SEMBA NEWS

Vol. 27 Number 2 Newsletter of the Southeastern Michigan Beekeepers' Association
Summer 2017

SUMMER 2017 PICNIC MEETING:

When: **Sunday, July 16, 2017**
Potluck at 1:30 p.m.
Where: MSU Tollgate Education Center
28115 Meadowbrook Road, Novi, MI
Potluck: Please bring a dish to pass, your own table service and beverage. Cups and napkins will be provided.

Program: There will be two presentations -- one entitled "***Reading a Bee Hive and How to Treat It***" by Dana T. Stahlman as well as a presentation entitled "***Instrumental Insemination of HB Queens***" by Don Schram.

Sale and/or exchange: Members are invited to bring items to sell or exchange such as queens, queen cells and beekeeping equipment. However, to safeguard the apiaries (e.g., SEMBA's Beginning Beekeepers' Class apiary), please do not bring any pests, diseased items or anything else that could be harmful.

Drawing for door prizes: More good news includes the fact that all SEMBA or MBA members who timely RSVP will be entered into a drawing for door prizes (including 20 mated queens provided by MBA; 10 raised by Meghan Milbrath and 10 raised by Sheldon Schwitek). Must be present to win. Please timely RSVP!

RSVP REQUIRED: Due to the likelihood of hot weather, we have made arrangements to use the A/C main conference, with its limited seating capacity. Accordingly, TIMELY RSVP'S ARE NECESSARY! If you will be attending, RSVP BY NOON, WEDNESDAY, JULY 12, 2017, by going to http://sembabees.org/forms/Pic17.php.

Please note that we are, for the first time, using a web registration kindly set-up by our very own Web-Master, Tom Lisk, after a lengthy process finished last night. We are working to make our Spring Conference Registration process even better. Many thanks, Tom! Please also note this will be a joint Summer Picnic with our friends at MBA. Hope you can make it.

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APITHERAPY GET TOGETHER --COOKOUT

(From Cecilia, writing4all@aol.com)
The first gathering of a new Michigan Apitherapy group will be taking place **this Sunday, June 25th, at 2:00 p.m.**, at 1035 East Five Mile Rd, Whitmore Lake, MI 48189 (which is about 1/4 mile northeast of the intersection of US 23 and North Territorial Road).

All who are interested in Apitherapy, or complimentary alternative therapies, are invited. There will be sangria and iced tea, munchies of some sort, and lots of bees. Hopefully we can share ideas and techniques and simply enjoy the creative energy of the group.

I'm happy to do some stinging and offer my equipment and bees for anyone to use. I also have a topical bee venom tincture you're welcome to try on sore joints, arthritis, and painful trigger points--I'm always looking for people to give me feedback on this product.

Please send me a quick note to let me know if you can make it, and if you plan on bringing guests, so I can buy enough food and booze.

Cheers---Cecilia, writing4all@aol.com

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HOW VARROA MITES GROW AND SPREAD: HONEYBEE PEST TAKES ADVANTAGE OF MANAGED BEEKEEPING PRACTICES

(Courtesy of the Entomological Society of America)

The mite's ability to hitchhike on wandering bees, the infections it transmits to bees, and the density of colonies in managed beekeeping settings make for a deadly combination.

As the managed honey bee industry continues to grapple with colony losses, the *Varroa* destructor mite is emerging as the leading culprit. And, it turns out, the very nature of modern beekeeping may be giving the parasite the exact conditions it needs to spread nearly beyond control.

Researchers argue that the *Varroa* mite has "co-opted" several honey bee behaviors to its own benefit, allowing it to disperse widely even though the mite itself is not a highly mobile insect. The mite's ability to hitchhike on wandering bees, the infections it transmits to bees, and the density of colonies in managed beekeeping settings make for a deadly combination.

"Beekeepers need to rethink *Varroa* control and treat *Varroa* as a migratory pest," says Gloria DeGrandi-Hoffman, Ph.D., research leader and location coordinator at the U.S. Department of Agriculture-Agricultural Research Service's Carl Hayden Bee Research Center in Tucson, Arizona, and lead author of the research.

In the wild, bee colonies tend to survive despite *Varroa* infestations, and colonies are usually located far enough apart to prevent mites from hitching rides to other colonies on foraging bees. Wild bee colonies' natural habit of periodically swarming–when the colony grows large enough that a portion of its bees splinter off to create a new colony elsewhere–also serves as a mechanism for thinning out the density of mite infestations and their associated pathogens. In managed honey bee settings, though, these dynamics are disrupted, DeGrandi-Hoffman says. Colonies are kept in close proximity, and swarming is prevented.

DeGrandi-Hoffman, USDA-ARS colleague Henry Graham, and Fabiana Ahumada of AgScience Consulting, conducted an 11-month study of 120 honey bee colonies in one commercial bee operation, comparing those treated with mite-targeting insecticide (miticide) in the spring and fall with those treated only in the fall, and they found no significant difference in the results: more than half of the colonies were lost across the board. This aligns with what has been seen by beekeepers and researchers alike in recent years: *Varroa* populations continue to grow even after being treated with effective miticides. But why? The answer may be in its dispersal mechanisms.

The researchers also conducted mathematical simulations of *Varroa* mite population dynamics to examine the effects of both migration of foragers between colonies and swarming. When bees can wander into other colonies–either to "rob" them of their honey or because they've simply lost their way–*Varroa* populations across colonies climb. Likewise, prohibiting colonies from splintering periodically via swarming also leads mite populations to rise.

In the wild, DeGrandi-Hoffman and her colleagues note, driving a colony to collapse is against *Varroa* mites' own interest; if the colony dies, the mites die with it. But in commercial beekeeping settings, increasing infestation of a colony activates the dispersal mechanisms the mites need to spread. Weakened foragers are more likely to wander to other colonies, and weakened colonies are more likely to see foragers from healthy colonies visit to rob them of honey. In both cases, mites can hitch a ride from one colony to another.

It all adds up to a critical point for managed honey bee industry. The researchers cite the need for new integrated pest management strategies to treat *Varroa* destructor as a migratory pest.

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USDA RESUMES HONEY BEE DIAGNOSTIC SERVICES (Courtesy of www.beeinformed.org via Roger Sutherland)

A joint collaboration between the Bee Informed Partnership, the USDA-ARS Bee Research Laboratory and USDA-APHIS has been established in the short term to primarily provide for the diagnostics of honey bee brood for American foulbrood (and other brood) disease. We will also offer other pest and disease diagnostics for a nominal fee. Please see below for additional details including cost and shipping. As before, diagnostic reports will be transmitted to the individual submitting the samples and to the appropriate apiary inspectors.

Thank you for your patience and we are very happy to provide this service while we await full staffing of the USDA-ARS Disease Diagnostic Service.

Current Services:
American Foulbrood:
Given the need to process honey bee brood samples for the highly contagious agent causing American foulbrood disease, the below TEMPORARY service will be conducted jointly by USDA-ARS and the Bee Informed Partnership at the University of Maryland, with funding from USDA-APHIS. **This service will be restricted to brood samples and will be free of charge.** Brood samples suspected of having bacterial disease should be sent as described at https://www.ars.usda.gov/northeast-area/beltsville-md/beltsville-agricultural-research-center/bee-research-laboratory/docs/how-to-submit-samples/

Samples will be visually inspected and those suspected of having bacterial disease will be examined by microscopy and, where ambiguous, by antibody based diagnostic kits. All samples positive for AFB will be held in storage should additional testing (i.e., antibiotic resistance) be warranted in the future. Antibiotic resistance will not be tested routinely.

Nosema:
Send a minimum of 100 bees for processing. If positive, spore counts are reported in millions spores/bee. Per the link above, bees should be sent in 70% ethyl, methyl, or isopropyl alcohol as soon as possible after collection and packed in leak-proof containers using the shipping instructions.

If both *Varroa* and *Nosema* diagnostics are requested, only 300 bees TOTAL are required.

Varroa:
Send a minimum of 300 worker bees. If positive, mites are reported in mites/100 bees. Per the link above, bees should be sent in 70% ethyl, methyl, or isopropyl alcohol as soon as possible after collection and packed in leak-proof containers using the shipping instructions. **If both *Varroa* and *Nosema* diagnostics are requested, only 300 bees total are required.**

Tracheal Mites:
Send a minimum of 100 bees for examination (16 are dissected). If positive, percent of bees positive for mites will be reported. Per the link above, bees should be sent in 70% ethyl, methyl, or isopropyl alcohol as soon as possible after collection and packed in leak-proof containers using the shipping instructions at the link above.

Cost and Shipping
If you are sending samples, please use the BIP Diagnostic Packing Slip filled out with the required information and follow the instructions listed at this link: https://www.ars.usda.gov/northeast-area/beltsville-md/beltsville-agricultural-research-center/bee-research-laboratory/docs/how-to-submit-samples/

Please note, currently United States Postal Service (USPS) only delivers to the USDA 3 days a week (M, W, F). If this is an emergency, we suggest that use FedEx or UPS.

All applicable fees are required at the time of shipping. Please include a check payable to the ***Bee Informed Partnership, Inc.*** when sending your samples. BIP Diagnostic Packing Slip – Download PDF

Price list:
AFB (and other brood disease) Diagnostics: no charge
Nosema: $10/sample
Varroa: $10/sample
Tracheal mites: $32/sample of 16 bees

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LAND USE, LAND COVER, AND POLLINATOR HEALTH: A REVIEW AND TREND ANALYSIS
(A report summary from the Economic Research Service, United States Department of Agriculture by Daniel Hellerstein, Claudia Hitaj, David Smith, and Amélie Davis from the American Bee Journal)

What is the issue?
Crops that depend on pollinators account for up to one-third of total U.S. food consumption. However, honey bees and other pollinators face a variety of stressors, including diseases, insect pests, pesticide exposure, and changing landscapes. Over the last decade, annual losses of managed honey bee colonies have been high according to Land Use, Land Cover, and Pollinator Health: A Review and Trend Analysis, a new report from USDA's Economic Research Service (ERS). Better nutrition for pollinators may help alleviate the effects of some of the stressors. Changing the Nation's land uses and land covers (LULC) — such as by planting vegetation rich in nectar and nutritious types of pollen—may improve the forage available to pollinators. This study reviews the literature on the effects of land use on pollinator health and examines trends in pollinator forage quality as LULC has changed in the United States over the last 30 years.

What did the study find?
A review of the literature reveals that both managed honey bees and native pollinators face several sources of stress that affect colony health. The main findings include:

• Honey bee mortality, as measured by the loss of a honey bee colony, is higher than in previous decades. Annual losses varied between 29 and 45 percent of colonies from 2010-11 to 2015-16.
• Assessing the status of native pollinators is difficult because long-term population data are not available. However, evidence points to population decline for several wild bee species (notably bumblebees) and some butterflies, bats, and hummingbirds.
• A variety of stressors affect the health of honey bee colonies. Beekeepers reported that in spring 2015, nearly 45 percent of colonies were affected by varroa mites, 20 percent were affected by other pests, and 17 percent were affected by pesticides.

Beekeepers in the United States have maintained and even increased the number of colonies over the last decade through intensive management of honey bee colonies:

• Adapted practices include splitting a honey bee colony and adding a new queen to one of the splits, systematic monitoring of colonies for pests and pathogens, and supplemental feeding.
• The number of honey-producing colonies has increased by 9 percent from 2.44 million in 2007 to 2.66 million in 2015. Over the same period, the value of production of the top 10 pollinator-dependent crops grew by a weighted average of around 76 percent.

The literature review also reveals evidence of how LULCs that contain vegetation beneficial to pollinators improve both pollinator abundance and health and can lead to better agricultural outcomes.

The LULC-related needs of native pollinators differ from those of managed honey bees.

• Native pollinators benefit from access to nearby high-quality forage habitat—habitat that is both rich in plants that provide pollen and nectar and that contain nesting opportunities.
• Managed honey bees are often transported from location to location by their beekeepers to provide pollination services and to increase honey production. Thus, the overall availability of forage may matter more than its exact placement. For example, the provision of high-quality forage land in the Dakotas, where many honey bee colonies spend the summer refortifying themselves, may help improve colony survival rates.

To examine how broad land-use changes have affected the ability of the land to provide forage to pollinators, ERS developed a forage suitability index (FSI) that links pollinator forage quality to LULC. Findings show that forage suitability was unchanged for most (75 percent) of the Nation between 1982 and 2012. Overall LULC changes in this time span led to a small increase in the average FSI nationally. This is in part due to land taken out of agricultural production under USDA's Conservation Reserve Program (CRP).

However, the overall results mask regional and temporal variation:

• From 1982 to 2002, FSI improved on about twice as many acres as it declined. But from 2002 to 2012, the index declined on more acres than it improved.
• In North and South Dakota's summer foraging grounds, FSI declined more than the national average between 2002 and 2012. This change is driven by decreases in acres with high FSI LULCs (such as CRP) and increases in acres in low FSI LULCs (such as soybeans).

These findings are limited by the study's focus on estimated changes in the FSI. Other factors that may affect pollinator health—such as changes in land management, including pesticide use, and changes in field size and associated densities of uncultivated field edges—are not considered.

The report concludes with a summary of economic insights on issues facing the development of markets for forage-rich pollinator habitat. Pollinator habitat has "public good" features, so markets to provide better pollinator habitat may not readily develop. This can lead to under-provision of forage-rich landscapes. For example, if a landowner converts land to honey bee-friendly habitat, his or her honey bees may benefit from this conversion but so, too, will honey bees managed by others. Thus, the landowner incurs the full cost of this conversion without reaping full benefits. Assigning exclusionary rights for hive placement—as is done in a few States— may encourage beekeepers and landowners to work together to install pollinator friendly habitat. In addition, the Government can support the creation of pollinator habitat, such as through pollinator-friendly covers on CRP land.

How was the study conducted?
The study reviews the economics and ecology literature on land use, land cover, and pollinators. Data from the National Resources Inventory (NRI) are used to supply land cover/use for 970,000 points in the conterminous United States from 1982 to 2012. Using an expert assessment of the average pollinator forage score for different types of land use, along with this land use/cover variable, researchers assigned each NRI point an FSI. Trends in pollinator habitat quality are computed by aggregating these index scores over regions. Lastly, economic theory informs the discussion of factors that can lead to under-provision of pollinator-friendly habitat.

For the full report click here.

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HORTICULTURAL RESEARCH INSTITUTE RELEASES BEST MANAGEMENT PRACTICES (BMPs)
(From the Horticultural Research Institute)

BMPs are intended to inform horticultural professionals about the green industry's impact on bee health. Through the use of BMP guidelines, horticulture can continue to play an important role in pollinator health.

In 2015, the Horticultural Research Institute recognized the need for sound research to develop best production and management practices, educate, and empower the green industry. HRI, in collaboration with AmericanHort, continues to directly fund and leverage research to refine science-based guidance on horticultural practices and protecting bee and pollinator health. As part of the broad-based Horticulture Industry Bee & Pollinator Stewardship Initiative that includes industry and consumer outreach and the establishment of industry best practices, HRI has directly funded four important research projects, launched the Grow Wise, Bee Smart website, and joined the Million Pollinator Garden Challenge campaign.

Jon Reelhorn, HRI President, states, "Investment in research surrounding horticulture's role in pollinator health is part of HRI's longstanding commitment to fostering new information relevant to horticultural practices, techniques, and principles. We are pleased to have developed a set of BMPs that offer specific

guidance to the industry to refine their stewardship role in bee health."

Pollinators as a whole encompass a diverse population of thousands of different species, such as managed honey bees, wild bees, butterflies, birds, and bats. Protection of pollinators in general, especially bees, continues to be a major concern among the general public and within the green industry. Several culprits have been identified as factors contributing to managed honey bee losses, including Varroa mites, other pests/diseases of bees, loss of habitat and nutrition, and off-target effects of pesticides. Alternatively, wild, unmanaged bee populations are most greatly affected by landscape changes and habitat degradation.

HRI developed the BMPs, which cover greenhouse and nursery production, woody ornamentals, and managed landscapes, with the assistance of researchers and apiarists throughout North America. Updates to these recommendations will be made as additional research results regarding bee and pollinator health are released.

For the full Best Management Practices (BMPs) for Bee Health in the Horticultural Industry, visit the GrowWise, Bee Smart website. To learn more about the Horticultural Research Institute and its efforts in developing science-based recommendations for the industry, visit the HRI website.

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COLONY DENSITY, NOT HORMONES, TRIGGERS HONEYBEE 'PUBERTY'
(By Linda B. Glaser, and provided by Cornell University)

New research helps answer a long-standing mystery of how honeybees sense the size and strength of their colony, a critical cue for the bees to switch from investing solely in survival to also investing in reproduction.

In a paper published May 3 in the *Journal of Experimental Biology*, a Cornell-led research group reports on how workers detect that their colony has reached a threshold to invest in a special type of reproductive comb.

In honeybees, the first sign that a colony can "afford" to invest resources in reproduction, as opposed to making investments only in survival and growth, is when workers begin to build a special type of beeswax comb, drone comb, used for rearing drones (reproductive males). Like pubescent humans, a colony that is building drone comb is not yet fully reproductive, but its workers have detected that the colony is strong enough to begin investing resources into reproduction for use in the future. Bees only begin building drone comb once their colony has enough workers, about 4,000. But how do the workers detect that their colony is large enough?

The researchers – neurobiology and behavior doctoral student Michael L. Smith, Phoebe A. Koenig '16, and Harvard University doctoral student Jacob M. Peters – experimentally tested the effect of three possible cues that would trigger bees to begin constructing cells of beeswax comb used for rearing drones. These potential signals included worker density, volatile pheromone concentration and nest temperature. After experimentally increasing each of these cues, they measured how much drone comb the bees then built. They found that only increasing worker density induced workers to build a higher proportion of drone comb relative to a control. Both higher temperature and higher concentration of volatile pheromones had no effect on the colony's comb building.

The experiments disproved a hypothesis that a volatile chemical cue rises as a colony becomes larger and stronger; honeybees, it seems, do not enter "puberty" because of chemical signals like hormones, as many unicellular and multicellular organisms – including humans – do.

The researchers were able to "trick" the bees into thinking they were in a larger colony by squeezing them into a smaller space. This manipulation increased worker density, and the bees responded by building reproductive comb. According to Smith, "this tells us that density is important, but it doesn't pinpoint how the workers assess worker density."

To see how a bee's experience might change with its colony's size, the researchers conducted an observational study that compared workers in large and small colonies kept in identical hives. By tracking marked individuals, they could determine which cues reliably change when colony size increases. These results disproved multiple hypotheses, including the "fast life hypothesis" (that workers in large colonies advance through young, middle age, and older worker duties faster than workers in small colonies). The researchers did, however, find that in larger colonies, worker bees have increased physical contact with their nest mates, spend more of their time active, and experience more uniform worker bee density, relative to smaller colonies.

In his current fieldwork, Smith is investigating ways to manipulate these physical cues to see exactly how workers detect the size and strength of their colony.

"What interests me about this question," said Smith, "is that it's the same problem faced by yeast, humans and colonies of social insects: Are you big enough to begin reproduction? When it comes to a colony of social insects, it seems like they've shifted away from chemical cues, like hormones, and instead rely on physical ones."

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COULD ROBOTS REPLACE HONEYBEES AS POLLINATORS?
(By: David Weinstock and David Weinstock, Fruit Growers News)

The world's honeybee population is in a steep decline that science has, so far, been unable to reverse. Some scientists are working on solutions to the culprits — diseases, pests, bee forage availability and pesticides — while others look for alternatives to honeybee pollination.

Three teams of scientists are looking at robotics as a means to reduce dependence on honeybee pollination. Two of them have designed tiny, flying robots, while a third is designing a wheeled robot.

All three devices are prototypes. The aerial projects have already taken wing, while the ground-based model is still in its earliest design phase. Harvard University researchers began their work 10 years ago, while scientists at Japan's National Institute of Advanced Industrial Science and Technology recently unveiled a wireless aerial pollinator that collects and deposits pollen.

Using a more grounded approach, West Virginia University's (WVU) multi-disciplinary team is designing an autonomous, wheeled robot that is capable of locating, identifying and pollinating individual blossoms.

Japanese flyer

Announced in Chem, a peer-reviewed journal, the Japanese device consists of a small, wireless drone with a horse-hair belt attached to its underside. It is the only robotic device to have actually pollinated a plant – in this case, a Japanese lily in a lab test.

Top view (left) and bottom view (right) of the drone being developed in Japan. Photos: Eijiro Miyako

Eijiro Miyako, the project's lead contact, coated the robot's belt with an ionic liquid gel. ILGs remain sticky for a long time in both normal and harsh environments, he said. They are also durable and water resistant.

The compound increased the belt's usable surface area, which helped it to collect and retain viable pollen amounts during flight. The gel's wetness and electrostatic properties reduce chances of pollen damage when the belt contacts stamens and pistils.

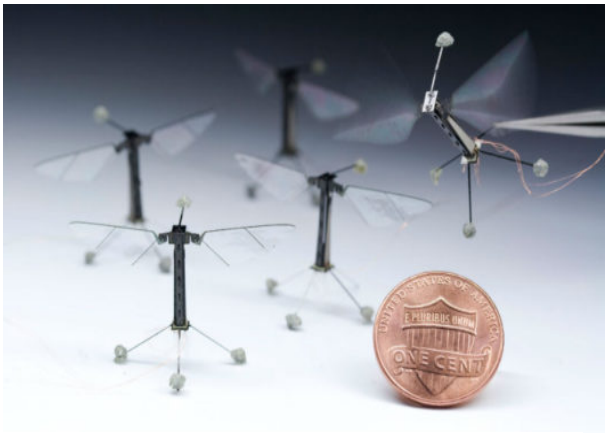
Miyako described the task of piloting the drone to pollinate flowers as "very hard. I believe that a form of artificial intelligence (AI), GPS and high-resolution cameras would be very useful for the development of future machines," he said in an email interview.

AI could also improve drone pollinating behavior.

"A swarm of AI robotic bees could determine the shortest path to blossoms and the most efficient means of pollination," he said.

Harvard's RoboBee

Pollination is just one application Harvard University lead researcher Robert Wood foresees for a microelectronic robot. He and his team think it might be useful in search-and-rescue operations.



Harvard University's RoboBee, above, has been in development the longest of the three projects. In terms of guidance and movement, it is the most sophisticated model because it can fly, swim and perch upside down on flat surfaces. Photo: Kevin Ma and Pakpong Chirarattananon

Building the RoboBee was not possible until they invented a new means of manufacture. Called Pop-Up MEMS, pop-up books and origami provided the inspiration. The process uses an elaborate layering and folding process within a frame that assembles robots in a single movement.

Roughly the size of a U.S. quarter, the RoboBee is 2.4 millimeters tall and weighs just under 3.2 ounces. It both flies and swims and can perch upside down on flat surfaces, using static electricity. Next up, the Harvard researchers want to build a "hive" for the bees to recharge their power.

Wood envisions RoboBees deployed in swarms, similar to another of their inventions, Kilobots. Harvard researchers use these tiny, autonomous robots to investigate collective AI and swarm behavior.

Robotic rover

The WVU prototype derives its robotic transport from an autonomous model engineering students built and used to win NASA's 2016 Sample Return Robot Centennial Challenge. Students designed the autonomous robot to move around a field and retrieve objects using only technology capable of operating in a Martian or lunar environment.

The West Virginia University mobile platform design will be derived from a student model created for use as an autonomous robot able to identify, pick up and return to base with objects found on the moon or Mars. Photo: West Virginia University

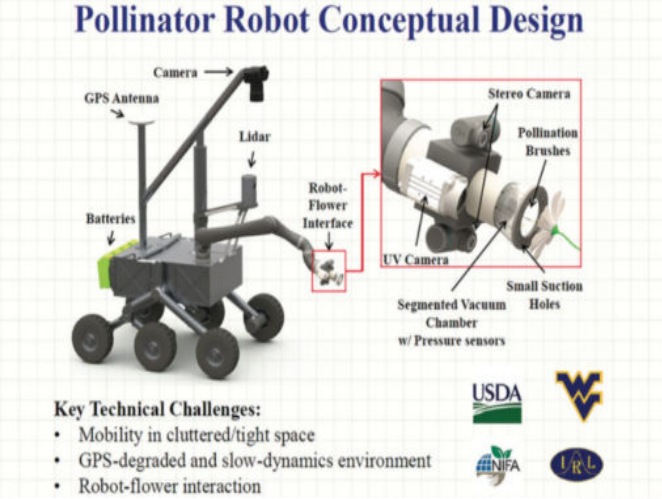
This robot's function is what its principal investigator calls precision pollination.

"We're not interested in just blowing air or shaking plants to get them pollinated. We're interested in dealing with individual flowers," said Yu Gu, WVU aerospace and mechanical engineering assistant professor.

Gu and his team will mount an array of lidar and cameras to enable a robotic arm to locate individual flowers, determine their viability and apply pollen to healthy blossoms. Similar to radar, lidar uses laser-generated light pulses – instead of sound waves – to detect objects.

WVU will test its pollinator on greenhouse raspberries and blackberries. The ability to test the robot over multiple berry generations within a single year dictated they use an indoor site. This is just the first round of research; further development will occur in subsequent studies.

"We want to show that it is doable first," Gu said.



In the meantime …

Entomologists at the Danforth Lab at Cornell University believe native bees can shoulder some, and in a few cases, all of an orchard's pollination requirements. The lab's research and outreach director, Maria van Dyke, said there are several New York state orchards that no longer rent hives but use native bee pollination instead.

This may be quite important now, since each of the robot models is at least 10 years from commercial release. Harvard's robot is still tethered to its power source, and the Japanese robot's guidance system could benefit from the addition of GPS and artificial intelligence.

Gu's WVU team has not yet completed its planning phase. Once a prototype is constructed, they will do greenhouse test runs and quality-test robotic pollinated fruit against naturally pollinated fruit.

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HONEY BEES TAKE UP RESIDENCE WITH VP (From USDA)

Second Lady Karen Pence and Agriculture Secretary Sonny Perdue unveiled a newly-installed beehive on the grounds of the Vice President's residence, drawing attention to the plight of pollinators. Together, the two urged Americans to do their own part to help reverse the population trend among the creatures, which are essential to producing much of the nation's food.

"All types of pollinators, such as bees, butterflies, birds and bats, are critical to providing our nation's food, fiber, fuel and medicine," Mrs. Pence said. "However, our beekeepers have been losing colonies for many years. This presents a serious challenge to our ability to produce many of the agricultural products that we enjoy today. The bees at the Vice President's Residence will provide an added bonus to the vegetable and flower gardens by making them well pollinated and taste even better at harvest."

Perdue released a proclamation he signed declaring June 19-25, 2017 as "National Pollinator Week" (Proclamation can be viewed online at https://www.usda.gov/sites/default/files/documents/national-pollinator-week-secretary-proclamation.pdf). Perdue noted that the U.S. Department of Agriculture and the Environmental Protection Agency led efforts to create a National Pollinator Health Strategy. The two agencies are working with a number of other federal departments to implement that strategy, which includes significant USDA research.

"Most farmers and consumers have no better friends and few harder workers than the honey bee, as more than one-third of all U.S. crop production requires insect pollination," Perdue said. "But our honeybee population has been losing ground at an alarming rate. The problem represents a diverse mix of challenges requiring a wide range of solutions. And at USDA we are leading the way in research to help out our pollinator friends."

Honeybees are the nation's primary pollinators, adding at least $15 billion a year in value to about 90 crops by increasing yields and helping to ensure superior-quality harvests. Those crops include nuts, fruits, berries and vegetables, which add color, taste and texture to our diet.

The number of honeybee hives in the U.S., has declined from 6 million during the 1940's to only about 2.5 million today. Those losses have been attributed to a number of factors, ranging from a syndrome known as "colony collapse disorder" to stress caused by factors such as parasites and pests, transportation of bees, sub-lethal exposure to pesticides, and poor nutrition.

Mrs. Pence and Secretary Perdue pointed out that a lack of supportive habitat near hives also contributes to the declines. Even if people don't set up their own hives, they can help by planting bee-friendly flowers and flowering herbs in their yards and gardens. Honeybees particularly love wildflowers, lilacs, poppies and Black-eyed Susans, as well as herbs and vegetables like mint, sage, squash, tomatoes, oregano, and rosemary. In addition, bees get thirsty, and that placing birdbaths and small basins of water could help relieve their thirst.

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~~~~~~~ IN MEMORIAM~~~~~~~~

Alex Bzenko

Alex Bzenko, longtime resident in Rochester Hills, Michigan and owner of The Busy Bee Honey Farm, passed away peacefully at the age of 96. Al had a quiet sense of humor. When asked if he made honey, he would often reply with a twinkle in his eyes, "The bees help". When he was asked if he could pick a different career, he said, "I would still choose to be a Beekeeper."

Alex was a SEMBA Life Member with the longest tenure in the organization. He began his beekeeping activities in 1934 as a youth with his family. Alex recalled as a young boy pulling a wagon with heavy supers from out in the country to his home in Detroit. Alex said "I started beekeeping for recreation and the money." Starting with two colonies he built up to more than 400, first in Detroit and later in Rochester. He marketed his honey and bee products in a variety of ways: cider mills, door-to-door, state fairs and from his home in Rochester. Another venue, the Eastern Market in Detroit had become almost a second home for many years. The Busy Bee Honey Farm in Rochester was the location of the SEMBA summer picnic for several years.

We will miss Alex.

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SEMBA LEADERS:

President.....Clay E. Ottoni
1st Vice President.....Senad Livadic
2nd Vice President.....Theresa Morin
Secretary.....Randy/Sandy Graichen
Treasurer.....Wayne Titus III
Past President.....Roger Sutherland
Web Master.....Tom Lisk
SEMBA Host.....Randy Graichen
Historian.....Ron Forfinski
SEMBA Rep. to MBA.....Clay E. Ottoni
SEMBA Director.....Fritz Sanders
SEMBA Director.....Don Schram
SEMBA Newsletter editor.....Clay E. Ottoni

PAYPAL INVOICE FOR SEMBA DUES.

Invoices for memberships are due 3/31 for each year. The invoice is set for the same membership you had paid for in the prior year (e.g., if in 2016 you paid for an individual membership, then in 2017 you were billed the same way). You can pay electronically through the secure website, you can mail a check to **SEMBA, 218 S. Main St. Suite E, Plymouth, MI 48170** or you can pay at our Annual Spring Conference.

BEEKEEPING MEETINGS IN SOUTHEASTERN MICHIGAN:

Ann Arbor Backyard Beekeepers: Meets the ***second Tuesday*** of the month at Matthaei Botanical Gardens, 1800 N. Dixboro Road, Ann Arbor, MI 48105. An informal Q & A period starts at 6:30 pm, followed by a formal presentation of a bee-related topic at 7 pm. For more information contact Michael Nardelli, (734) 751-3597 or president@a2b2club.org.

Biodynamic Beekeeping, Ann Arbor, MI. For information contact Eileen Dickinson, (734) 717-4145 or edickins@umich.edu.

Center of Michigan Beekeepers (COMB): Meets, usually, 6:30 PM on the ***second Monday*** of the month at the MSU Pavilion, 4301 Farm Lane, Lansing, MI 48910. For information contact Mike Risk at President@COMBBees.com.

Mid-Michigan Beekeepers: Meets 7 p.m., on the ***first Thursday*** of the month at 130 E. Main Street, Otisville, MI. Doors open at 6:30 p.m.

Monroe Bee Club, Monroe, MI. For information contact Bill Bray, (734) 777-2365 or braybill@hotmail.com.

Oakland Bee Club: Meets 7 p.m., on the ***first Tuesday*** of the month at E. L. Johnson Nature Center, 3325 Franklin Road, Bloomfield Hills, MI 48302. For more information contact Dennis Holly, (248) 515-0023 or hollysbees@yahoo.com.

Pine River Bee Club: Meets 6:30 p.m., on the ***third Tuesday*** of the month at 2585 Castor Road, Goodells, Michigan, MI 48027. For information contact Don McChristian, (586) 610-1867 or pineriverbeekeeping@gmail.com.

Saginaw Valley Beekeepers Association: Meets 7 p.m., on the ***first Tuesday*** of the month at Saginaw Valley Baptist Church, 3770 N Center, Saginaw, Michigan, MI 48603. For information send email to SVBASec@gmail.com.

Seven Ponds Bee Club: Meets 7:30 p.m., on the ***fourth Tuesday*** of the month at 3854 Crawford Road, Dryden, MI 48428. For information contact Terry Toland, (248) 421-6601 or lazy.t.apiaries@gmail.com.

SEMBA Bargain Corner

FOR SALE:

~ Limited number of nucs available, to anyone who has less than a year of experience, over-wintered, mated, Michigan queens. Hardy stock and great layers. Please call or text Call (734) 358-0525.

~ 5 frame nucs ready for pick-up in Michigan for $150 as well as 10 frame deep hive body (with bees and queen) for just $200. Call Carl at (586)-484-1110. Please leave a message or text**.**

~ Queens and nuc are for sale. Earl and Carol Hoffman, 734-427-7649 or essential_honey_bees@earthlink.net.

~ **Trees for Bees –** spring is here and it's time to plant forage for your bees! We are the SE Michigan distributors for Mike Connor's Michigan grown, Michigan hardy flowering trees and shrubs – (Trees for Bees) - specially selected for their pollen and/or nectar production qualities. Species have been chosen to offer you a range of bloom times providing your honey bees and local native bees and butterflies with pollen and nectar throughout the growing season. Most of our bushes and trees are priced between $10-$30. Call or text Vince Ste. Marie at (734) 223-3242 or e-mail vjste.marie@sbcglobal.net and we'll send our brochure and current price sheet.

~ New 6 5/8" supers with new frames and foundation and painted white. READY TO USE! Forty ($40.00) dollars each. Also have rendered bee wax for $5.00 per pound. Call: Loie Craft (517) 851-8408 Stockbridge, Michigan.

~ Complete beekeeping equipment available. Contact, Keith Lazar, 248-361-1710 or keithmlazar@hotmail.com. Save on shipping and pick up your equipment locally.

WANTED:

~ **Position wanted**: Experienced male beekeeper from Albania looking for an opportunity to work with a beekeeper in south east Michigan. Contact Eniada Dragolli eniadadragolli@gmail.com (PREFERRED TO BE FULL TIME JOB) His location is: Livonia, 48185.

Southeastern Michigan
Beekeepers' Association
Organized April 1, 1934
Schoolcraft Beekeepers' Club