



Mid-Atlantic
Apiculture Research
and Extension
Consortium



Delaware, Maryland, New Jersey, Pennsylvania, West Virginia and the USDA cooperating

BEEaware

NOTES & NEWS ON BEES & BEEKEEPING

August 2001

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MAAREC, the Mid-Atlantic Apiculture Research and Extension Consortium, is an official activity of five state beekeeper associations, the state Departments of Agriculture, land grant universities and the U.S. Department of Agriculture. The following are cooperating members: University of Delaware / Newark, DE; University of Maryland / College Park, MD; Rutgers University / New Brunswick, NJ; Penn State University / University Park, PA; West Virginia University / Morgantown, WV; USDA/ARS Bee Research Lab / Beltsville, MD

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FOCUS ON:

**SHB invades
MAAREC region**

In the MAAREC region local bee supply dealers and beekeepers regularly order package bees to help start new beginners and to help make up winter losses, especially important this past season with our heavy winter losses. Unfortunately, for some beekeepers the packages have included the Small Hive Beetle.

University of Delaware graduate student Alexis Park spotted an adult Small Hive Beetle (SHB) on the outside of one of 10 packages about to be installed at the University of Delaware apiary this year. Subsequently a second adult SHB was found one week later in the sugar water feeder of the colony from the package; a third SHB beetle adult was observed in the colony during a routine colony examination 2 weeks post-installation. All were captured and removed. We found another adult 2 months later but extensive inspection of the remaining 9 packages and other colonies in the apiary over the summer have not revealed additional beetles or any larvae.

From the same shipment of 75 package bees we heard that another

package had SHB. MD Department of Agriculture Apiary inspector Jerry Fischer found 3 live and 3 dead SHB in the installed colony/empty shipping package in a Cambridge, Dorchester County, MD apiary. At the time of the visit, the colony was treated with coumaphos. When the ground was treated two weeks later with Gardstar, 25-30 SHB larvae were detected in the colony underneath a Varroa bottom board screen.

To determine if other SHB might also have been shipped with the 75 packages (which had been distributed to 22 different apiaries) all colonies in 14 of these apiaries (receiving 60 of the 75 packages) were examined for SHB but no additional SHB were found. The beekeepers installing the remaining 15 packages were queried by telephone; none reported beetle sightings or problems with their colonies.

Our inspection method was to open and quickly examine the inside of the top covers for SHB since adults avoid light and immediately run to seek cover when so exposed. We next removed supers and brood boxes to look at the bottom board. In instances where bottom screens were in place above a closed bottom board, the debris was thoroughly searched for SHB adult and larvae. Next we looked at 2-3 brood/super frames for evidence of adults, larvae or SHB slime. Empty equipment

and weak colonies were thoroughly examined in the apiary.

Where conditions permitted we removed the top super, placed it uncovered onto the inverted top cover of the hive and set it aside while we looked for beetle adults and larvae in the rest of the hive. Then we lifted the super and quickly examined the inverted cover for adult beetles. We also subsequently jarred the bees from the super onto the inverted cover to again immediately look for adult beetles. This sampling technique, modified by Jeff Pettis, USDA, Beltsville, MD from a system used by Florida apiary inspectors, is often effective in finding SHB adults when population levels are low. No additional SHB were found.

On July 13, Bart Smith, MD apiary inspector, found 49 adult and 57 SHB larvae in three colonies that were established in early April from package bees in Millersville, Anne Arundel County, MD. Similar numbers of beetles (larvae and adults) have been collected on subsequent visits to the apiary. The varroa bottom board screens in these colonies apparently serve as a haven allowing beetles below the screens to utilize pollen and other debris falling on the trays since bees in the colony are unable to remove developing beetles.

Introductions into MD and DE in 2001 follows SHB detections in PA and NJ in 1999. Several SHB arrived in NJ via a shipment of packages that were distributed to beekeepers in northwestern NJ and one in northeastern PA (reported in July 1999 BeeAware). Colonies with beetles were treated with Coumaphos;

follow-up inspections have failed to reveal additional beetles. Another package shipment the same year, this into Franklin County, PA also was found with SHB. After treatment with coumaphos, beetles have not been redetected. To date no SHB have been found in WV.

SHB has been introduced into Delaware and neighboring states via migratory beekeepers with a Florida connection. In Maryland a migratory beekeeper introduced SHB with the movement of 27 colonies (several with SHB) to western MD from Florida in April 2001. Pennsylvania apiary inspector Jim Steinhauer generally expects to find SHB in any Florida migratory operation. Nuc colonies purchased from a PA commercial migratory beekeeper moved to Beltsville, Prince Georges County MD yielded 6 dead beetles on sticky boards in June and one live beetle near stored bee equipment in October

In New Jersey, three commercial operations maintaining 6-7000 colonies that also move to Florida, have SHB throughout but only adults are currently being detected. Beetle numbers fluctuate widely, occasionally with high adult numbers; at other times beetles are hard to spot according to Grant Stiles, NJ State apiarist. They are found in honey houses of these beekeepers as well.

What is now troubling apiary inspectors and bee researchers are several additional finds of SHB this season that do not seem to have a direct connection to installation of packages or migratory movement. One NJ beekeeper who moved adjacent to commercial beekeeper pollination sites in Burlington County, found an adult

SHB. In Pennsylvania, two non-migratory beekeepers with apiaries located close to yards used by migratory beekeepers also have detected SHB adults and a beekeeper in Adams County found SHB following pollinator activity near his apiary. A Chester County PA beekeeper found a beetle later in the year. Two MD finds, one in Bowie, Prince Georges County (total of 3 adult beetles) in a single overwintered colony and another from Frederick County have unknown origins.

It is evident that SHB are being transported with increasing frequency into the Mid-Atlantic states and are widespread within migratory operations. As their frequency of import increases will we see increased movement of SHB adults from migratory to resident beekeepers as has already been documented? Perhaps our use of bottom board screens or varroa sticky traps may promote beetle reproduction requiring careful assessment of such devices.

It is not clear if a SHB infestation constitutes a treatment necessity in the Mid-Atlantic region. Regulatory officials currently are recommending quarantine and coumaphos hive treatment in active infestations (especially when larvae are found) plus the general recommendation of a preventative soil treatment with Gardstar to help break the cycle of reinfestations where adults and/or larvae are detected. We hope you might capture suspected SHB and report infestations so we can continue to track their spread and impact.



Dewey M. Caron

IPM in the Northeast

The USDA partners with the 5 MAAREC states plus New York and New England states by providing competitive research/extension grants. Their most recent report (IPM in the Northeast – available from NEIPM Facilitator James VanKirk, jrv1@cornell.edu or USDA Program Leader Michael Fitzner, mfitzner@reeusda.gov) highlights 45 IPM projects funded since 1995.

The regional IPM grants program supports projects that fill knowledge gaps with targeted research, demonstration trials and educational/training programs. Adoption of IPM helps growers minimize human health risks

by emphasizing alternatives to pesticides and more accurate targeting of applications for the major pests. As beekeepers facing mite pressures know, IPM is not the easiest solution. An IPM approach requires a good understanding of pest and the environmental factors that promote pest populations. Our MAAREC research/extension program seeks this information/approach relative to honey bee pests and beekeepers are aware of how slowly good reliable data can be to gather.

The publication highlights an extension delivery of IPM, with MD as lead state, for an award winning website that helps the public accurately diagnose plant problems, indoor pests, beneficial insects and wildlife damage. Access it at agnr.umd.edu/users/hgic/diagn/.

Another summary reports a PA/MD program that aids sweet corn growers, has documented up to a 1/3rd reduction in pesticide applications which is good news for beekeepers. Another report on a MD/DE program looking to reduce Imidacloprid pesticide use on potatoes by treating only the potato field perimeter can reduce use of this potentially honey bee harmful pesticide by 50-90%.

The Cornell IPM program managing parasitic honey bee mites (N. Calderone, Leader) is also included. The funding enabled Nick and associates to work with formic acid (in cooperation with Medhat Nasr then in Ontario). Our MAAREC program has been investigating and applying for NE region IPM grant funds and we are hopeful it might help fund some future approaches in our area.

Keeping Transgenic Pollen in its Place

How far can bees carry pollen? At least two-thirds of a mile, according to plant geneticist Daniel Z. Skinner in Pullman, Washington and Kansas State University alfalfa breeder Paul St. Amand. That is important because pollen acts as a vehicle to transport genetic material throughout a plant population or into a related species. In the modern high-tech world an accidental dispersion of transgenic alfalfa pollen to wild populations of alfalfa may be undesirable/detrimental.

Alfalfa, *Medicago sativa*, the “queen” of honey plants, has no other close weedy relatives. It relies on honey bees and leafcutter bees for pollination to set seed. The amount of potential pollen flow between adjacent alfalfa seed-production fields is a key factor in setting isolation requirements.

In production fields, Skinner and St. Amand planted alfalfa that carried a rare but naturally occurring molecu-

lar marker, which allowed the pollen to be tracked as if it contained a new gene. They tracked pollen movement from the marker-bearing alfalfa plants to trap plots planted up to 3,280 feet (1,000 meters) away. Also, they found volunteer alfalfa plants along roadsides and measured the distance between them and the production fields. Seeds from volunteer plants and the trap plots were collected, sprouted, and the sprouts then tested for the molecular marker. If the marker was found, that seed must have originated from pollen carried by bees from the production fields.

Leafcutter and honey bees, used in commercial seed production, flew from their nesting shelter/hives for a distance of two-thirds of a mile; using statistical models they estimated that a minimum isolation distance of 5,109 feet from the hive to any other alfalfa field would be required to prevent gene flow from one field to another.

The researchers recommend that producers consider changing their seed-production practices. They suggest placing bee colonies in the center of the alfalfa field instead of along the side and surrounding the field with flowering crops like birdsfoot trefoil or sainfoin so that bees would become covered with other pollen and no longer transmit alfalfa pollen if they leave the field. These practices might be expected to limit pollen dispersal. Of course growers would need to provide access to field centers if recommendations are adopted.

[NOTE from Dewey - Alfalfa seed acreage continues to decrease in California (down to some 30,000 ac - it was 1 million three years ago) and in the western U.S. where it is an important nectar and pollination income source.]

SOURCE: Oct. 2001 USDA
Agric. Research

Russian Honey Bee Earning its Stripes

Iowa beekeeper Manley H. Bigalk is one of three commercial beekeepers who've been evaluating Russian bees in cooperation with Tom Rinderer at the USDA Honey Bee Breeding, Genetics, and Physiology Research Laboratory in Baton Rouge, Louisiana. Russian bees in Iowa are now a reality following geneticist Tom Rinderer's travel to a rugged stretch of land on Russia's Pacific coast called the Primorsky Territory. Observing how well local honey bee hives fared despite parasitic mites and prolonged winters, Rinderer imported – and in July 1997 received – 100 queen bees from the region. After quarantined monitoring on Grande Terre Island, Louisiana, the Russian bees were moved to apiaries at ARS' Baton Rouge lab, where scientists subjected the Russian queens and their offspring to rigorous cycles of breeding, selection, and testing for mite resistance and other desired traits.

In 1999 those efforts culminated in a cooperative research and development agreement with Bernard's Apiaries, Inc., of Breaux Bridge, Louisiana. Under the agreement, third-generation apiarist Steven S. Bernard is authorized to raise and sell pure-Russian breeder queen bees on a first-come, first-served basis. Bernard decided to breed the Russian queens commercially after Rinderer approached him

with the idea as a way to transfer the benefits of the USDA lab's research to U.S. apiarists.

Like Bigalk in Iowa, Hubert D. Tubbs, another USDA ARS cooperator who manages 3,500 honey bee colonies at Tubbs Apiaries in Webb, Mississippi has experienced Russian bees. Tubbs says "My test yards are purebred Russian, and we haven't treated those colonies in 2 years," Tubbs had an opportunity to witness the Russian bees' durability thanks to last season's harsh winter. Of his



1,500 domestic colonies, 1,200 to 1,400 were lost, whereas of his 2,000 Russian-bred colonies, only 2 didn't survive. Based on test-yard evaluations, Tubbs reports average honey yields of 130 to 150 pounds per hive above the usual yield of about 84 pounds per hive. "This bee is a real nice bee. It's very hygienic, very gentle."

And Bigalk from Iowa reports, "We're seeing improvements in stock each year. One of the key points is that it's public stock. So it's something that anyone can easily work into their own program."

Rinderer attributes Russian bee colony "superior winter survival to being highly resistant to tracheal mites, something that's still uncommon for standard commercial colonies." And he feels it is important to get that advantage to the industry. Over the next 5 to 8 years, the goal is to furnish apiarists with up to 40 different, elite genetic lines of Russian queens. By using them sequentially, bee breeders can avoid inbred colonies. On a broader front, this will help ensure that the best of the Russian breed's traits reach the U.S. honey bee population in a uniform manner.

"We originally got into the program to deliver *Varroa* mite resistance," says Rinderer. "But since, [we have found] Russian bees are also resistant to tracheal mites and are good honey producers and good winter survivors. The program is now focused on producing a stock improved for all these traits."

Modified from original Source: USDA Agric. Research, Oct. 01



Pesticide Security and Safety Even More Critical Now

The possibility of chemical weapon strikes or attacks on food and water supplies, coupled with recent temporary bans and perhaps future restriction on agricultural aircraft use by the Federal Aviation administration, is prompting a new awareness of proper pesticide storage and security measures.

“We all need to go about our normal routines in the safe and proper use of pesticides, with perhaps a bit more attention paid to safe and secure storage” says Dr. Susan Whitney, Cooperative Extension pesticide coordinator at the University of Delaware. “The events of the past few weeks bring a need for higher levels of awareness and responsibility among pesticide applicators.”

Whitney urges growers, agri-chemical dealers, aerial applicators, lawn care operators, pest management professionals and others who regularly store and use pesticides such as beekeepers to review their management practices associated with storing pesticides and pesticide application equipment.

Here is a simple, appropriate and justifiable 10 step approach to take for proper pesticide storage:

1. Ensure pesticide storage is secure and locked.
2. Be aware of who has keys and access to pesticide storage areas.
3. Post all storage areas (i.e., “Pesticides – Keep out”).
4. Post names, addresses and telephone numbers for contact persons at the primary entrance to the storage area (list at least two people, if possible).
5. Regularly inspect storage facilities and maintain an inspection log.
6. Be certain you know who has access to pesticide storage areas during/after business hours.
7. Keep inventory records of pesticide products current and readily available.
8. Secure pesticide application equipment to prevent unauthorized access.
9. Ensure pesticide label and Material Data Safety Sheets are available on all stored pesticides.
10. Keep a list of emergency telephone numbers readily available, including fire, law enforcement and medical contacts.

For more information, contact the UD Pesticide Safety Program at: <http://www.udel.edu/pesticide/> or access the Safe and Secure Pesticide Storage Fact Sheet at: <http://www.udel.edu/pesticide/factsh~1.pdf> .



Profit Building Strategies for Farmers' Markets



Farmers' Markets provide an excellent opportunity to reap higher profit margins for bee hive products. Because you are selling directly to the consumer, you receive retail-level pricing for your products. This is a significant improvement over wholesale prices.

Low startup costs make farmers' markets especially attractive for beginning marketers. The overhead is simply a stall fee that is much lower than the cost of renting/building retail space. Advertising costs are shared among the farmers at the market and are usually paid from the stall revenues. Additional start-up costs include a table of some sort to display products for sale, an awning or tent unless the market provides cover, display baskets, sign material and bags. Costs are minimal for new marketers, which allows them higher net earnings than other direct marketing venues.

Farm markets come with a ready-made customer base. New marketers can take advantage of the current customer traffic to sell products, without the investment of having to attract new people to the market. While the market supplies the customers, marketers must provide quality product at reasonable prices mixed with good customer service to keep customers coming back. And to be real successful you should develop a niche. Don't neglect signage as even the best product will not sell itself. Adopt an "appearance of success" or as some label it "pile it high and kiss it good-bye."

Most beekeepers already know how to produce a quality product. What is sometimes harder to learn are the marketing skills necessary to be successful at marketing products. Those skills can be developed over time through trial and error while selling at the market, they can be learned through talking with and observing more experienced marketers at the farmers' markets or they can be learned through attending seminars and workshops.

At farmers' markets, the farmer is a price maker, not a price taker. This is a foreign concept to many farmers who deal exclusively in the wholesale market, where the buyer sets the price. Because this may be a new concept, many don't know how to establish a fair price – one that covers expenses and includes enough profit, yet low enough to ensure that the product will be purchased. You need to identify all of your costs and determine the appropriate level of profit so you can set a retail price for your products that is fair to both you and the consumer.

Six Good Pointers to Success

- 1) Staying Power – We have been around a long time and will be there when customers call.
- 2) Truck to Door Service – If you need it, we can get it to you.
- 3) Knowledgeable Sales Staff – We can tell you the latest about our products and how they might bring profitability to the bottom line.
- 4) Diversity – Webster defines it as difference, unlikeness, variety, multiformity. We call it "Meeting tomorrow's trends." We supply the diverse and unusual, as well as the staples, that keep customers coming back again and again.
- 5) Communication – We don't like surprises, and we figure you probably don't either. We keep ourselves and our customers informed.
- 6) Great Value – We supply great quality products at a fair market price.

Dewey M. Caron

MAAREC Working Group Meets in New Jersey

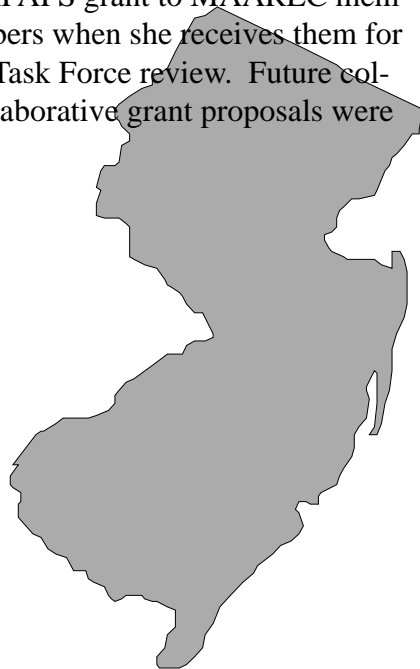
The MAAREC Working Group met on October 12, 2001 at the Blueberry/ Cranberry Research & Extension Center in Chatsworth, New Jersey. The following individuals participated in the meeting: Dewey M. Caron, Bart Smith, Dave Simmons, Medhat Nasar, Tom Kees, Robert Mitchell, Warren Seaver, Jeff Brothers, Grant Stiles, Pat Henderson, Sridhar Polavarapu , Daniel Rossi, Maryann Frazier, Diane Brown, Nancy Ostiguy, Mike Embrey, Gary Felton , Jan Kochausky, Jim Steinhauer, and Bob Brooks.

Nick Forsa, director of the station, gave a quick overview of the history of blueberry and cranberry production, and the history and mission of the research/extension station. The station was established through funds provided by local blueberry and cranberry growers and Rutgers University. During the meeting, the working group toured the Haines family cranberry farm to learn about cranberry production. We were fortunate enough to get a glimpse of the cranberry harvest. On a 'Sign of the times' note: The total 2001 cranberry crop [apparently a

bumper crop year] will have to immediately go into the freezer because last years crop has still to be sold.

—The working group spent most of the morning session reviewing and revising newly written standard operating procedures for the MAAREC Working Group itself. Dan Rossi and Nancy Ostiguy agreed to re-work Article 1, section 2 of SOP. Pat Henderson will revise the MAAREC SOP incorporating suggestions from our discussion and return updated version to the group within 45 days. He will be looking for feedback on the updated document and expects that the Task Force will vote on the document at the next meeting in March. Beekeeping Associations and University and State Agency administrators will also need to examine/approve it.

—Nancy Ostiguy reported on the collaborative IFAFS grant submitted by MAAREC that did not receive funding. She will send the summary of the comments of the reviewers concerning the IFAFS grant to MAAREC members when she receives them for Task Force review. Future collaborative grant proposals were



discussed including identification of agencies that might fund studies of interest to MAAREC and how best to obtain future funding. Medhat Nasr will take the lead preparing a Northeast IPM grant due before the end of the year.

—An overview of USDA Beltsville Bee Lab research was given by Jan Kochausky. Updates on State research progress were given by Nancy Ostiguy, Dewey Caron, Medhat Nasar and Mike Embrey. Dewey Caron, Mike Embrey and Maryann Frazier provided updates on extension progress including an evaluation of the MAAREC Short Course and website. Pat Henderson will start to prepare a MAAREC research/extension priorities list which can then be discussed at beekeeper and at Task Force meetings. This would be a 'work in progress' type of 'wish list' that might be eventually posted on the MAAREC website and over the internet (listserv). Maryann Frazier will look into setting up a MAAREC listserv at PSU.

—Each of the state apiary inspectors and representatives of each state beekeeping organization gave reports on inspection, and the state of bees and beekeeping in their respective states during the past season.

—The meeting concluded with a discussion on funding needs and the future of the MAAREC BeeAware newsletter. Task Force beekeeping association representatives will look into the possibilities of asking if member associations would consider providing financial assistance to cover the cost of printing the *BeeAware* newsletter.

—Maryann Frazier



MAAREC WEB SITE:

[HTTP://](http://)

MAAREC@cas.psu.edu

The MAAREC website was recognized for excellence by StudyWeb.

The MAAREC Website was very positively reviewed by Tom Sanford in his October 2001 *Bee Culture* column Beekeeping in the Digital Age. Tom had reviewed the web site two years earlier (Dec '99) and he found our most recent changes favorable. He states our website is "perfectly positioned for delivering IPM information about beekeeping." Thanks Tom for your nice words - and the challenge to continue our improvements. [His article also includes coverage of other IPM sites that beekeepers may find useful.]

What's new on the web site?

Several of the beekeeping fact sheets have been up-dated including: *Queen, Nuc and Package Bee Supplier, Disease Control and Honey*. For those of you interested in alternative pollinators, former graduate student Lana Adams added a fact sheet on the biology and management of the Japanese Hornfaced Bee. In addition, we have added a power point presentation on floral sources that was put together by Diana Sammataro. This presentation must be viewed through internet explorer.

Your feedback needed

We are looking at tighter budgets in the upcoming year and are considering making this newsletter available in electronic format only. Would you find this acceptable? Would information posted to the web site monthly, rather than a quarterly printed newsletter, serve some or the same purposes as our present printed newsletter? If we were to switch to an electronic-only format, we could build a list of your email addresses and send you an email notice at the time we

make important additions to the web site that would include a hot link to the site. We would welcome any and all feedback. You can submit your feed back to Dewey Caron (dmcaron@UDel.Edu, or see address on the front page) or Maryann Frazier (mxt15@psu.edu), or you can submit your response through the web site by clicking on, contact us, on the MAAREC home page.

In addition, if you would currently like to receive an email notice of additions to the web site, such as the newsletter, please *contact us* through the web site and tell us that you would like to be added to the web site notice list.



Visit the Award-Winning MAAREC website.

Figures as of May 1, 2001:

Hits: 68,153; Ave/day 2,198
Page views: 27,880; Ave/day 899
Doc views 27,876
Visitor session: 7,863; Ave/day 253
Ave visit length 00:12:24
Visitor usage: International 10.44%; US 74.48%
Unique visitors 4,089
Visitors who visited more than once 884.

Figures for August 1, 2001:

Hits: 56,431; Ave/day 1,820
Page views: 25,739; Ave/day 830
Visitor session: 8,004; Ave/day 248
Visitor usage: International 12.06%; US 70.8%
Ave. visit length: 00:13:5
Unique visitors: 3,108
Visitors who visited more than once: 760

Our hit counter indicates very heavy usage

November *BeeAware* was arranged by D. Sammataro, Penn State