August/September 2019
Vol 37, Issue 4

The Bee Line

Newsletter of the Maine State Beekeepers Association | mainebeekeepers.org

2018/2019 Maine Honey Bee Survey Results

by Jennifer Lund

The results of the 2018/2019 Maine Honey Bee Survey are in!! The information below reflects raw data compiled from those individuals who responded to the survey. An article which takes a much deeper look into the statistics is in the process of being written and will be published in the October/November issue of The Bee Line.

Demographics

360 respondents, representing 1,915 hives. Most (96.9%) identified as backyard/hobby beekeepers (<30 hives) and 95.3% have their apiaries registered with the state of Maine. Most (73.9%) are also members of a beekeeping organization (MSBA, local MSBA chapters, EAS). Respondents keep bees for a variety of reasons, the top of which are hobby/enjoyment (89.4%), bee product production for personal use (66.9%), and to help the bee population (65.3%). The average number of years of beekeeping experience was 8.2 years (range 1-70).

Table 1: Beekeeping experience.

Years Beekeeping	N
1 to 3	137
4 to 6	99
7 to 9	40
10 to 20	54
21 to 30	10
31 to 40	13
41 to 70	7

Practices

The majority (99.4%) of beekeepers use Langstroth hive equipment, either as 5, 8, or 10 frame equipment. Participants started colonies by buying packages (50.0%), buying nucs (37.2%), and/or splitting already existing hives (34.2%). 15.2% reported collecting swarms to start new colonies.

Most beekeepers (82.2%) provided supplemental food to their hives during the 2018/2019 beekeeping season. About a third (33.9%) used sugar syrup to boost food stores and encourage comb building. 55.6% beekeepers used either fondant, candy boards or dry sugar for supplemental winter feeding. About a quarter of respondents (25.6%) reported using pollen patties. 8.1% used their hives for agricultural pollination. The 360 participants reported approximately 35,002.5 lbs of honey harvested (average 97.2 lbs per beekeeper, 18.3 lbs per hive).

Participants reported approximately 15,093.5 lbs of honey harvested (average 71.2 lbs per beekeeper, 13.1 lbs per hive) in 2017/2018 and approximately 12,900 lbs of honey harvested (average 75.0 lbs per beekeeper, 11.5 lbs per hive) in 2016/2017.

Pest and Diseases

Varroa mites/ viruses: More than half (65.6%) of respondents monitored for Varroa mites. Of those that monitor 31.9% do so using a sticky board, 31.1% using an alcohol wash, and 18.8% using sugar rolls. Beekeepers report using screen bottom boards (27.7%) and brood disruption (5.9%) as part of their varroa mite management strategy. The most common miticides used were oxalic acid (vaporization) 48.0%, Mite Away Quick Strips (formic acid, 26.5%), and Formic Pro (formic acid, 23.7%). 35 beekeepers (9.7%) reported no varroa mite management.

Other Pests/Diseases: Most respondents (76.3%) report using no treatments in their hives, 19.7% used fumagillin and 2.2% used terramycin.

continued on page 4

MSBA Board

Upcoming Board Meetings: Aug 15 & Sept 19 (7-9pm)*

Executive Committee

President
David Spicer, 458-3088
president@
mainebeekeepers.org

Vice President
Judith Stanton, 376-7888
vp@mainebeekeepers.org

Secretary
Jane Dunstan, 586-6800
secretary@
mainebeekeepers.org

Treasurer
Keith Kettelhut, 926-5554
mainehoneybeeman@
gmail.com

Past President
Richard McLaughlin
370-2215
Master Beekeeper
richard@apidoro.com

Ex-Officio Members

EAS Director
Peggy McLaughlin
Master Beekeeper
director.me@
easternapiculture.org

Maine State Apiarist and Bee Inspector
Jennifer Lund
jennifer.lund@maine.gov
office: 287-7562
mobile: 441-5822

Membership Director
Keith Kettelhut, 926-5554
membership@
mainebeekeepers.org

At-Large Members

2019
Wayne Hodgdon, 615-8667
waynes.mail@hotmail.com

Dan Cousins
dancousins@pietree-
orchard.com

2020
Charles Merrill, 897-6128
merrillcc@gmail.com

Jean Vose, 563-7564
godslove@tidewater.net

2021
Opal Staudenmaier
j.opal.may@gmail.com

Mike McNally
mcnallys@comcast.net

Chris Rogers
chris@backwoodsbeefarm.
com

*Open to all MSBA members for discussion with voting to be done by current BOD members only. Meetings generally held at the Viles Arboretum,153 Hospital Street, Augusta or via conference call. Please contact a board member for details.

MSBA Chapters

Adroscoggin County Beekeepers
Bill Hiss, 576-4497
whiss@bates.edu

Cumberland County Beekeepers
Keith Kettlehut, 926-5554
mainehoneybeeman@gmail.com

Kennebec Beekeepers
Robert Foster, 656-2193
kayakon@roadrunner.com

Knox-Lincoln County Beekeepers
Jane Dunstan, 586-6800
rmllamas1@gmail.com

Northern Penobscot Beekeepers
Gary Haynes
ghaynes51@yahoo.com

Oxford Hills Honey Bee Club
Carol Cottrill, 693-9226
cottrill136@roadrunner.com

Penobscot County Beekeepers
Jason Peters
cuttingedgelandinc@yahoo.com

Penquis Beekeepers
Sheila Heneise
ssheneise@gmail.com

Sagadahoc County Beekeepers
Josh Botting
j.botting.scba@gmail.com

Tri-County Beekeepers
Shawn Kinney
s.kinney1119@gmail.com

Waldo County Beekeepers
Doug Calhoun
dcamaine@fairpoint.net

Washington County Beekeepers
Al May, 255-2017
alfredjmay@hotmail.com

Western Maine Beekeepers
Lynn Lamb
alynnwashburn@yahoo.com

York County Beekeepers
Kevin Pride
learnmore@beepride.com

Chapter Liaison
Wayne Hodgdon, 615-8667
chapterhelp@mainebeekeepers.org

Call for Advertisers and Content!

EDITOR: Jane Dunstan, 586-6800, rmllamas1@gmail.com. *All advertising subject to approval. No medical or objectionable advertising accepted.*

Print Ads and Content

The Bee Line requests and welcomes member contributions! Please contact the Editor with your comments, photos, calendar events and articles to be considered for inclusion. **The Bee Line** gives advertisers exposure to over 400 readers.

ALL CONTENT IS DUE 15 DAYS PRIOR TO
THE PUBLISHING DATE.
Issues are published bimonthly: Feb/Mar, Apr/May, Jun/Jul, Aug/Sep, Oct/Nov, Dec/Jan

PRINT AD RATES, Per Issue: Quarter Page $30,
Business-Card Size $15
Volume Pricing Available: BUY 5 ADS & GET 6TH FREE!
Provide ad copy/ad to the Editor (High Quality PDF with fonts embedded; call for spec sheet).

Online Ads

The MSBA website's traffic flow reflects interest from all corners of Maine and beyond. All ads appear in the lower right-hand corner of each page and randomly switch from page to page, visit to visit, refresh to refresh.

ONLINE AD RATES
The following rate is subject to change in the future, as we gauge click-through rates. 12-months: $60

WEB AD SIZE: 260px x 303px
Provide ad and the web address to which you would like your ad linked. Note: existing print quarter-page ads shrink perfectly to fit the web ad proportions.

From the desk of the President

What an interesting spring and summer it has been thus far. Some hives are flourishing with all this rain and some are slow to build up and just barely hanging on, bringing in enough nectar to support themselves. The last summer with regular rain like this that I can remember was around 2006 or so as I had two pairs of boots to work in as one always seemed to be wet. Nothing worse than working most of a summer with wet feet. Hopefully, by the time this newsletter goes to print, mother nature will have turned off the water spigot and all our hives will be building and making honey. It will be interesting to see if we have a dearth this year. The water table is up and the first batch of golden rod due to bloom in the beginning of August may actually carry nectar. This situation occurred maybe 4 or 5 years ago with some Maine beekeepers reporting upwards of 200 pounds of honey coming off hives. This was the year Rick Cooper said it was the best he'd seen since sometime in the 1980s and Lincoln Sennett told me he was having a good year pulling in some of these same type of numbers. I guess we'll see how mother nature plays out. Every year is a bit different and adds to the mystery and challenges of beekeeping.

Now on to business. At the annual meeting on October 12th at Brunswick High School, we will be voting on a slate of officers and two At-Large Director positions. This is the time to let us know if you wish to volunteer at the statewide level. The MSBA is adapting and changing with the times and could use your help with this process. Meetings are held once a month and if you can't make it to Augusta, one can always attend via phone or webex. Let me know by shooting me an email or making a phone call expressing your interest. Your information will be passed along to the nomination committee for follow up.

Beekeeper of the Year Awards: We are looking for nominations of those individuals who you think should be considered for Beekeeper of the Year, Lifetime Achievement, and Junior Beekeeper awards. Do you know of anyone? If you do, please check out the MSBA homepage for a nomination form, fill it out and send it into me. It is nice to recognize those individuals who have truly given of themselves to improve Maine's beekeeping community. Deadline for submitting a nomination is September 12, 2019.

I am going to close with a reminder to monitor for mites. Refer to the previous newsletter with the centerfold layout of various mite treatments you may use. If you have questions, check with your local chapter to see what is working in your area. It's important for you to be successful in overwintering your colonies. Now go relax with your bees, listen to the hum, feel the vibration and get in that zen moment we all enjoy. Looking forward to seeing what this year's honey crop is going to look and taste like. Till next time…

Dave

www.mebw.org

MAINE BEE WELLNES

Buzzing with the bees in Maine

info@mebw.org

Backwoods
BEE FARM
BackwoodsBeeFarm.com
207-893-2847

Full line of beekeeping supplies
Maine Made woodenware in all sizes

Nucs, Queens, Package Bees
Northern Queens When Available

Check Us Out
On Facebook!

EAS Master Beekeepers Chris & Vanessa Rogers
106 Page Road, Windham, ME 04062

continued from page 1

Hive losses

State wide hive loss was 45.2% between April 2018 and April 2019 (summer: 6.2%, winter: 39.0%). This is slightly higher than last year where respondents reported a 43.4% loss between April 2017 and April 2018 (summer: 7.0%, winter: 36.4%).

The most commonly reported causes of summer loss were queen loss/failure (11.9%), varroa mites/viruses (8.6%), unknown (7.2%), and environmental factors (4.2%). Two hundred forty-eight (68.9%) respondents reported no summer losses. The most commonly reported causes of winter loss were varroa mites/viruses (26.7%), unknown (19.4%), environmental factors (18.3%), and queen loss/failure (13.1%). One hundred fifteen (31.9%) respondents reported no winter losses.

Table 2: Average losses by county from April 2018-April 2019.

County	N	Summer Loss %	Winter Loss %	Total Loss %
Androscoggin	13	3.1	85.5	88.7
Aroostook	7	12.2	65.3	77.6
Cumberland	94	8.1	46.5	54.6
Franklin	4	14.3	57.1	71.4
Hancock	16	3.0	23.0	25.9
Kennebec	26	2.9	27.5	30.4
Knox	20	18.4	19.7	38.2
Lincoln	34	4.0	22.2	26.2
Oxford	21	8.8	43.4	52.2
Penobscot	36	2.2	28.8	31.0
Piscataquis	4	11.1	33.3	44.4
Sagadahoc	10	6.4	21.3	27.7
Somerset	13	0.0	36.4	36.4
Waldo	15	7.0	16.9	23.9
Washington	9	10.0	50.0	60.0
York	38	6.6	32.0	38.6

Bee Whisperer

We have a full range of beekeeping supplies

3lb packages in April-May

standard/mite-resistant Saskatraz nucs and queens May-July

Maine made, Woodenware, Smokers & more

Bee Whisperer
236 Main Road South
Hampden, ME, 04444
207 299 6948
petercowin@tds.net

Find us on the web at beewhisperer.us
Like us on facebook

EAS 2019: A "Super" Time to Learn and Mingle

by Judith Stanton

The 64th annual Eastern Apicultural Society Conference was held in Greenville, SC in mid-July. Several Mainers made the trip, where everything was observed through different eyes knowing that we will be hosting next year. As always "EAS" was a great opportunity to learn from some of the best in the beekeeping world while also having a good time socializing with other beekeepers from around the country and beyond. It's a place where you don't have to worry about boring someone with bee talk!

The event is divided into two parts: the Short Course and Main Conference. The former takes place on the first three days and includes multiple workshops and lectures from 8:30 - 5:00. They are almost always accompanied by great visual material. Different tracks adjusted for skill level or interests are offered: beginner, intermediate, advanced, queen rearing, microscopy, native bees and more. Some of the short sessions at the SC conference included "To Feed or Not to Feed and Why, When and How," "Using Queen Castles to Increase Honey Production," "Bee Products: Making the Most of the Cool Stuff Your Bees Make." "Challenges Keeping Bees Around People/Family/Animals," "Encouraging Propolis Collection for Healthier Bees" and "Handling Bees With an Attitude." In addition there are open hive demos running in the temporary apiary every hour.

On Wednesday the Main Conference begins with prominent keynote speakers. After lunch a dozen one-hour talks are offered on a variety of topics such as honey bee viruses, pesticide impact on forage, nutrition, polyandry, swarm control, and battling the ever-present varroa mite.

Wednesday is also the deadline for honey show entries, of which there are a surprisingly large number of categories. Besides honey and all its permutations, beeswax or bee-themed art and craft projects can be entered. The section that draws the most attention is "gadgets" with some very creative inventions. Since there are six ribbons awarded to each subcategory, chances of scoring a winning entry are quite favorable.

Over eighty entries were submitted in this year's Honey Show
Photo courtesy of Judith Stanton

Special social events take place throughout the week, often tours of nearby sights and a visit to a local brewery or meadery. Wednesday is about having fun; the "Bee Olympics" are usually held with a casual cookout or BBQ meal. Thursday brings the auctions and honey show awards with a buffet dinner, and on Friday many people get dressed up for the banquet dinner in which new master beekeepers are presented. At the

Auction donations raise money for honey bee research
Photo courtesy of Judith Stanton

closing banquet this year, EAS thanked outgoing Chairman Erin Forbes, for her service to the organization. She will remain on the Board of Directors and focus on increasing the organization's endowment. Carol Cottrill and Jack Hildreth will continue for a second term as Secretary and Treasurer, respectively.

Whether you stay for one, three or five days, your brain will be buzzing with new information and fresh ideas to bring home to your apiary.

Next year the EAS conference comes to Maine at the University of Maine in Orono. Mark your calendar for the week of August 3-7, 2020. You won't want to miss a day of this valuable beekeeping event.

A Story of Redemption

by Bill Truesdell

It all started out innocently. I was asked to mentor some beekeepers and I decided that I would if they adhered to a mite treatment schedule. One had difficulties overwintering his bees so I tried to figure out what I could do to help him.

At the beginning of last year I intended to shift to Carniolans, but the supplier only had Minnesota Hygienic queens, so to experiment I allowed the substitution. My original plan was to split my weak hive in half, kill the queen and start both colonies with the new queens. That would give me a total of four hives, although I prefer three. (I keep bees for pollination and three make way too much honey).

Here is where it starts to get complicated. Early in the year I learned that I needed hip replacements in both legs. The first operation would be in late July, so I had to plan for the rest of the year and through the winter for my bees to make it on their own with no help from me.

Years ago I had a “hive that would not die” which I gave to a beekeeper who could not overwinter bees. The colony I gave him thrived for many years, as it had done with me, and he was very happy. Why not repeat that and instead make a three way split and give the hive with the old queen to the beekeeper who was having difficulties.

My plan for the rest of the year, when I would be fairly incapacitated due to my hip replacements in the height of the “getting ready for winter” beekeeping season, was to overwinter each hive with two deeps and two supers. So before the July operation I did the three way split, queened the two of them, and got two deeps, bottom board, inner cover and lid from the beekeeper who would inherit the old queen’s hive. I put that deep on his bottom board and the rest of his stuff over it. This way, come spring, all that would be needed was to remove my deep, which would be on the bottom and empty of bees, and cart his hive away.

My bees were set and I did not do anything more to the colonies except treat them with oxalic acid with help from my mentees. Jen Lund inspected two of the colonies and they were in excellent shape for the winter. I checked their flight activity on warm days during the winter and all was well.

But then reality intervened. On the first opportunity in spring we opened the original hive and it appeared queenless. There were many bees and no brood, so we waited, but eventually drone cells let us know the hive was queenless. One of the Minnesota Hygienic hives looked very weak and discovered it also was queenless; the other split made it. My three un-split hives were robust with bees.

The beekeeper who was getting my old queen’s hive lost his own; one early in the fall (no queen), another because of ‘varmints’ and the last in the spring. So he had only a new package of bees. (My other mentee’s bees came through fine.)

I was devastated. I considered myself responsible that he did not get the hive I promised him. But I was in a fix since my bees were now in the supers and I would not split them into supers. So I decided to wait until June/July when the hives were back to the queen being in the lower boxes.

One of my mentees offered to give him a swarm she had caught, now hived. I suggested waiting to see how it did, plus I was a bit wary about how the swarm was captured. It had returned to the hive and was covering the front. That is not unusual. A swarm can go back to their hive only to leave again.

In the meantime, I cleaned out the laying worker hives and rearranged the frames so one box had no drone brood and the other about four frames of drone brood so it would be easier to manage when he got the equipment back. I called him to pick it up, but he could not for a while since he worked long and odd hours.

My other mentee with the swarm was concerned that the parent hive was getting large and seemed ready to swarm again, so she asked me what additional equipment she might need. We inventoried her existing equipment and I gave her a shopping list. As we sat near her hives I heard a loud buzzing to my right and looked for the bees. Almost directly over us was a medium sized swarm! It settled over our head in the same apple tree that she recovered a swarm from a package hive the year before.

I remembered the cleaned out equipment, so raced to my house and brought it back, a complete one deep hive. We quickly recovered the swarm using a five gallon bucket, hived it and were rewarded when the remaining bees from the tree flew down and entered the hive. We then fed the drone brood frames to her chickens who cleaned out the brood and left everything else intact!

That day I told the beekeeper who I had promised a hive, that he had his hive. We moved it the next day and it is doing well. In the meantime, we looked at the original swarm and, as I had suspected, it had no queen, so we gave it a couple of frames of brood and bees with lots of sugar spray and will see if they grow their own.

So, we end this tale with everyone happy: one beekeeper has a promised hive, I have a promise kept, a beekeeper has a new fledging hive, I am back to my normal three hives, and the chickens are well fed with drone brood since I also fed them the frames from the Minnesota Hygienic hive.

All in all, a story of redemption with a very happy ending. Even for chickens.

QUIZ

1) Honey bees rely on photosynthesis to make honey.
a. True b. False

2) Which of the following is NOT a good answer to the question: "How can you tell when a honey flow is on?"
a. Heavy bearding on the front of a hive on a hot, humid day
b. A well defined "bee-line" of foragers leaving a hive and landing clumsily on return without pollen
c. Aggressive honey bees prone to chasing a beekeeper and robbing other hives
d. Recent rains with an abundance of flowers in bloom

3) Nectar is produced by plants using energy from the sun and a chemical reaction that synthesizes what two molecules?

4) Using quilt boxes during the winter
a. increases insulation
b. decreases moisture in the hive
c. provides for increased ventilation
d. allows for warm air to rise

5) When warm, humid air from the hive rises and comes in contact with a cold surface, this results in
a. convection b. condensation
c. evaporation d. vaporization

6) Which two simple sugars are found in honey?
a. fructose and sucrose
b. glucose and sucrose
c. sucrose and glycerin
d. glucose and fructose

7) Is honey considered to be acidic or alkaline?
a. acidic
b. alkaline

8) Based on survey results, the primary reason people keep bees is for
a. enhancing the bee population
b. commercial ventures
c. hobby/enjoyment
d. bee products for personal use

9) What percent of survey respondents monitored for varroa mites?
a. 99%
b. 45%
c. 86.3%
d. 65.6%

10) Honey bees cap honey in the cell when the water concentration is between:
a. 14% to 16%
b. 17% to 18%
c. 15% to 17%
d. 18% to 19%

... is good for me ...
the honey exchange
... what's good for the ...

Full-service Honey Extraction

- Beekeeping tools and woodenware
- Mead, wine, and beer
- Gifts for all ages including candles, jewelry, and toys
- Specialty foods made with honey
- Honey harvest tools and equipment

We buy bulk honey, wax & frozen pollen.

Stop by: 494 Stevens Avenue
Portland, Maine 04103
Phil & Meghan Gaven | 773-9333
10-6 TUE-SAT, 10-2 SUN | thehoneyexchange.com

5 frame NUC's • Package Bees • Queens

Matt Roy Owner 207-229-9125
Maria Roy Marketing 207-590-3195

219 Back Nippen Road
Buxton, ME 04093

royalhoneybees@gmail.com
royalbeesandhoney.com

Royal Bees & HONEY

100% Pure **Raw** Honey - Made **Locally** by The Roy's

Answers to quiz questions:
1) T
2) c
3) CO_2, H_2O
4) b
5) b
6) d
7) a
8) c
9) d
10) b

October 12, 2019

9 am - 5 pm (registration begins at 8 am)

MAINE STATE BEEKEEPERS ASSOCIATION ANNUAL MEETING

Brunswick High School,
116 Maquoit Rd, Brunswick, ME

Sponsored by Sagadahoc County Beekeepers

Dr. Jamie Ellis

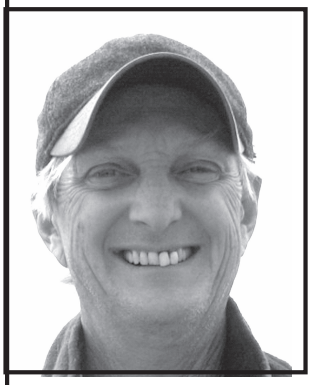
Dr. Frank Drummond

Jennifer Lund, Maine State Apiarist

MSBA Annual Meeting Program

7:00 - 8:00	Vendor set up
8:00 - 8:50	Registration/Coffee/Vendors/Raffle ticket sales
8:50 - 9:00	Welcome by MSBA President, David Spicer
9:00 - 10:30	**Dr. Jamie Ellis:** *"What is killing our honey bees and what can we do about it?"*
10:30 - 10:45	Break
10:45 - 11:30	**Dr. Frank Drummond:** *"Wild Blueberry Pollination-Honey Bees, Native Bees, and Clonal Self-Importance"*
11:30 -12:00	Business Meeting
12:00 - 1:15	Lunch
1:15 - 1:45	**Jennifer Lund:** Beekeeping in Maine
1:45 - 2:15	UMO Research Assistants: Patrick Hurley: *"Mites, Camera, Action: A New Approach to Old Mite Treatments"* Adele Wise: *"Bees Aren't The Only Workers: A Labor Needs Assessment for Beekeeping/Honey Production"* Ruli Setiawati: *"A Penny for Your Honey: Cost of Production in Beekeeping and Honey Production"*
2:15 - 2:30	Break; Last raffle ticket sales
2:30 - 4:00	**Dr. Jamie Ellis**: *"Honey Bee Biology"*
4:00 - 5:00	Honey Tasting awards, raffle and close

Dr. Jamie Ellis is a Professor of Entomology at the University of Florida. He has a PhD in Entomology from Rhodes University in South Africa. Jamie created the UF, South Florida, and Caribbean Bee Colleges, and the UF Master Beekeeper Program. As an instructor, Jamie supervises PhD and masters students in addition to offering an online beekeeping course. Currently, Jamie and his team have over 30 active research projects in the fields of honey bee husbandry, conservation and ecology, and integrated crop pollination.



Dr. Frank Drummond is a professor emeritus of insect ecology and wild blueberry extension at the University of Maine. His training is in botany (BS), entomology (MS), and quantitative ecology (PhD). At the age of eight he began collecting insects and learning their taxonomy at a nearby nature reserve in Rhode Island. At age 12 he began keeping honey bees. As a graduate student and later as a scientific technician, he ran a part-time commercial beekeeping business. He is the 2018 University of Maine Distinguished Professor.

Maine State Apiarist and Bee Inspector **Jennifer Lund** will present "State of the State" in which she will share what she has observed in her hive inspections throughout Maine over the past year and also discuss the beekeeper survey results. Jen earned a master's degree in Entomology from the University of Maine, where she was a research technician before becoming the State Apiarist. Jennifer has almost 20 years of entomological experience.

Registration for 2019 MSBA Annual Meeting

NAME/S (PLEASE PRINT)

STREET CITY/TOWN STATE ZIP CODE

PHONE EMAIL

Before October 5 _____ @ $35.00 each Total: $ _____
After October 5 _____ @ $45.00 each Total: $ _____
I am bringing _____ guests (included above)

2019 MSBA Membership is required to attend the Annual Meeting; please submit membership dues if necessary.

2019 MSBA Dues: ☐ New ☐ Renewing ☐ Current

Single Membership _____@ $15.00 each Total:$_____
Household Membership _____@ $22.50 each Total:$_____
Total Registration and Membership Enclosed $_____

Please make check payable to MSBA and mail to:
MSBA Annual Meeting
c/o Daniel Dolan
2 Blueberry Lane
Brunswick, ME 04011

Early Bird Registration Deadline: October 5, 2019

Chapter(s) you are a member of:
_____
_____

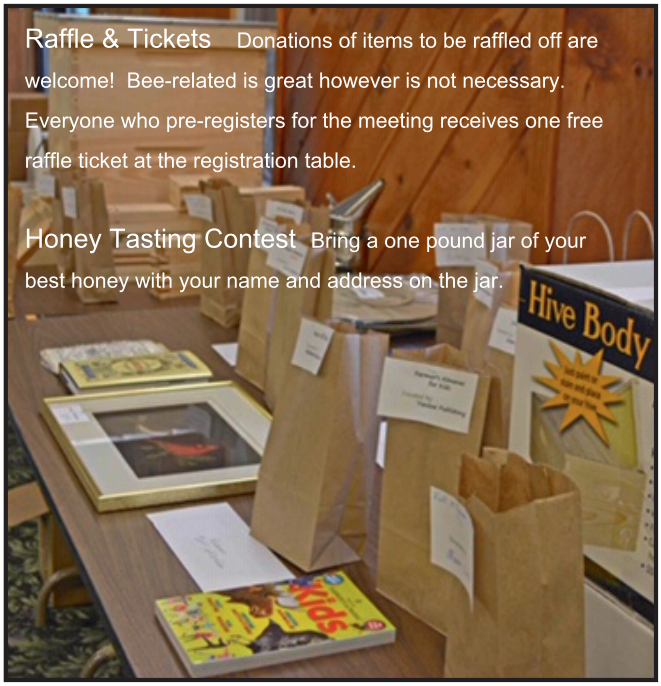
Brunswick High School, 116 Maquoit Road, Brunswick, ME

From the North: Reminder: Gardner Exit I-95 is now I-295

From I-295, take Exit 31 A&B "Formerly 24 A". Exit will make long, round turn, stay to right. Go onto Rt. 196 to Topsham. You will go by the Topsham Fair Mall on right. Follow straight to Rt. 201. Take right onto Rt. 201 into Brunswick onto Maine Street. Follow Maine Street past Bowdoin College, until it forks right onto Maquoit Rd. Follow Maquoit Rd. for 1/2 mile. School is on right.

From the South: Reminder: Scarborough Exit I-95 is now I-295

From I-295, take Exit 28 "Formerly Exit 22" for Brunswick (Coastal Route 1). At the third traffic light, go straight onto Pleasant Street into downtown Brunswick. After two more traffic lights, turn right onto Maine Street. Proceed straight on Maine Street, past Bowdoin College, for about two miles until it forks right onto Maquoit Road (small blue "High School" sign). Follow Maquoit Road for 1/2 mile, and the High School will be on the right.



Raffle & Tickets Donations of items to be raffled off are welcome! Bee-related is great however is not necessary. Everyone who pre-registers for the meeting receives one free raffle ticket at the registration table.

Honey Tasting Contest Bring a one pound jar of your best honey with your name and address on the jar.

Keeping Time

by Michael Donihue

I'll admit that sometimes my imagination gets the better of me, but I could swear that our bees come looking for me when they've got important news to share. More than once I've been at some out of the way location on our property when a few of our honey bees will noisily appear just in time for me to witness a swarm taking off from one of our hives. So needless to say, it got my attention the other day when I got nailed upside the head by one of our resident Apis mellifera foragers as I walked across our back yard. Sure enough, two of the hives in our apiary looked like they had turned themselves inside out with heavy bearding across the front of both deep supers and around the upper entrance of the medium honey super I'd put on two weeks before. Temperatures during the first week of July hovered near 90 degrees in Central Maine with humidity levels on several days rising above 50%. It had been on my to-do list to return for a look inside our hives as we've had a couple of weeks with lots of blossoms on the white clover in our lawn and plenty of bees foraging on the chives, borage, milkweed and flowering perennials. My intuition told me that the honey flow was indeed 'on' and that some of our colonies might be ready for an additional super.

One hot topic for conversation among beekeepers, and a common question I hear from honey bee curious friends is "How can you tell when the honey flow is on?" Of course, honey doesn't flow from plants – what we're talking about is an abundance of nectar attracting the bees to make honey. Anticipating a nectar flow and recognizing when it is indeed 'on' is perhaps one of the most important seasonal activities for both commercial beekeepers and back yard hobbyists. As I removed the stinger from my temple on that hot July day it got me thinking about the different ways beekeepers tend to answer this question. And as I turned my attention toward our bearded-up apiary I realized that I was standing in a line of honey bees flying low and slow back toward their hives.

Like many hobby beekeepers I enjoy gadgets, but I've resisted investing in the latest technologies for remote internet-based scales to monitor the weight of our hives, internal temperature sensors, inside the hive sound recording devices, and thermal imaging cameras. One way to answer the question of when a honey flow is on is to simply open up the hive and see what the bees are doing. It's amazing, particularly this year in our apiary, how quickly things can change in a hive and simply hefting one end of a super can tell you a lot about the honey flow and strength of a hive. However, sometimes the simple approach to beekeeping just isn't possible.

In our apiary I'm naturally predisposed to a laissez-faire attitude toward our bees. Once well established, I tend to disturb our colonies only when I think there is a need based on what I observe going on outside the hive. Plus, it's not easy to inspect a hive when all of the bees are bearded up on the outside of the supers. The disadvantage to the laissez-faire approach is that it's easy to miss an important event like a swarm or supercedure. Without a careful inspection it's sometimes hard to tell if a hive is suffering from a dearth of food, disease, mite infestation, a laying worker, or a poorly mated queen. So for the beekeeping club I mentor I do recommend regular inspections, but always accompanied by first observing what's happening in and around the immediate vicinity of the apiary.

This got me thinking about phenological activities that might help in answering the question of when a honey flow is on. Specifically, what sort of observable environmental events are going on outside the hive that might help answer this question? Temperature changes, rainfall, cloud cover, nearby farming activities, pesticide or fertilizer applications, and persistent lawn mowing in the neighborhood are some easily observable seasonal events that might influence the availability and accessibility of nectar and pollen that can be reflected in honey bee behavior.

I received a copy of *The ABC and XYZ of Bee Culture* as a gift when I began keeping bees some 30+ years ago and it's been an enjoyable resource from a historical perspective on questions like "How to Know When Honey is Coming in?" (page 206 of the 34th edition). Here the authors offer six time saving "…surface manifestations [that] may show when and where to put on supers" noting that "…at the height of the season it is often impossible to examine a hive." Most of their surface manifestations can be found in some form in more modern texts and beekeeping course materials.

Recommendations for beginning beekeepers to be on the lookout for heavy bearding of bees working to ventilate a honey-bound hive on a hot, humid day and watching how the foragers return to the hive entrance are standard best practices for this time of year. Early in the season, we watch for bees gracefully flying to and from the hive bringing in pollen as a sign of brood development and a healthy queen. This time of year we're looking for large numbers of bees leaving the hive and returning low and slow, sometimes clumsily crashing into the front of the hive or collapsing at the entrance bearing heavy loads of nectar in their honey stomachs.

Anticipating a nectar flow is more difficult. I'm not sure I can say what's 'normal' for the weather in our apiary anymore. Spring arrived at least two weeks later this year; as of the first week of July we were still about 75 growing degree day (GDD) units behind last year's total. This year we had over 5 inches of rain in June, nearly twice as much as in June 2018. As a result, the nectar flow exploded in early July as temperatures suddenly rose to typical mid-summer levels and all of the local flora experienced rapid growth. Sure enough, when I opened up my hives the supers were wall-to-wall full of honey, much of it uncapped but there were enough sealed frames for me to extract 4 gallons and return the wet frames to give the bees some space to work.

It's not hard to find good online resources about how and why plants produce pollen. Things get a bit more complicated, however, and much less clear when you want to know about the science of nectar production. I have a friend who is a biology professor and I asked him for help in trying to put together my observations on this year's honey flow with my intuition about observable environmental factors related to honeybee behavior. He provided me with the following mini lecture on some preconditions for plant growth and the chemical reactions that characterize photosynthesis.

> Plant growth requires many chemical reactions, and since chemical reactions proceed faster at higher temperatures, plants will grow faster (and produce more nectar) on warmer days. Glucose and other simple sugars found in nectar are produced through photosynthesis, a process that requires the input of energy from the sun. In photosynthesis, plants take in carbon dioxide and water molecules from their surrounding environment and use them to build carbohydrate molecules. Oxygen is given off as a waste product from this process. Since nectar is mostly sugar dissolved in water, warmer temperatures, sunnier days, and abundant water will provide plants with everything they need to produce more nectar.

This year's wet June produced an abundance of available moisture. Cooler temperatures meant fewer growing degree days and slower plant growth for most of the month until things warmed up in early July when just about all the plants on our property began growing rapidly and synthesizing that moisture into nectar. This coincided with the regular seasonal buildup in the number of bees in each of our colonies. Lots of bees … lots of available nectar … a flight path that was low and slow … the honey flow was indeed on! The high water content of this year's nectar flow meant the bees had to work harder to get the moisture content down to the roughly 18% that characterizes honey. Strong hives combined with the warmer temperatures and humid conditions explained the bearding I observed on the front of my hives.

Much of the remaining honey in our hives should be ready for harvest by the beginning of August. We'll return the wet supers to the bees and continue to keep track of the number of growing degree day units in anticipation of the goldenrod and fall aster blooms that we count on to help our colonies build up their winter stores. The arrival of these food sources, with the

continued on page 13

Winter Quilt Boxes

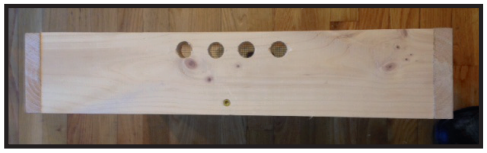
by Jane Dunstan

Utilizing a winter quilt box is one method to decrease moisture in a hive resulting from honey bees giving off water and carbon dioxide through a process known as cellular respiration. Bees exhale a large amount of water. During the winter months, that water will condense on the hive ceiling and drip back down on the bees. The use of a quilt box allows that moisture to be vented from the hive. A quilt box is basically a framed box with a cloth bottom and wood chips. The wood chips are lightweight, fluffy and the same temperature as the air above the brood nest. The humid air rises from the brood nest area through the cloth material and the 2-4 inch layer of wood chips until it hits the cold inner surface of the telescoping cover. Once it hits that cold surface, the moisture condenses (just like in a regular hive) and then drips back down on the wood chips where the moisture is absorbed in the top layer of wood chips. The material and wood chips below the top layer remain dry.

Dimensions and quantity of wood and supplies needed are as follows:

1 x 5 x 16 3/16" (2)
1 x 5 x 18 7/16" (2)
¾ x ½ x 14 3/8" (2)
14 9/16 x 18 3/8" lauan (¼ ")
¾ x ½ x 17 ¼" (2)
light weight canvas 22 ½" x 24" per box
¾ x ¾ x 13 5/8" (1)
window screen
¼" and ¾" staples

Assemble the basic box; drill three or four ¾ inch ventilation holes on two long sides, stapling window screen over the holes.



Place lauan (¼" plywood) inside the box *beneath the canvas* to serve as a spacer for canvas attachment. Place canvas evenly over plywood spacer and pull canvas and wood strips tautly to anchor canvas to sides of box, stretching canvas tightly from side to side. Once secured, remove plywood spacer from the bottom of the box.

MADE IN MAINE

HUMBLE ABODES

Manufacturers of Quality
Apiary Woodenware

Select, Commercial and Budget grades available.

- Frames
- Bottom Boards
- Outer Covers
- Boxes
- Nuc Boxes
- Hive Stands

Join us Saturday, March 23rd for our open house!
Call or check the website for more information.
1-877-4-BEE-BOX (1-877-423-3269)

info@humbleabodesmaine.com
www.HumbleAbodesMaine.com
636 Coopers Mills Road
Windsor, ME 04363

BACK RIDGE BEE FARM & SUPPLY

LOCAL HONEY * PACKAGE BEES

Full Line of
Beekeeping Supplies

594 Acadia Highway
Orland, Maine 04472
(207) 479-1584 * (207) 930-0099
BackRidgeBeeFarm.com
info@backridgebeefarm.com

Add a cross bar in the center securing with 1½ inch staples from outside of the box and staple canvas to the wooden bar with a hand staple gun. Trim excess canvas with a utility knife.

Add 4 inches of pine shavings to the box leaving ventilation holes unobstructed. Cover the quilt box with the telescoping cover placing it evenly over the box so that the ventilation holes are not obstructed by the sides of the telescoping cover.

I have used quilt boxes for two years now and find them to be extremely helpful in keeping the hives free of moisture. If there is inadequate spare wood available, I have also used shallow supers (4 inches) and simply drilled holes in the side and attached canvas and cross bar. Several sites on the web offer step by step instructions and visual demonstrations.

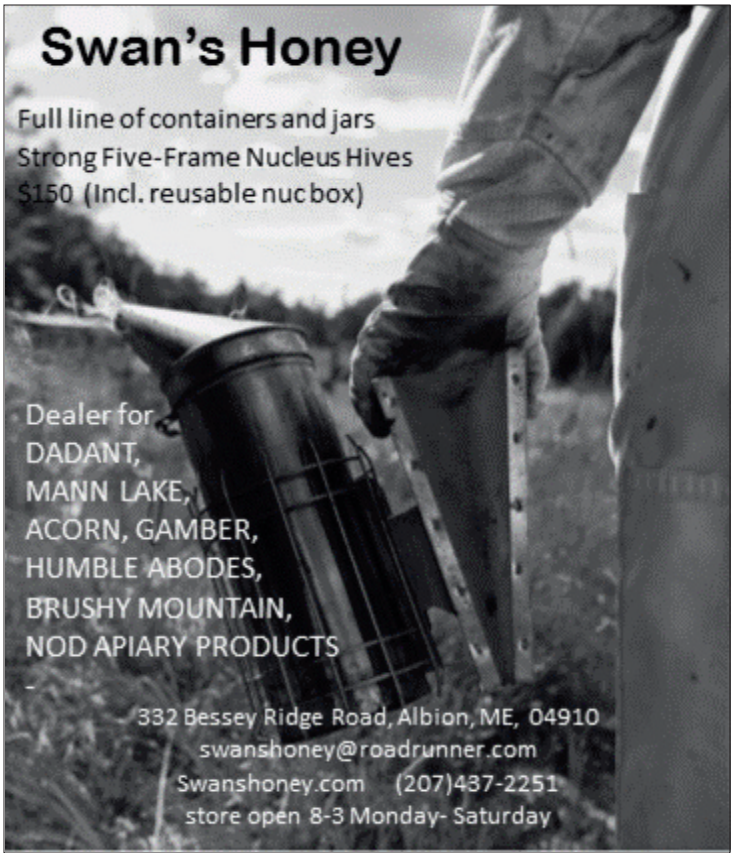
Youtube.com reference to making this box: Making Quilt boxes Bee Vlog #120

continued from page 11

Keeping Time...

distinctive smell of goldenrod nectar in particular, is also the signal we use for doing another mite check and treatment if necessary as the flowering of these two plants generally coincides with a peak in mite population and the beginning of a drop off in brood production in our colonies.

For more information…
On photosynthesis, visit Wikipedia entry at https://en.wikipedia.org/wiki/Photosynthesis
On growing degree days visit www.canr.msu.edu/news/understanding_growing_degree_days
Kim Flottum's The Backyard Beekeeper has a good overview of how flowers produce pollen and is generally a good source of current information on beekeeping practices for both novice and experienced beekeepers.The ABC and XYZ of Bee Culture is currently in its 41st edition and was last updated in 2007. The first edition, titled The ABC of Bee Culture was published in 1877.

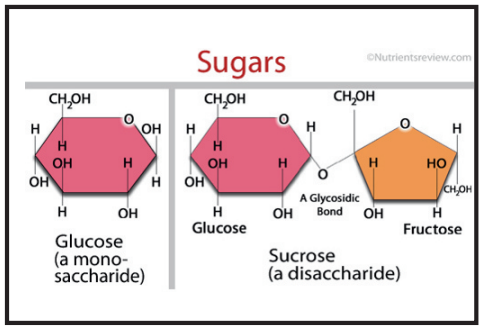


The Chemistry of Honey

by Jane Dunstan

September heralds the start of school, crisp mornings, autumn foliage and the harvesting of "liquid gold", the beautiful, sweet sustenance for our bees. In honor of their tireless efforts, this article will examine the chemistry of honey along with its antibacterial properties and uses.

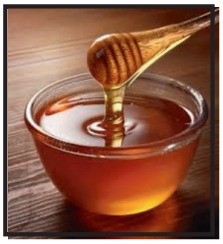
The evolution of honey from the nectar collected by the forager bees to its distribution into hexagonal cells capped with wax, is a complex one. Let's examine some of the basic tenants first. The composition of honey is primarily glucose and fructose, both considered to be simple sugars. Nectar, a mixture of 60 to 80% water, sugars, and plant pigments, gathered by the bees from the flower, is a complex sugar, or sucrose (Riddle 2016). Sucrose is a disaccharide which simply means it consists of two different simple sugars, namely glucose and fructose which have been joined together. By the process of hydrolysis, bees change complex sugars found in nectar to simple sugars found in honey (Riddle, 2016). How do they do this



Courtesy of nutrientsreview.com

you ask? By chemically altering the nectar as only bees can do. Bees produce invertase, an enzyme found in their salivary glands. After gathering the nectar with their proboscis, forager bees add the invertase while carrying the nectar back to the hive and later transferring it to the house bees, who participate in the conversion process by adding additional enzymes. The invertase begins to break down the sucrose found in nectar into equal parts of glucose and fructose in their crop, or honey stomach. Every time one bee picks up the nectar from another bee, additional enzymes (ie, amylase, glucose oxidase and catalase) are added. The house bees continue to regurgitate and "re-drink" the nectar over a 20 minute time frame, further breaking down the sugars (Riddle, 2016). Once suitable breakdown has been achieved, or about 20% of water content is remaining (remember from 60 – 80% of water content initially), the bees will deposit the nectar into the honey comb and continue to fan their wings to enhance the process of evaporation. When the water concentration is between 17% and 18%, the honey is moved to its final storage location where it is capped for preservation. The conversion from nectar to honey occurs over 1 to 3 days (Riddle, 2016).

The Smithsonian Magazine reported in one of their articles that while excavating ancient Egyptian tombs, pots of honey, estimated to be thousands of years old, were found, unspoiled. What are those factors which may account for the lack of spoiling so to speak, or the everlasting nature of honey? Water content and water activity account for two factors. The water content of honey, at 17% is much lower than that of bacteria or fungi (The Chemistry of Honey, 2016). Water activity is a measure of how much water is needed and available to support growth of microbes in a substance and is measured on a scale of 0 to 1. The water activity of honey is 0.6; most molds and bacteria are unable to grow under a water activity of 0.75 (Chemistry of Honey, 2016). A third factor is the acidity of honey. The average pH of honey is 4 (pH scale of 0 to 14…very acidic 0 to neutral at 7 to very alkaline at 14). Why so acidic you ask? Naturally occurring acids in honey include formic acid, citric acid and gluconic acid. The significance of this is that bacteria thrive in neutral environments (pH of 7) rather than an acidic environment which accounts for the antibacterial properties of honey. Hydrogen peroxide, produced by the production of gluconic acid, also inhibits the growth of bacteria (Chemistry of Honey, 2016). Thus, honey application in deep wounds and in burn treatment are just a few of the medicinal uses of honey.



Medihoney products are medical grade honey products used in the management of acute and chronic wounds and burns as well as for treatment of cancer patients experiencing severe head and neck radiation dermatitis.

The liguid gold which our bees produce, in a variety of colors, flavors and aromas, is not only pleasing to our palettes, but possesses healing properties as well.

References:

-Morse, R. A., & Flottum, K. (1990). ABC & XYZ of bee culture: An encyclopedia pertaining to the scientific and practical culture of honey bees. Medina, OH: A.I. Root.

-Riddle, S. (2016, July 25). The Chemistry of Honey. Retrieved August/September, 2017, from https://www.beeculture.com/the-chemistry-of-honey/

-White, Jr. J.W., Doner, Landis W. (1980, October). Honey Composition and Properties. (n.d.). Retrieved July 16, 2019, from http://beesource.com/resources/usda/honey-composition-and-properties/

-Why Doesn't Honey Spoil? – The Chemistry of Honey. (2016, May 30). Retrieved July 16, 2019, https://www.compoundchem.com/2014/08/21/chemistryofhoney/

Beekeeper of the Year *and* Lifetime Achievement *Award Nominations*

Past MSBA President Richard McLaughlin with Roy Cronkhite Sr, 2018 Lifetime Achievement award

The **MSBA Beekeeper of the Year Award** is given annually to a beekeeper who, over a period of years, has demonstrated and promoted good honey bee management practices, and participated as a volunteer in the beekeeping community.

The candidate must be a current member of the MSBA and can be nominated by a local chapter, a member in good standing of the MSBA or the **M**SBA Board of Directors. They must also currently own or manage honey bee colonies in the state of Maine.

The nomination letter should outline what the candidate has done to promote beekeeping and educate beekeepers, prospective beekeepers and the non-beekeeping public over a period of time. Activities such as teaching short courses or bee schools, presentations to community organizations, demonstrations at fairs (county, state, horticulture or environmental), volunteering for MSBA and local beekeeping organizations, and media interviews will all be considered.

A **Junior Beekeeper of the Year Award** is also given when suitable nominations are received. That person must also be a member in good standing of the MSBA.

The **Lifetime Achievement Award** recognizes a beekeeper or a beekeeping couple who have over a period of years promoted beekeeping in Maine. Nomination letters should describe how they have reached out to the general public and other beekeepers, and should include examples of supportive activities such as teaching bee school or other instructional venues, speaking to the general public, and mentoring and serving as a source of knowledge to new beekeepers.

A nomination form may be downloaded from the MSBA website's home page, or a PDF can be e-mailed to you by contacting Judith Stanton at 376-7888 or jws77@me.com.

Please send to the MSBA president no later than September 12, 2019.

Awards will be presented at the Annual Meeting on October 12th.

Completed forms should be submitted to:
president@mainebeekeepers.org or
David Spicer
373 Hunts Meadow Rd
Whitefield, ME 04353

Spicer Bees
MAINE BEEKEEPERS' ONE STOP SHOP!
Join us for Open Hive Saturdays
A free event open to all (bring veil). Details on our site.
Woodenware – Assembled & Unassembled
Foundations – Wax & Plastic
Protective Gear – Gloves, Jackets, Veils
Insulated Hive Wrap
Queens – Caucasians, Italians, Maine's Best Bee (Northern Raised)
Smokers
Hive Tools
Jars
Medications
Classes
Much, much, more!
207-549-5480
WWW.SPICERBEES.COM
373 Hunts Meadow Road ○ Whitefield, ME 04353
(Just 15 minutes east of Augusta)

BEEKeeping
Your First Three Years
Four Issues
For
$20/Year
Sign Up Online At
www.BEEKeeping3.com

Maine State Beekeepers Association

THE BEE LINE | Newsletter of the MSBA

Jane Dunstan, Editor
612 N. Newcastle Road
Newcastle, Maine 04553

mainebeekeepers.org

mainebeekeepers.org

Join the Maine State Beekeepers Association today — via the MSBA website or this snail mail form!

LAST NAME _____ FIRST NAME _____ MIDDLE INITIAL _____

STREET _____ CITY/TOWN _____ STATE _____ ZIP _____

PHONE _____ CELL _____ EMAIL _____

Membership Type*	Cost
☐ Annual Individual	$ 15.00
☐ Annual Family	$ 22.50
☐ 5-Year Individual	$ 68.00
☐ 5-Year Family	$ 100.00
☐ Lifetime Individual	$ 180.00
☐ Lifetime Family	$ 270.00
☐ Extra Gift Contribution	$_____
Total Payment	$_____

*Membership is per calendar year (**not** pro-rated) and includes a subscription to *The Bee Line,* the MSBA's newsletter. **Current membership is a pre-requisite for attending the MSBA Annual Meeting.**

Current Age	# of Years Beekeeping	Most # of Hives	Current # of Hives

PRIVACY POLICY: Member information *will be* provided to other MSBA Members unless specified otherwise here: ☐ No, please do *not* share my contact information with other MSBA Members.

Please make check payable to:

Maine State Beekeepers Association

Send to:

Keith Kettelhut, *Treasurer*
189 Auburn Pownal Road
Durham, ME 04222

treasurer@mainebeekeepers.org
207-926-5554

HONEYBEES NEED YOU!

This is a ☐ new / ☐ renewing membership (check one). How did you find out about the MSBA? _____