WINTER 2019

From the Board Room

Alex Crouse, NSBA President

IN THIS ISSUE

We trust that your bees are all wrapped for winter and you are now finding some time to spend with loved ones over the holiday season.

Your board has been meeting monthly to address issues and plan events to support the membership of the association. In June, we held our first annual summer field day in Port Williams, with about 80 keepers in attendance, which featured 5 workshop sessions including splitting, reading the comb and honey production. Dr. Nancy MacLean was on hand to share her work on her pollinator mix. Plans are in the works already based on the positive feedback from this year's event to hold another field day in 2020. In October, our Fall Technical session was held at Dal AC in Truro. Fletcher Colpitts from New Brunswick and our Tech Transfer Team carried the weight of the program focused on pest management and winter preparation.

Three members of the board have been meeting with the Nova Scotia Department of Agriculture on a quarterly basis, keeping all parties abreast of the issues facing our industry and providing input to programs. We have created a very cohesive working relationship with the department which will continue to assist Nova Scotia beekeepers long term. Attempts were made to have the NSBA participate in several exhibitions during the year, but lack of volunteers meant that these plans could not be executed.

Several fund-raising events were held by private groups and companies. The monies donated to the NSBA from these events have been earmarked for research and education. The most significant undertaking was by Compass Distillers who are donating $1/bottle of the sale of Gin Royal to the NSBA. It is humbling when outside organizations want to support the association and the work of our beekeepers.

Early in the new year we will be reviewing the bee industry act and providing input to the Department of Agriculture as the act is coming up for review. The board will also be reviewing the membership fee structure and the bylaws of the NSBA. Look for some resolutions that will be tabled at our Winter meeting and AGM on the 21st and 22nd of February.

On behalf of the entire NSBA Board, I would like to wish you all a safe and happy holiday, and best wishes for the new year!

Challenges with Queens

Jason Sproule, Provincial Apiculturalist

There are many worthy topics a Provincial Apiculturist could write about such as: recent research, advice for new beekeepers, regulatory requirements, pest and disease management, and etc. However, having recently been reminded of my participation in Dalhousie's Queen Production Course at the Agricultural Campus in Truro this past July, I am inspired to write this piece about queens.

Queen honey bees are critical to the success and productivity of a colony. There is typically only one per hive and she is the sole egg-layer and mother of all the bees in the colony. Dissemination of her pheromones throughout the colony dictates certain behavioural and physiological traits of the worker bees that helps to maintain cohesiveness and productivity of the colony. Egg-laying and pheromone release can diminish naturally over time or by injury and she will need to be replaced. While colonies can rear a new queen (under certain conditions), it is common practice for beekeepers to do this.

Dalhousie has offered a queen course in the past. The most recent offering was prompted by a meeting in March of 2018 with known NS queen producers, NS Department of Agriculture (NSDA) and the Atlantic Technology Team for Apiculture (ATTTA). Participants discussed ways to boost domestic queen production in order to decrease our reliance on honey bee imports. There are many reasons why this is a worthy goal. We have heard anecdotal reports of poor acceptance rates, colony performance issues and premature supercedure associated with imported queens. Healthy, well-mated queens should have a high rate of acceptance in recipient hives, exhibit good laying patterns and survive 2-3 years. Problems may stem from long periods of confinement in queen banks prior to shipping, insufficient matedness, exposure to extreme temperature, rough handling during transit, or just poor suitability to our environment. Imported queens often originate from warmer climes like Hawaii, California, Chile, Australia or New Zealand where flora and other environmental stressors are quite different than our own.

There are also inherent biosecurity risks with any importation of bees. Last year, Small Hive Beetle (SHB) was found in a queen shipment destined for QC and there are other pest and disease risks as well. Nova Scotia beekeepers are required to apply for an Import Permit from the NS Department of Agriculture in order to bring bees safely into the province. NSDA permits are issued under stringent conditions set forth in the Honey Bee Import Protocol and all queens are inspected on arrival. A Canadian Food Inspection Agency permit is also required where queens originate outside of Canada.

Several suggestions were made at the March meeting, but participants resolved that education and extension opportunities for NS beekeepers to produce their own queens were essential to limiting our reliance on imports. To further that goal Dr. Pierre Giovenazzo, a Laval University Professor involved with Quebec's breeding program at Centre de recherche en sciences animales de Deschambault lectured at our 2018 NSDA Beekeeper Symposium (a month earlier) to which all registered NS beekeepers are invited to attend for free. In 2019, the Symposium was held jointly with the NS Beekeeper's Association Annual General Meeting and a queen production workshop was provided by local queen producer Jerry Draheim. Perennia's Atlantic Technology Transfer Team for Apiculture has initiated a queen rearing case study with NB beekeepers and finally, funds were allocated through the Canadian Agricultural Partnership to cover much of the costs for Dalhousie's Queen Production Course.
The course was instructed by Les Eccles who is the Ontario Beekeepers' Association Tech Transfer Lead as well as a beekeeper specializing in queen and queen cell production. In the classroom, Les provided 13 eager students (myself included) an overview of queen and drone biology, queen rearing equipment, theory of selective breeding and described his own business model for queen production. The class travelled to a local beekeeper's (Kirby Smith) apiary where we gained practical experience in preparing and renovating queen cell builders, grafting young larvae into queen cups and preparing mating nucs.

Cell builders are the colonies which are used to feed the queen brood and draw out the wax to make queen cells. There are different ways to do this, but we followed a method where the same hive is used as both a cell starter and finisher. A queenright colony, in the lower part of the hive, is separated from a simulated queenless colony, in the upper part of the hive, by a cloak board. A frame of 45 plastic queen cups each with a grafted larva was inserted in the top chamber alongside frames of capped brood, pollen, honey, undrawn foundation, and heaps of worker bees from 6 other hives. After 24-48h, the cloak board is

removed allowing worker bees to travel freely between upper and lower chambers disseminating queen pheromones and ending the simulated queenlessness. In this way workers are stimulated in the first 24-48h to accept and feed the grafted larvae and then complete the cells' development thereafter.

Grafting is a skilled technique requiring precision and speed. Essentially one-day-old worker larvae were carefully transferred to graft bars holding up to 15 plastic queen cups. Three graft bars are fitted to a frame such that a graft frame holds 45 grafts. With practice and experience comes better success. I was dismayed to learn our combined efforts yielded only 4 queen cells, particularly because 15 of those 45, were my own attempts. But hey, it was a first try and more than likely our practice exercise ran a little long. Preventing desiccation is imperative and its best to complete the job in just a few minutes – I think we took an hour or more. Apologies to our host, who did not benefit much from our efforts and jovially confided "you guys suck at grafting!".

These lessons were all very interesting and valuable for students who want to raise their own queens, but there is another problem. Producing your own queens is valuable for replacing aging or failing ones, to make up nucs for sale, or split hives and prevent swarming. However, the bulk of Nova Scotia's appetite for queens is greatest early in spring at a time when Canadian queens are not yet available. In spring, beekeepers need queens to recoup winter hive losses and expand hive numbers to satisfy pollination contracts. Queens need to mate with 10-20 drones (male bees) and colonies only engage in resource-intensive drone production when floral resources are abundant, and the colony is populous. Drone brood is often the first sacrifice when weather or lack of forage is not optimal. Even after the drones emerge, it takes 2 weeks for them to sexually mature. The result is that drones aren't usually abundant here until after June 1st. This is why early season queens are imported from regions where climates are more conducive for mating queens. The challenge to decreasing our reliance on imports is how to have mated, locally produced queens available at a time that is not conducive to mating them.

This year (2019) approximately 4,300 queens were brought into NS and approximately 260,000 per year are imported into Canada. At roughly $35 per queen (nearly five-fold increase from 30 years ago) there is a multi-million-dollar market for which NS beekeepers could in part, fulfill, if we could have queens available earlier. This is where Les Eccles tantalized us with possibility.

Les casually told us about his investigations into holding queens in banks over the winter. If we cannot produce queens in early spring, could we not produce and mate them the year before? Indeed, several NS beekeepers are successfully wintering queens in nucleus colonies, but not in banks (that I know of). Wintering nucs can have mixed results. On the low end of success, it requires a fair bit of time, resources, lost bees and may not yield the much-needed queens. I have often been told that queens can only be banked for a short time and so winter banking is not an option. I'm delighted to find that Les' experiments were successful. He had prepared several banks and even at the lowest range of his success the number of queens produced more than justified the use/loss of one colony to serve as the bank. The queens that wintered successfully performed well in colonies the next season. Similar experiments were being conducted in tandem at Laval, with slightly different methods and even better success. I wish I could say more about the methods, but for now this is novel, unpublished research and I don't want to step on toes. Nevertheless, this solution holds promise for bolstering Nova Scotia's self-sufficiency for queens, and I look forward to seeing the results published.

I know not everyone is as excited about this goal as I am. Imports have been a reliable and practical solution for many. However, we need to consider that dependency on imports creates a vulnerability to changes in import policies. Last year Africanized bees were found in proximity to multiple California queen breeders from which a large proportion of queens into Canada originate. Historically, CFIA required operations maintain a 100km distance from Africanized bee (a.k.a killer bees) populations. In 2018, this exclusion zone was breached. In consideration of Canadian beekeeping industry's dependency on these queens, and review of potential realistic dispersal distances for bees to spread, they relaxed the rule to 50km. Still, this is a situation that threatens access to California queens in the coming years.

I hope to be able to provide further information about what has been learned from the winter banking experiments in the near future and to further efforts towards queen self-sufficiency.

Keep up the super work!

What's all the Buzz with ATTTA?

Sawyer Olmstead, Atlantic Tech Transfer Team for Apiculture

As the year draws to a close, it is time to reflect on the past bee season and prepare for next spring. ATTTA has been busy with extension and research. We have given a number of presentations and workshops across the Maritimes at beekeeping events as well as blueberry grower events and have sat in on a number of industry board meetings. As the winter months approach, we are currently planning for research projects for next season and planning our extension and outreach work. We have a number of new factsheets and reports available on our website including "Evaluating the effect of feeding pollen substitute to honey bee colonies destined for wild blueberry pollination in Colchester County, Nova Scotia". We also have two scientific articles accepted for publication based on research from last year titled "The efficacy of Formic Pro™ and 65% liquid formic acid against varroa mite (Varroa destructor) in honey bee (Apis mellifera) colonies in autumn in Nova Scotia, Canada" and "Apivar® and Bayvarol® suppress varroa mites in honey bee colonies in Canadian Maritime Provinces". These research projects are published in a peer reviewed journal and are open-access for all members of the public and do not require a subscription to the journal. Be sure to check out our website for all new factsheets and publications available here: https://www.perennia.ca/portfolio-items/honey-bees/

This winter you will find us at the beekeepers association AGM's in all three Maritime Provinces, where we will be speaking on a number of topics, including spring management and preparing hives for pollination. We will also be present at the many blueberry grower meetings during the winter months so be sure to stop by and visit us with a list of questions!

Additionally, we have received a shipment of a newly registered mite treatment product in Canada, Hopguard 2, and are looking to execute a research trial to evaluate the efficacy of this new product under Maritime conditions. If you are a beekeeper with over 50 hives and would like to participate in our trial in summer 2020, please contact Robyn or Sawyer.

Robyn McCallum: rmccallum@perennia.ca

Sawyer Olmstead: solmstead@perennia.ca

Save the Dates: Feb 21-22, 2020

Kori MacCara, NSBA Secretary

We are pleased to announce that the 3rd Annual Beekeeper Symposium and NSBA Annual General Meeting will be held at the Best Western Glengarry in Truro, NS on Feb 21st and 22nd, 2020. The fees for this 2 day event is:

NSBA Members: $50
Non-Members: $65

At the AGM there will be 3 board seats to be filled:

1. The *Commercial Beekeeper* seat currently held by Alex Crouse is up for renewal. Alex is re-offering himself for this position and will stand as the board recommended member.
2. The *Commercial Beekeeper* seat currently held by Sawyer Olmstead is up for renewal. Sawyer is re-offering himself for this position and will stand as the board recommended member.
3. The *Small-Scale Beekeeper* seat currently held by Suzanne Daniels is to be filled. The board has created a nomination subcommittee in order to provide a candidate to stand as the board recommended member.

Nominations from the floor at the AGM will be taken. For the purposes of nominations, a *Commercial Beekeeper* is a beekeeper with 50+ colonies and whose livelihood depends on beekeeping. A *Small-Scale Beekeeper* is a beekeeper with fewer than 50 colonies or whose livelihood does not depend on beekeeping.

The tentative schedule is attached at the end of this newsletter. We hope to see you there!

NOVA SCOTIA
Agriculture

3rd Annual Beekeeper Symposium and NS Beekeeper Association Annual General Meeting

Best Western Glengarry, 150 Willow Street, in Truro

Feb 21-22, 2020

NOVA SCOTIA BEEKEEPERS ASSOCIATION

Agenda items may be subject to change without notice

Friday, Feb 21	**Day 1**	
9:00 – 9:50	Registration and refreshments (coffee & social)	20 min
9:50 – 10:00	Convene, housekeeping remarks – Marion MacAulay	10 min
10:00 – 10:10	Opening remarks from NSDA – TBD	10 min
10:10 – 10:20	Opening remarks from NSBA – Alex Crouse	10 min
10:20 – 10:55	Presentation from Provincial Apiculturist - Jason Sproule ● Industry Statistical Overview ● Registration, Beekeeper Responsibilities ○ Inspections & Importation ● Major pest and disease updates	35 min
10:55 – 11:10	The search for new bee yards: working with TIR and L&F – Rick Hoeg	15 min
11:10 – 11:30	Beekeeper Programs – Programs & Business Risk Management Office	20 min
11:30 – 12:00	National Bee Diagnostic Centre Services – Dr. Patricia Wolf-Veiga	30 min
12:00 - 12:45	Lunch (provided)	45 min
12:45 – 1:30	Main Talk (EFB, Nosema, Queen Health) – Dr. Patricia Wolf-Veiga	45 min
1:30 – 2:00	European foulbrood and blueberry pollination - Speakers TBD	30 min
2:00 – 2:10	Shuffle	10 min
2:10 – 3:00	1st Breakout Session (divide into 3 groups) 1. Shrews and other rodents – Fletcher Colpitts 2. Spring management – ATTTA 3. Making/selling/overwintering nucs – Ben Cornect	50 min
3:00 - 3:10	Shuffle	10 min
3:10 – 4:00	2nd Breakout Session (divide into 3 groups) 1. Shrews and other rodents – Fletcher Colpitts 2. Spring management – ATTTA 3. Making/selling/overwintering nucs – Ben Cornect	50 min
3:40 – 3:50	Shuffle	10 min
4:00 - 4:20	Closing remarks from NSDA – Marion MacAulay	15 min

Saturday, Feb 22	**Day 2**	

NOVA SCOTIA Agriculture

3rd Annual Beekeeper Symposium and NS Beekeeper Association Annual General Meeting

Best Western Glengarry, 150 Willow Street, in Truro

Feb 21-22, 2020

NOVA SCOTIA BEEKEEPERS ASSOCIATION

8:30 - 9:30	Early-riser Concurrent Sessions 1. Commercial Meeting: Prepping for Pollination & Swarm Management- ATTTA **OR** 2. Small-scale meeting: Varroa Management – Prov. Apiculturist	60 min
9:30 – 9:50	Registration and refreshments (coffee & social)	20 min
9:50 – 10:00	Convene, Housekeeping remarks – Alex Crouse	10 min
10:00 – 10:20	Update from the Atlantic Technology Transfer Team for Apiculture	20 min
10:20 - 10:35	Blueberry Update – Peter Burgess	15 min
10:35 – 12:00	**AGM Business Meeting** ● Approval of Agenda ● Approval of 2018 Minutes ● President's Report ● Financial Report ● Strategic Plan ● Resolutions ● Presentation of Life Membership ● Nominating Committee Report & Elections	85 min
12:00 – 1:00	Lunch (provided)	60 min
1:00 – 1:15	NS Federation of Agriculture Update	15 min
1:15 – 1:30	Canadian Honey Council / Apimondia Update	15 min
1:30 – 2:00	Farm Profile – (TBD)	30 min
2:00 – 2:10	Shuffle	10 min
2:10 – 3:00	1st Breakout Session (divide into 3 groups) 1. Planting Bee Forage - Nancy McLean 2. Beekeeper Etiquette – (TBD) 3. Marketing 101: Extracting value from your hives – John Murray	50 min
3:00 – 3:10	Shuffle	10 min
3:10 – 4:00	2nd Breakout Session (divide into 3 groups) 1. Planting Bee Forage - Nancy McLean 2. Beekeeper Etiquette (TBD) 3. Marketing 101: Extracting value from your hives – John Murray	50 min
4:00 – 4:10	Closing remarks - NSBA	10 min

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