerous, and they would know the risks. It took almost a week for the flames to burn a path to his apiaries, but fire eventually arrived. The beekeeper lost eight hundred colonies in the blaze. Financially, it's almost impossible to recover from such a loss. The emotional strain of losing the beautiful insects will take years to overcome.

I know a hard-working beekeeping family, the Curkpatricks, in the state of South Australia. I've done a little business with them in the past. I'd been worrying about their south-coast honey farm for a few weeks. Here are pictures from one of their apiaries – after fire swept in during the last few days of 2019.

This is what they saw, driving into their apiary, at 8am December 31:



Reporting the honey bee damage does not trivialize the loss of human life, homes, and larger animals in Australia. So far, over two dozen people have perished while fleeing or fighting the fires. The Curkpatrick family is not the only beekeeping family with major losses. As a result, several initiatives have started

fundraising campaigns for Australia's beekeepers. Here is one that details why beekeepers particularly need help and it offers a way that you can participate. If you are in a position to help, please do what you

can. Here is link for donations: <https://www.capilanooney.com/au-en/for-bees/hive-aid>

The Full Article is available here: <https://badbeekeepingblog.com/2020/01/05/bees-and-the-australian-fires/>



Pollinator Partnership's Bee Friendly Farming to Work with the Almond Board of California Sustainability Program

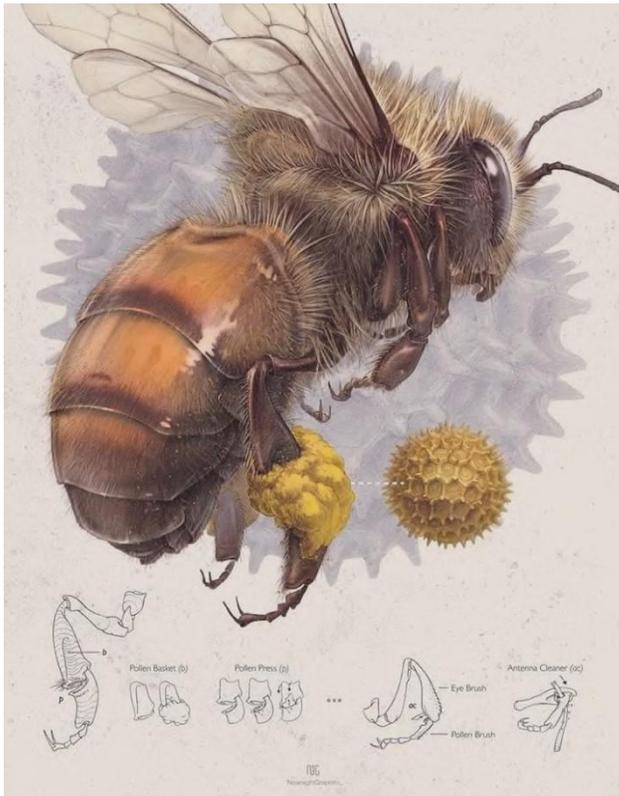
Pollinator Partnership announces a new partnership with the Almond Board of California. In this new partnership, they are working with the [Almond Board of California Sustainability Program's bee health module](#) to integrate our Bee Friendly Farming program. Through this partnership, we will join forces to recognize farmers whose best management practices protect and promote pollinators, and increase the number of farmers who take these steps for pollinator protection.

Our [Bee Friendly Farming](#) program engages farmers in promotion of pollinator health on their lands. Farmers who meet six specific criteria are then certified "bee friendly".

1. Offer forage providing good nutrition for bees on 3-6% of land.
2. Plant continuous bloom of different flowering plants throughout the growing season, especially in early spring and late autumn in temperate regions.
3. Offer clean water for bees.
4. Provide a variety of habitat for nesting through features such as hedgerows, natural brush, or bufferstrips.
5. Practice Integrated Pest Management (IPM); reduce or eliminate the use of chemicals.
6. Pay the annual \$45 certification fee.

We look forward to continuing our work with the Almond Board of California to promote pollinator health and well-being, and working together to build almond-specific criteria to ensure we are inclusive to all farming communities.

Learn more at: <https://www.pollinator.org/about>



The Tools of the Honey Bee



YOU MAY BE A BEEKEEPER IF...

- 911 calls you for an emergency.
- You get stung and it's your fault.
- You're sad when you get stung only because you know the bee will die.
- Driving around with bees in your window doesn't bother you.
- You go to the store for eggs and come back with a car full of sugar.
- Your freezer has no room for meats.
- You're excited when the news reports a high pollen day.
- You avoid mowing the lawn because of the clovers and dandelions.
- You know your queens' birthdays but not your spouse's.
- You misspell words like "beehave" & "because".
- The post office has you on speed dial.
- The flow hive has actually made your life more complicated.
- You know what "propolis" is.
- People act surprised when they hear you did "splits".
- You didn't know your "Russian girls" were hot until after you bought them.
- You know the "waggle dance".
- You mention installing a "nuke" (nuc) in your backyard and people stare.
- You smell like smoke but you haven't been camping.
- Your car is covered with mustard spots.
- The neighbors think you care about every hornets nest they see.
- You plan weddings & vacations around the honey harvest.
- Your first pound of honey cost you eight hundred dollars!!

submitted by Asmara Polcyn



<><><><> President's Message <><><>

We live in interesting times; A mix of continuous wonder, and catastrophe. Volcanoes, and earthquakes. Wildfires and vanishing habitats. Our reluctance to change will need to be paid for if not in our own undoing then by the fruits of our innovation. How fortunate we are insatiably inquisitive! The discoveries, research, and new technology seem to flow out in a steady stream from our universities and think tanks.

The importance of sharing our inventions, and what we learn cannot be understated. These are times of change, and communicating what we know, what we experience, and what we observe is beneficial to everyone. The development of the Tech transfer program that's in the works is an exciting initiative that will help beekeepers of all levels become more sustainable and profitable. There is also a crucial grass roots component that we all need to recognize that is a very powerful tool for beekeepers. We need to keep developing our openness and our inclusiveness in this industry to truly get the most of what we discover. Tim and I consistently attend other association meetings and communicate with their members to keep abreast with the relevant goings-on that affect beekeeping in Manitoba. We at Red River have an open door policy for anyone wanting to learn to try out a few meetings. Our workshops and special presentations are always open invite. Our membership contains more than a few people who are active in the Manitoba, South Central, and Brandon area Beekeepers associations, and we are proud to have them! We lead by this example, and hope to contribute to developing a healthier beekeeping community.

The Annual Elections last month did not see a changing of the guard, but it did determine the direction of the club and I was flattered to hear the satisfaction expressed by the membership on our ongoing education platform. We will continue into 2020 with renewed focus on mentoring and workshops, but we will also place more effort into queen-rearing as this is a large part of any beekeepers sustainability.

See you on the 11th!

-John Russell



Bee-ginning with Bees!

<https://www.keepingbackyardbees.com/bee-gining-bees-podcast-zepz2001ztil/>



It will soon be time to have a quick check for the survival rate of our hives. This is the upper entranceway after several cold days in December. Don't worry about a few dead bees in the snow. Life in the hive is evident by the hoar frost created by warm moist air expelled from the upper entrance freezing into ice crystals on the outside covering.



Having Trouble Finding A Good Parking Spot?

[Norshel Inc. at 890 Nairn](#)



(Two doors west of the Legion) Has generously given the R.R.A.A. members permission to park on the property when the legion lot is full. Please do not block lanes or building exits, or park in the Midland Foods parking lot.

The RRAA , the Bee Cause, for you and through you:

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

without the authors written & expressed consent. They are those of their originator and not of the Red River Apiarists' Association.

Deadline for any submission to this newsletter is the second Sunday preceding the membership meeting to allow for publishing and mailing delays and the legal obligation to allow membership to review last meetings' minutes for errors or omissions before next meeting. Regular membership meetings are normally scheduled 7:30 on the second Tuesday of every month at the Elmwood Legion 920 Nairn Avenue in Winnipeg excepts months 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.

-Photos by Jim Campbell.



YOU ARE NEEDED!!

What makes a great association great? Involvement, and contribution! If everyone does one small task, gives up one HOUR a month to help the RRAA, then we all benefit!

(Call 204-612-2337 to lend a hand.) WAYS TO CONTRIBUTE: Mentoring- a novice beekeeper, join a RRAA committee, bring a toonie draw prize, submit an article or a book review for the newsletter, bring cookies for our coffee break, share experiences and advice with new beekeepers, help at the Honey Show, or Day of The Honeybee, network with novices to source Manitoba bred bees and equipment, Teach a class!

TALK TO AN EXECUTIVE

MEMBER FOR MORE DETAILS

TOGETHER WE ARE BETER!!

RRAA Meeting Minutes for January 2020 - Recorded by Monica Wiebe

Minutes from Nov. 12 2019 accepted . Moved by: Waldar Damert Secoded by: Justin Kolano

New Bee Keepers 6:45 – 7:20 Topic: Justin Kolano How to feed in spring and checking of hives in spring.

Treasurer John Speer: Balance \$ 3778.44 Annual report: Revenue \$5 164.25 Expenses 3477.27 Net profit. \$1686.98

Memberships are coming in. Extra News Letters available

Honey Show – Forks not community minded at this time. Honey show 2020 may be at St. Vital. Looking for a volunteer team leader to step forward

*****PLEASE NOTE***** Due to the length of the minutes this is an condensed and / or amended version. A more detailed copy is available upon request by emailing:
honeyb@mymts.net

AGM VOTING

President John Russell Vice President Tim Kennedy Vice President 2 Paul Faurshou Membership/Treasurer. John Speer

News Letter: being done by John Russell

All positions were reinstated without being contested including secretary and MRA rep.

Beginners meetings have been good, and Jim commended the executive for their direction. Educational piece is our thing for other bee keepers.

Volunteers: David Lee is assistant to Duane for website and fundraising Adele Kennedy leading social committee and is open to help. Bee Yard and training assistant: Robert Young/ Doris Rudolph Doris Rudolf – swarm control Brad Hogg will be honey show lead.

Tribute to Ted Scheuneman: Rod and Sue and Victoria had the honor of being last students. Ted was teaching to the last afternoon of his life. Sue read a attributes and we had a moment of silence for a dedicated leader in the beekeeping community.

MBA. Marg: Convention Feb. 28 + 29. 2020 executive meeting will be soon.

Presentation: Ian Steplar: “I Get Knocked Down, But I Get Back Up Again”. My experiences throughout the years and the adjustments to manage our variable conditions. -Managing brood next. Adapting the plan. -A Canadian Beekeeper’s Bog on YouTube -Challenging conditions. 2018 – hot dry big honey crop, bees shut down early. No September brood. -Lloyd Harris study:Counted bees

Questions Ian had: When does the winter bee set up. Which bees survive until April The winter brood vs summer brood. Lots of questions about what makes the different. And shared a lot of his questions and the activities in a be yard that causes both joy and frustration.

Loony draw \$111.00 thanks to all who brought items to share in the loony draw and for those who brought food to share for coffee break.

Adjourned:

Respectfully submitted,

Monica Wiebe



Mite-destroying gut bacterium might help save vulnerable honey bees

by Elizabeth Pennisi

The varroa mite (center) infects honey bees, transmitting deadly viruses to them. Photo Credit - Alex Wild

The world's honey bees are facing an unprecedented crisis. Since the 1940s, the number of honey bee hives in the United States has dropped from 6 million to 2.5 million. A combination of colony-killing mites, viral pathogens, and possibly pesticides is largely to blame. Now, researchers are tapping an unusual ally in the fight to bring the bees back: a bacterium that lives solely in their guts. By genetically modifying the bacterium to trick the mite or a virus to destroy some of its own DNA, scientists have improved bee survival in the lab—and killed many of the mites that were parasitizing the insects.

The work, which has yet to be tested in whole hives or outdoors, promises to be effective over the long term, says Robert Paxton, a bee ecologist at Martin Luther University, Halle-Wittenberg, who was not involved with the study. It could help end, he says, “the major plagues of the honey bee.”

Those plagues include the aptly named Varroa destructor mite, which weakens bees by feeding on their fat stores, as well as the deadly “deformed wing” virus the mite transmits when it makes its home on the bees’ bodies. All too quickly, the mites have developed resistance to pesticides that used to kill them, Paxton says.

To bypass the pesticides, some scientists have turned to a process called RNA interference. RNA is best known for transferring DNA’s protein-coding messages to a cell’s protein-production machinery. But RNA can also be recruited to help “silence” unwelcome genetic material. By engineering RNA to match the sequence of the undesirable gene, scientists can activate the cell’s ability to shut down the matching genes, even those that lead to disease in humans.

Jeffrey Barrick, a microbial evolutionary biologist at the University of Texas, Austin, and his colleagues decided to see whether they could recruit bacteria living in the honey bee gut to produce RNA that make the mite—or the virus—dismantle some of its own genes. Whereas humans have thousands of kinds of gut bacteria (and no two humans have exactly the same set of microbes), all honey bees have the same six to eight gut microbes, which keep the bees healthy. So, if the procedure worked in one set of bees, Barrick reasoned, it could be broadly applied.

Barrick’s graduate student Sean Leonard figured out how to genetically modify one of these bacteria, *Snodgrassella alvi*, so that it continually made RNA that matched the genetic material he wanted to dismantle: genes that are essential to the survival of the mite or the virus. To watch the RNA diffuse from the honey bee gut throughout the body, he added fluorescent tags.

Next, he fed the bacterium to groups of up to 20 bees before exposing them to the mites or the virus. The mites were 70% more likely to die on the treated bees than untreated ones, Leonard, Barrick, and their colleagues report today in *Science*. “The mite-killing impact was impressive,” says virologist Michelle Flenniken from Montana State University, who was not involved with the work. When the bees were infected with the virus, they were 36% more likely to survive when they housed gut microbes with virus-targeting RNA than with gut microbes not making RNA, the team reports.

The modified gut bacterium persists in the honey bee’s gut for at least the length of the experiments—15 days—providing a steady supply of antimite and antiviral RNA. And because adult bees feed developing bees, they may be able to transfer these helpful gut microbes to the next generation, Barrick says.

In theory, other RNAs could be added to the microbe to improve bee health and perhaps even make the bees less susceptible to pesticides. “It is a bit like a customized medicine for honey bees,” says Jeffrey Scott, an insect toxicologist at Cornell University in Ithaca who was not involved with the work. “Being able to engineer a gut microbe and specifically regulate gene expression in the host has enormous implications.”

He and others caution, however, that bacteria are typically not easy to contain, raising concerns about using this approach in the wild. Furthermore, much more work needs to be done to establish the effectiveness of the new approach in hives with tens of thousands of bees. But, Paxton says, "If the technique works in the field, that could be the end of Varroa and the viruses." At least until these pathogens develop resistance.

'Like sending bees to war': The deadly truth behind your almond milk obsession

By Annette Flagstaff As seen in The guardian

Bees are essential to the functioning of America's titanic almond industry – and billions are dying in the process .

Dennis Arp was feeling optimistic last summer, which is unusual for a beekeeper these days.

Thanks to a record wet spring, his hundreds of hives, scattered across the central Arizona desert, produced a bounty of honey. Arp would have plenty to sell in stores, but more importantly, the bumper harvest would strengthen his bees for their biggest task of the coming year.

Like most commercial beekeepers in the US, at least half of Arp's revenue now comes from pollinating almonds. Selling honey is far less lucrative than renting out his colonies to mega-farms in California's fertile Central Valley, home to 80% of the world's almond supply.

But as winter approached, with Arp just months away from taking his hives to California, his bees started getting sick. By October, 150 of Arp's hives had been wiped out by mites, 12% of his inventory in just a few months. "My yard is currently filled with stacks of empty bee boxes that used to contain healthy hives," he says.

This shouldn't be happening to someone like Arp, a beekeeper with decades of experience. But his story is not unique. Commercial beekeepers who send their hives to the almond farms are seeing their bees die in record numbers, and nothing they do seems to stop the decline.

A recent survey of commercial beekeepers showed that 50 billion bees – more than seven times the world's human population – were wiped out in a few months during winter 2018-19. This is more than one-third of commercial US bee colonies, the highest number since the annual survey started in the mid-2000s.

Beekeepers attributed the high mortality rate to pesticide exposure, diseases from parasites and habitat loss. However, environmentalists and organic beekeepers maintain that the real culprit is something more systemic: America's reliance on industrial agriculture methods, especially those used by the almond industry, which demands a large-scale mechanization of one of nature's most delicate natural processes.

Environmental advocates argue that the huge, commercially driven proliferation of the European honeybees used on almond farms is itself undermining the ecosystem for all bees. Honeybees out-compete diverse native bee species for forage, and threaten the endangered species that are already struggling to survive climate change. Environmentalists argue a better solution is to transform the way largescale agriculture is carried out in the US.

Like all bees, honeybees thrive in a bio-diverse landscape. But California's almond industry places them in a monoculture where growers



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www.jnjhoneyshopandapiary.com
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expect the bees to be predictably productive year after year.

Continued on Next Page:



Almonds & The Bees ...continued (Part 2)

Commercial honeybees are considered livestock by the US Department of Agriculture because of the creature's vital role in food production. But no other class of livestock comes close to the scorched-earth circumstances that commercial honeybees face. More bees die every year in the US than all other fish and animals raised for slaughter combined.

"The high mortality rate creates a sad business model for beekeepers," says Nate Donley, a senior scientist for the Center for Biological

Diversity. "It's like sending the bees to war. Many don't come back."

Nuts for almonds

California's \$11bn (£8.4bn) almond industry has grown at an extraordinary rate. In 2000, almond orchards occupied 500,000 acres. By 2018 that had more than doubled – almond groves in the Central Valley now blanket an area the size of Delaware, producing 2.3bn lb (1m tonnes) of almonds annually sold around the world.

The average American eats 2lb (900g) of almonds every year, more than in any other country. US almond milk sales have grown 250% over the past five years to reach \$1.2bn, over four times that of any other plant-based milk, according to a 2018 Nielsen report.

"We don't see a cap on growth at this point, especially with the incredible versatility of almonds in foods," says Richard Waycott, president and CEO of the Almond Board of California, a not-for-profit advocacy organization representing the majority of farmers.

But these enormous orchards can't function without bees.

It wasn't that long ago that beekeeping was mostly a boutique pursuit of the gentleman apiarist. When European immigrants introduced their own version of agriculture to North America, they also imported the art of beekeeping, along with boxes of *Apis mellifera*, the domesticated European honeybee.

During the 19th and early 20th centuries, beekeepers earned a modest living selling beeswax and honey. But in the late 20th century there was a titanic shift, exemplified by the career of Dennis Arp.



Arp, 67, got into beekeeping nearly four decades ago when he established his Mountain Top Honey company in Flagstaff, Arizona. A commanding presence with biceps toned from hoisting heavy bee boxes, Arp is the sort of diligent beekeeper who spends his days driving between apiary sites, and his nights studying online forums, reading articles on the latest mite treatment.

When cheap imported honey began cutting into Arp's profits in the 1980s, he decided to send some of his hives with a beekeeper friend to pollinate almonds in California. A decade later he struck up a deal of his own with an almond grower in California's Kern county. With that strategic move,

Arp

joined the growing ranks of migratory beekeepers in the US who still sell honey but mostly travel the country from one pollination site to the next with stacks of bee boxes in tow.

In the early 1980s, when Arp was just selling honey, he would lose about 5% of his hives per year to disease or weather conditions. Around 2000, Arp's bees started dying in greater numbers.

First, he experienced a nearly 100% loss of his hives from an infestation of tracheal mites. Then he had to cope with the intrusion of Africanized "killer" bees. And finally, what he still considers the bane of his business, a parasitic mite called *Varroa destructor* literally sucked the life out of his bees. The mite feeds on the bee's plump body, destroying the insect's immune system and other vital functions. If Arp doesn't apply regular chemical treatments for the mites, his colonies will die.

Continued on Next Page:

Almonds & The Bees ...continued (part 3)

Now Arp finds himself in a vicious circle: he is constantly battling to keep enough bees alive to meet the requirements of his almond contract. But if he was not pollinating almonds, maybe his bees would be healthier.

This year Arp's bees, like more than two-thirds of the United States' commercial honeybee population, will spend February in the toxic chemical soup of California's Central Valley, fertilizing almonds one blossom at a time.

Pesticides are used for all kinds of crops across the state, but the almond, at 35m lb a year, is doused with greater absolute quantities than any other. One of the most widely applied pesticides is the herbicide glyphosate (AKA Roundup), which is a staple of large-scale almond growers and has been shown to be lethal to bees as well as cause cancer in humans. (The maker, Bayer-owned Monsanto, denies the cancer link when people use Roundup at the prescribed dosage. So far this year three US courts have found in favour of glyphosate users who developed forms of lymphoma; thousands more cases are pending.)

On top of the threat of pesticides, almond pollination is uniquely demanding for bees because colonies are aroused from winter dormancy about one to two months earlier than is natural. The sheer quantity of hives required far exceeds that of other crops – apples, America's second-largest pollination crop, use only one-tenth the number of bees. And the bees are concentrated in one geographic region at the same time, exponentially increasing the risk of spreading sickness.

“Bees are exposed to all kinds of diseases in California,” says Arp. “There can be hundreds of thousands of hives from multiple beekeepers in one staging area. It is like letting your bees go into a singles bar and then they have unprotected sex.”

The almond business has been good to Arp – last February, for instance, he installed 1,500 of his hives in one grower's orchard at \$200 per hive – so he is reluctant to make a direct connection between the constant health challenges with his bees and the time spent every spring in the almond groves. “The bees like working on the almonds,” says Arp. “But it obviously exposes them to risks.”

Now he routinely loses 30% or more of his bees a year, mirroring national statistics. In any other industry, the death of a third of your workforce would cause an international outcry – but this staggering loss is now considered the normal cost of doing business.



“The bees in the almond groves are being exploited and disrespected,” says Patrick Pynes, an organic beekeeper who teaches environmental studies at Northern Arizona University in Flagstaff. “They are in severe decline because our human relationship to them has become so destructive.” **The high price of growth**

When the phenomenon called colony collapse disorder was first identified in 2006, after a record number of honeybees mysteriously disappeared or died outside their hives, it was linked to a variety of factors including loss of habitat and climate change. But the primary culprit was pesticides. Researchers found that a class of pesticides called neonicotinoids was especially lethal to bees.

Last May, the EPA pulled a dozen “neonics” from the market following a successful lawsuit brought by beekeepers and environmental groups.

But there are many chemicals that are not labelled as bee toxic, even though they can make bees sick and weaken their immune systems. While bees may survive the pollination season, they may not last the winter or may take back substances that gradually poison the entire colony.

Those on the almond growers' side acknowledge there is a huge problem. “The bee mortality rate is too high and is unacceptable,” says the entomologist Bob Curtis, a pollination consultant for the Almond Board of California. “It is only because of the hard work and creativity of beekeepers that [almond growers] have gotten the bees they need.”

Continued on Next Page:

Almonds & The Bees ...continued (part 4)

The almond board's "best practice" guidelines encourage beekeepers to spend as little time in California's Central Valley as possible. Honeybees can travel up to three miles in search of varied forage, so even if the almond grower is doing everything right to protect a pollination investment, the cotton or grape farmer down the road may be spraying bee-toxic chemicals on crops.

Even as almond production has steadily ramped up for decades, the number of commercial hives in the US has remained at a steady 2.7m colonies since the early 2000s. With all the challenges beekeepers face, just maintaining the bare minimum is a struggle.

One coping strategy pursued by the almond industry has been to breed almond varieties that require only one hive per acre to pollinate, instead of two. And last January, a pollinator protection law went into effect in California as part of the state's "Bee Where" initiative. For this program, beekeepers are required to register the location of their hives with the county's agricultural commissioner and farmers must notify the commissioner in advance of any plans to spray pesticides.

Experts say that simply working around the pesticide problem isn't enough and that farming itself must be changed from the ground up.

The search for a solution

Hope is being found in a new certification program that, similar to "organic" or "fair trade" labels, will help consumers choose products that have been made with bee-friendly methods.

The "Bee Better" certification program, launched in 2017 by the not-for-profit Xerces Society, introduces biodiversity into almond groves to naturally control pests and nourish honey bees. Xerces is working with almond growers to plant California wildflowers, mustard and clover in between the rows of trees and native flowering hedges along the perimeter of the orchard – a kind of eco-friendly fence to keep bees in the orchard.

The program scored a victory when Häagen-Dazs ice cream became the first food company to carry products with the Bee Better seal. The company's bee-friendly vanilla milk chocolate almond bar was rolled out in December at Costco, Sam's Club and BJ's Wholesale Club, with three more bee-friendly almond ice cream flavors to be available in early 2020.

Letting nature take its course is nothing new for 81-year old Glenn Anderson. He is the first and still one of the few organic almond growers in California's San Joaquin Valley. His 40-year-old orchard is small – just 20 acres – and has always been chemical free.

"We don't have pests; we have biodiversity," says Anderson, who primarily sells directly to individual customers through his Anderson Almonds company. Unlike large industrial almond farms that strip the orchard ground bare to more efficiently treat for insects and fungi, Anderson allows a rich understory to grow, which naturally nourishes the soil and strengthens the trees.

Anderson hires a "beekeeper hobbyist" from northern California every spring to install about 20 hives in his orchard. "We have the opposite of colony collapse at my farm," says Anderson. "My beekeeper brings weak hives down that he wants to recharge on my property."

Anderson says the tradeoff for not using pesticides is that his annual crop yield is lower – typically about 10,000 pounds – and he keeps his orchard small in order to manage its wildness. "I'm averse to an expansion model," he says. "It doesn't suit me much."

And as for industrial-grown almonds? "They taste like cardboard," he says.

Back in Arizona, Dennis Arp and his son Adam are just trying to make it through the next few months with as many healthy bees as possible.

There are days when the costs seem overwhelming, and Arp wonders if he should hang up his honey-stained bee suit. But beekeeping is what he knows best, and he wants to pass the business on to his son.

"I don't know how we will pull it off yet," he says. "But we will make it work." - Annette McGivney Flagstaff AZ.



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MBA Report to RRAA

February, 2020

RRAA members will have received the email announcing that the information about the 114th MBA Convention is now freshly up on the MBA website. Of course, advance registration for the whole convention costs less - \$25.00 less, so please send in your registrations early. There will be a Thursday evening Question and Answer session on CFIA, with Sam Barlin and some of the CFIA Inspectors, in order to bring beekeepers' concerns to the discussion. Speakers throughout the convention look good. There is also a Saturday afternoon workshop from 1:30 to 4 p.m. on queen rearing, followed by a panel of speakers. A block of rooms is available for convention attendees, but only until February 14th. The bottom of the registration form gives you information on booking of rooms. February 28-29th, 2020, at the Hilton Airport Suites.

There is a Silent Auction that runs at the convention to raise funds for the Barry Fingler Research Fund. Donations for that Silent Auction would be most welcome.

For all Convention information visit manitobabee.org

Did you know that the Canadian Honey Council (CHC) has teaching packages for Grades 1-3, available online? AND that the University of Guelph has 600 education packages available?

The MBA Research Committee has been working on behalf of all beekeepers in the province this past while. There have been several meetings with Provincial government ministers to keep the various items for the KRTP application front and

center and moving forward. At the present time they are awaiting the government grant to move forward.

Rheal had reported to the MBA Executive meeting that there has not been any interprovincial movement yet of the Giant Asian hornet. The organization of Provincial Apiarists is awaiting further news from B.C. on this creature. They are not expecting any changes and suspect that it would possibly be transported in load of lumbers rather than with the transport of bees interprovincially. If you have questions about hive deaths, however, send in what you have for testing and Rheal will see that testing is done. He also reported that our provincial lab is not yet up and running – they are looking for a Spring launch.

That's it for now. Marg Smith

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with. This was the perfect
mead.

Looking around at what
then tossed the whole thing
traditional had already been back sweetened, I was wanting more mouth feel.

This season, as **Christmas** approached, I was trying to avoid starting a lot of new brewing projects. Being unsuccessful at this, one day while feeling call of the brew, I started looking at a traditional mead that I was not happy opportunity for an experiment as I had nothing to lose but a sub-standard

I had on hand, I found an orange. I zested the peel and juiced the orange into the mead. The first taste test left me wanting. Although the

Mouth feel often comes from tannins. Tannins generally come from Oak and many Tea varieties. I've been using oak a lot lately so I decided to try to go with tea this time. The tea I had on hand was a Blood Orange Mandarin Orange tea.

The brew was left alone, in the dark, for a month.

The taste test yielded a nice surprise. The Orange aroma is a dead ringer for a Terry's Chocolate Orange. The flavour starts with a freshly peeled orange. The honey and alcohol then come forward and the finish is a smooth alcohol taste.

This traditional has been around for well over a year. The tragedy is that since this was a spontaneous experiment, there are no notes on the recipe or process.

Moving forward, I will try adding some cocoa-nibs to possibly imbue some of the chocolate orange theme into the taste.

I'm very happy that this rescue mission turned salvage mission has turned into a real surprise success.

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-Brad & Jason

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Leading Mexican conservationist Homero Gómez González found dead.



He was tasked with taking care of Mexico's vulnerable monarch butterfly population. In the end, he was the one in grave danger. The dead activist managed a new sanctuary that had just opened in November, with the aim of combatting the effects of the local black market timber trade. After reportedly being threatened by a local gang, he was last seen alive at a meeting in an area called El Soldado on Jan. 13. Michoacán is home to many rival drug gangs who battle to control smuggling routes through often-arid terrain to the Pacific and Mexico's interior. But its hills are also home to millions of monarchs, who settle

in its pine forests and can be seen swarming there in their droves. The monarchs make a 3,220-kilometre journey from Canada to winter in central Mexico's warmer weather each October, but the insects are facing new challenges linked to extreme weather and changing habitat.

Gómez, though himself a former logger from a family of loggers, had fought tooth and nail to protect the species. Leading the El Rosario sanctuary in the world famous Monarch Butterfly Biosphere Reserve, he gained a degree of fame for posting mesmerizing videos and photos of the orange and black butterflies on social media. The region, a big draw for tourists, is on UNESCO's World Heritage list. But the exposure Gómez brought to the area is feared to have drawn the ire of illegal logging interests, who had grown tired of his efforts to highlight their shadow trade. Mayte Cardona of the Human Rights

State Commission of Michoacán told Reuters that “he was probably hurting the interests of people illegally logging in the area.”

Gómez worked locally for decades on sustainability issues, and it’s tragic to see human greed continue to eliminate not only our pollinators habitats, but the champions who defend them.

You can see a video of the sanctuary he devoted his labors to here: https://www.youtube.com/watch?v=a_CQ0iijCv0

Red River Apiarists' Association Membership Application

The RRAA membership extends for one calendar year. Renewals are due in January and includes access to 8 monthly issues of the RRAA BeeCause newsletter.

I hereby apply for membership to the RRAA\$35.00/year

*Optional: Beekeeper Liability Insurance - \$65.00 + \$5.20 9999.... \$70.20/year

Total Payment \$ _____

**Note: Liability Insurance fees must be submitted before April 1st.*

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