Mid-Atlantic Apiculture Research and Extension Consortium

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

MAAREC

Bee AWARE

Notes and News on Bees and Beekeeping

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WHAT'S INSIDE:

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Focus on: PENNSYLVANIA

While some people think that there is little more to Pennsylvania than Philadelphia and Pittsburgh others realize the state truly is the land of "milk and honey." While PA is considered a major dairy state, its agriculture is diverse and abundant. Pennsylvania is the largest mushroom producing state in the country and the 5th largest producer of apples. The state is also among the top 10 producers of peaches, pears, sweet and tart cherries and grapes. Vegetables, especially sweet corn, are important crops. Both field grown and greenhouse vegetable crops are on the increase. In addition, PA is one of the top poultry producing states in the country. Easy access to large metropolitan areas such as New York and Philadelphia to the east, Pittsburgh in the west and Baltimore and Washington to the south puts Pennsylvania growers and beekeepers in an excellent position to market their crops.

The main reason for the state's great agriculture diversity is its great variety of microclimates. The northwest corner, moderated by Lake Erie, is ideal for growing grapes, apples and other fruits. The Appalachian mountain range that runs through the central part of the state creates ridges which are covered by diverse forests and rich valleys which are ideal for dairy farming and vegetable production. The majority of the state's most productive farmland is located in the warmer south central and southeastern part of the state. Large dairy farms, fruit orchards and poultry houses occur in this part of the state.

While Pennsylvania has many microclimates, there are a few that are not suitable for bees and honey production (although some may be a bit more challenging than others). Currently, we have 1,706 beekeepers registered with the PA Department of Agriculture keeping 30,000 colonies in about 3,000 apiaries. About 20 of these are migratory beekeepers, most of whom take their bees to Florida to overwinter and make honey. Most of these colonies are hired out for pollination of peaches and other fruits in the south, apples in Virginia and Pennsylvania and then blueberries and/or cranberries in the Northeast. Pennsylvania also has several hundred successful sideline beekeepers. These individuals are committed beekeepers and are very innovative in their management of bees for profit. The majority of beekeepers in Pennsylvania are hobbyists, keeping bees more for pleasure than profit.

Because the state is large and its climate is moderated by features such as Lake Erie and the Appalachian Mountains, the floral sources and thus the honey crops vary greatly across the state. For instance, in most years beekeepers in the northern half of the state make significant fall honey crops from goldenrod and aster. Beekeepers in the southern half of the state rarely see a fall crop but can usually make a good spring crop from sources such as clover, black locust, tulip popular and basswood. Because nectar sources are so variable, most honey produced in Pennsylvania is sold as "wild flower," however there are exceptions. In some years beekeepers in the central part of the state produce a beautiful crop of water-white black locust honey, and for the past several years beekeepers in western PA have produced a crop of deep red honey from Japanese bamboo (aka Japanese knotweed) that they marked as "bamboo red."

Since the introduction of mites in the early 1980's there has been a significant decrease in the number of bees and beekeepers in Pennsylvania. In the early 80's more than 5,000 beekeepers were keeping nearly 80,000 colonies of honey bees. The decline of the beekeeping industry in the state has concerned beekeepers, growers of bee pollinated crops, gardeners, foresters, and wildlife managers. The situation has motivated some beekeepers and their allies to become politically active. Largely due to their efforts, the land grant university (Penn State) has maintained a commitment to apiculture research and extension, and for the past 10 years the state department of agriculture has provided funding for bee research and extension to Penn State and other PA colleges. Although we have many challenges to overcome, our greatest strength is the commitment of the state beekeeping associations, the Department of Agriculture, and Penn State and other state universities to work together to address the needs of beekeepers, growers and others who depend on honey bees.

Maryann Frazier, Penn State & James Steinhauer, PDA

Are you a Beekeeper of the New Millennium?

David Letterman of the Late Night TV Show has gifted, highly-paid writers develop a Top 10 list for his viewers. Your editor (who enjoys neither of the above) offers this Top 10. I challenge you to come up with Number 1. Reward offered to best submissions - send them to me via e-mail or snail mail.

The Top 10 Indicators That You are a Beekeeper of the New Millennium

10. The "old-timer" beekeeper in your neighborhood started beekeeping 2 years ago . . .

9. Your bees have "bugs" but are Y2K compliant.

8. You stop to check the bee chat room on your computer for the latest varroa mite "control" scheme on the way back from the bathroom in the middle of the night. . .

7. You think next-day delivery of bee supplies is too damn slow. . .

6. You go "on-line" to check for instructions on how to hive a swarm/ install package bees. . .

5. You have to interrupt your hive inspection two times to answer your cell phone/beeper. . .

4. A trip to your outyard requires $1.00 in toll charges. . .

3. People who've never touched a hive tool can know stuff about bees that you've never heard

2. "Bringing home Chinese" means your trip back home from the regional honey dealer. . .

And the number 1 indicator that you are a beekeeper of the new millennium is . . .

1. _____

Implementing IPM

August Bee Culture (Caron 1999), the July American Bee Journal (Calderone 1999) and December BeeAware featured articles discussing Integrated Pest Management (IPM) for beekeepers. Like the TV commercial in which a little old lady shouts, "Where's the Beef?" it is now time for research to demonstrate the appropriate parameters for beekeepers to implement IPM. Dave Simmons, President of the Maryland State Beekeepers, in the most recent Beeline (the newsletter of the MD State Beekeeper's Association) echoes the same sentiment: "since most beekeepers are probably sold already on the concept of a rational approach to mite control" it is now time to "SHOW ME THE DATA."

Lots of individuals facing insect control decisions are in need of data to put IPM into practice. Your local exterminator is using IPM to control pests in homes and restaurants. School districts are being required to use IPM to control pests in and around schools. Municipal communities are mandating, by legislative action, that the routine use of pesticides be phased out and IPM techniques adopted to control pests in all publicly owned/leased buildings.

A sizeable portion of the public views IPM as a replacement for pesticides used to control pests. As the recent articles listed above clearly point out it is not!. Rather, IPM is a decision-making process. An IPM approach to control pests, such as rodents in school buildings, cockroaches in restaurants or bee mites infesting a bee colony, is a process that ideally should seek initially to pinpoint pest location and abundance via scouting or monitoring. The IPM approach should utilize an arsenal of weapons to reduce the pest population in limited locations. IPM is not anti-pesticide but hopefully widespread and/or regular spraying of generalized chemical pesticides should be the last choice of control tactics in an IPM approach.

IPM as a concept was first implemented in the agricultural sector. Crop plants can tolerate some level of pest attack and still produce economically acceptable yields. So, too, processed foods are permitted a certain level of insect pests without being recalled from the market. IPM decisions are based on an economic injury level - the level at which the damage the pests cause results in economic loss.

There are, however some pest control decisions that are made on an aesthetic injury level. For some pests, any level, even a low level, might not be tolerated. How many cockroaches will the average homeowner permit in their home or how many aphids are okay in the bouquet of red roses given to a Valentine on February 14? As beekeepers, are we subject to an economic injury decision level in control of mites or is it an aesthetic one? While it might be preferable to hope for zero mites in a bee colony, honey bees can tolerate some mites and still store honey/pollinate flowers. Thus IPM mite control for beekeepers should be an economic threshold decision.

So, what level of varroa mite numbers can bee colonies tolerate? The number we need to determine is the THRESHOLD level. If we can control mites at or below this level we can keep them from reaching the economic injury level. A study in Europe concluded that for every mite that falls to a sticky board at the bottom of the hive, there are 120 more that do not fall to the bottom board. In a well designed study, Keith Delaplane and Mike Hood in Georgia and South Carolina respectively peg an acceptable (tolerable) level of mites between 3172-4261 total mites. For overnight bottom board inserts their threshold number range was 59-187 mites.

In a University of Delaware project your editor found mite levels to vary but 60 mites in a lighter infestation (1999) and 43 mites in a heavier mite level year (1998) measured as natural mite fall/day (monitored over a 3-day period in mid-September) to be a conservative estimate of the mite number above which treatment might be necessary to avoid tolerable risk to the overwintering colony. In both years of this study (to be repeated this season), one-third of the colonies included in the study (15 in 1998, 27 in 1999) fell below this threshold and thus

would not have needed treatment with Apistan in mid-September if these thresholds were used as a reference. The abstract has been submitted for publication and is reprinted below:

Sticky board monitoring of varroa mite populations in overwintered/package honey bee colonies in the University of Delaware apiary sampled natural mite fall over a three day period to correlate with total mite fall in order to achieve a threshold level for control decisions. Three-day monitoring of natural mite fall in September was found to be the most consistent sampling period for computing mite/day estimates. Mite pressure was nearly twice as high the first year (1998 mean total mite number 5468 ± 3496) compared to the second (1999 total mean 3603 ± 2472) in this study. Treatment with fluvalinate (Apistan®) followed natural mite fall monitoring to estimate total colony mite populations. A treatment threshold of 43 mites/day in 1998 and 60 mites/day in 1999 warranted a control decision as numbers above this threshold indicated colonies likely to exceed 3000 total mites. This threshold number is lower than a previously published threshold for the southeastern US.

A second study was conducted at Penn State under the direction of Dr. Scott Camazine with Penn Dept. of Agriculture grant and USDA Carl Hayden Bee lab assistance. Post-doctoral researcher Diana Sammataro and colleagues at Penn State incorporated 3 varroa control methods to assess how they might singly, and in combination, promote varroa control. They tested cultural control (hygienic queens), mechanical control (screened bottom board inserts) and biorational chemical control (thymol essential oil mixture). No biological control agent has yet been demonstrated to be effective on Varroa mites so none was included in the study. In the initial season, the combination of control efforts did seem to reduce mite levels as colonies with hygienic queens and screened inserts had significantly lower mite drop. Apiary location was a strong influence that might have influenced the data so the work needs to be repeated another season. The abstract of the paper from this study has been submitted to *Apidologie* and is reprinted below:

A novel combination of IPM techniques was used to test if *Varroa jacobsoni* populations could be moderated. Fifty colonies in two locations started as nucs, were used to test three mite-reducing techniques: mite reducing queen stock, screen inserts and an essential oil compound (a thymol mixture). These three strategies were combined into five treatment groups (ten colonies each): (1) queens, screens and oil; (2) queens and oil; (3) queens and screens; (4) screens and oil and (5) control (no treatment). Colonies with the lowest mite drop at the end of the experiment indicated that the strategies were successful in slowing mite population growth.. Treatments were evaluated by counting the mites that fell onto a 3-day sticky board and analyzed as mean mite drop per day. Mite drops did not differ between treatment groups at the beginning of the study. By day 65, the queen/screen group had a significantly smaller mite drop than the other treatments ($p<0.05$). when the oil strips were inserted (Day 75), a significant knockdown effect was observed ($p=0.004$) in the oil-treated groups, but no difference in mite drop between the oil-treated and untreated colonies was observed for the remainder of the study. The oil formulation may not have been strong enough or repeated treatments may be necessary for effective control. The screen inserts had a significant independent effect throughout the study ($p=0.023$). Comparisons were made among mean mite drop to determine if differences existed between sites and among treatment groups. The apiary located near the top of a hill in an open field had significantly (or nearly) smaller mite drop than the site sheltered by shrubs and small trees. By Day 65, colonies at the sheltered site with queens/screen inserts had significantly fewer mites than the other groups ($p<0.05$). By late fall, 60% of the control colonies at the sheltered site were dying or dead from high mite pressure; there was a significant difference among groups at this site. The queen/screen and queen/screen/oil groups had significantly smaller mite drops ($p<0.050$). At the open site, groups did not differ significantly. Mite drops after Apistan treatments were significantly higher in the control and queen/oil colonies than the other treatments, and were highest at the sheltered apiary ($p<0.05$). While mite counts increased throughout the study period, the number of mites in the queen/screen and queen/screen/oil groups (combined locations) never exceeded 100 mites per day (96.40 67.41), showing that mite levels could be moderated.

Calderone, N. 1999. Integrated Pest Management: Varroa Mites. A seasonal plan for managing this pest. Bee Culture 127(11):20-25

Caron, D.M. 1999. Focus on: Integrated Pest Management (IPM): BeeAware No 83:1-2. (Dec)

Caron, D.M. 1999. IPM for Beekeepers. American Bee Journal 139(5): 363-365

Caron, D.M. 2000 Submitted to Jour Econ Ento.

Delaplane, K.S. & W. M. Hood. 1999. Economic threshold for varroa jacobsoni in the southeastern USA. Apidologie 30:383-395.

Sammataro, D., Nancy Ostiguy, Jennifer Finley, Maryann Frazier, Gloria Degrandi Hoffman and Gorden Wardell. 2000. A novel IPM approach to managing *Varroa jacobsoni* (Acari:Varroaidae) in honey bee (Hymenoptera: Apidae) colonies. Submitted to Apidologie

Dewey M. Caron, Univ of Delaware

American Foulbrood Resistance to Terramycin

After dealing with tracheal and Varroa mites, Africanized Honey Bees and Small Hive Beetle, the last thing beekeepers want to hear about is that a new problem is threatening their bees. However, as with any threat, it is far better to become as informed and educated as possible than to ignore the problem and hope that it doesn't affect us.

About two years ago, several cases of American foulbrood (AFB), resistant to Terramycin (TM), were confirmed from a few mid-western states and Florida. Recent conversations with apiary inspectors in Minnesota and Florida have revealed that resistant AFB has spread significantly, and is becoming a cause for serious concern. In the fall of 1999, the first case of resistant AFB in Pennsylvania was confirmed in a migratory beekeeping operation. Apparently, resistant AFB is not widespread in Pennsylvania. So far, we have only had one confirmed case, but we need to formulate a plan to deal with resistant AFB, because without an effective control, it will surely spread.

The underlying cause of TM resistance can be debated. There is some speculation that grease patties containing insufficient amount of Tm lead to resistance. It could also be argued that time simply ran out, and the causal organism for AFB did what most organisms eventually do: develop resistance to the chemicals used to control them. TM has been used to control foulbrood in beehives for about 50 years and, until recently, has been very effective.

A look back in history may give us some insight into the present situation. American foulbrood first became a problem to beekeepers around the turn of the last century. Although we can't be certain, AFB was probably present in the United States for many years before its discovery in the early 1900s. It wasn't until the modern removable frame beehive came into widespread use that AFB became a problem. Under the old methods of keeping bees in skeps or similar vessels, harvesting the crop was a destructive process. The bees were killed and the combs were cut out and rendered into beeswax after straining the honey. Only a few colonies were kept over winter for the purpose of producing swarms in spring. The effect was that combs were not reused. With the popularity of the modern hive with removable (and reusable) frames, AFB soon became a serious problem. For the first time, combs could be used for many years and any disease organisms present were propagated rather than destroyed. With the modern hive, there was also the ability to move combs or entire supers from a diseased colony to a healthy one, quickly spreading diseases among colonies and apiaries. In only a few years, AFB became epidemic in some areas.

The first effective Bee law, passed in 1921, provided for treatment of diseased colonies. Since this was well before the development of antibiotic drugs, treatment consisted of shaking the bees onto clean equipment and new foundation. The contaminated equipment was burned. Apparently, at that time, the bees were considered more valuable than the wooden ware.

With the advent of antibiotic drugs, attitudes of beekeepers toward disease began to change and treatment of diseased colonies took on a different meaning. When I first started as a bee inspector, Paul Ziegler was my mentor. Paul had learned beekeeping and inspecting prior to antibiotics and was accustomed to burning colonies with AFB. He wasn't convinced that antibiotics were the cure-all for

AFB, as some believed. Paul contended that antibiotics did not cure AFB, but just concealed the symptoms. At that same time period, some other inspectors recommended antibiotic treatment for even the most severe cases of AFB. In spite of its widespread use for prevention and control of AFB, TM has remained effective for 50 years.

A full discussion of all possible alternatives to managing TM resistant AFB is beyond the scope of this article, but I will mention a few. One certainty is that burning equipment kills AFB spores. One AFB scale (larva killed by AFB) contains billions of spores. A single colony that has died from AFB probably contains enough bacterial spores to infect every colony in the country, but fortunately, AFB spores do not spread that readily. The important point is, that by destroying diseased colonies, a source of infection is eliminated. There are ways to kill AFB spores without destroying equipment, such as fumigation with ethylene oxide at elevated temperature and pressure, boiling in lye solution, treating with gamma radiation and dipping in hot paraffin. New Zealand has been successful in keeping AFB occurrence below 0.2% with a Suppression Program that does not include antibiotics. It involves hive inspections, sampling honey for AFB spores and sterilization of contaminated equipment.

Bees exhibiting hygienic behavior are better able to control AFB than non-hygienic bees. The added benefits of hygienic bees are their resistance to other diseases such as chalkbrood and sacbrood and lower infestation rates of Varroa mites. There are several antibiotics which are effective against AFB, including TM-resistant AFB. The United States Department of Agriculture Bee Research lab at Beltsville, Maryland is currently working with two products, which show promise. Scientists there are optimistic that these products will be approved for use on bees in the not-too-distant future.

I believe all beekeepers realize the serious threat posed by AFB. If TM resistant AFB is allowed to spread, and a substitute antibiotic is not approved for use on bees, the industry is in for serious trouble. I urge all beekeepers to conduct regular brood inspections. If AFB is found, or if any questionable condition exists, contact your state Apiary Inspector. If AFB is detected in spite of TM treatment, a sample of the diseased comb should be tested for Tm resistance. The goal of the Apiary Inspection Program is to help beekeepers keep healthy bees and the only way to accomplish that goal is by working together. James R. Steinhauer, PA Department of Agriculture

Using Powdered Sugar to Detect Varroa

While seeking ways to recover varroa mites from bees for laboratory assays, Paula Macedo, a University of Nebraska Graduate Student, found a new way to check colonies for varroa that is more efficient than ether roll. In addition to being more efficient, it is not necessary to kill bees to conduct the test. To use you will need the following:

1. A wide mouth canning jar (quart or pint) with two-piece lid.

2. #8 mesh hardware cloth (or any other mesh that will retain the bees while letting varroa pass through).

3. Window screen (or any other fine mesh hardware cloth that will let powdered sugar pass through but retain varroa.

Retain the metal ring that comes with the two-piece lid, and discard the center portion. Cut a circle of #8 mesh hardware cloth to fit inside the ring. Collect 200-300 bees in a wide mouth pint or quart canning jar. Add powdered sugar to the jar through the #8 mesh lid (enough to coat the bees, 1 tsp. to 1 tbsp. should be adequate). Roll jar around to distribute the sugar. Allow the jar to sit for a few minutes while you collect additional samples. Then invert the jar and shake to recover the mites. The bees will remain in the jar, and the mites and sugar will pass through to a piece of paper. The sugar will make it difficult to count the mites. You can pour the sugar and mites into another jar with a fine mesh lid. Shake again and allow the sugar to escape. Then, dump the mites on a clean sheet of paper and count them. A brief shaking will usually recover 70% of the mites. If you persist a little longer you can recover 90%. We can think of three possible reasons for the efficacy of this technique:

1. Varroa mite legs have a sticky pad called the empodium that helps them adhere to their host. The presence of powdered sugar could make it difficult for mites to adhere to their host.

2. Powdered sugar stimulates the bees' grooming behavior.

3. The powdered sugar on the mite's body stimulates mites to release from feeding to groom themselves.

Powdered sugar applied to a colony will dislodge a few mites from their host bees, but it is not highly efficient. Furthermore, the mites will eventually recover and return to their hosts. However, when bees are isolated from nest materials, the mite recovery from exposing them to powdered sugar is impressive. In fact, if you are willing to collect the adult population of a colony in jars and subject them to powdered sugar shaking, you can lower the mite infestation comparably to a chemical treatment. Continue shaking until mites cease to fall, and then return the bees to their colony unharmed. In future studies, we will examine the efficiency of the technique in bulk bee cages. One limitation to using this technique is that it is only efficient when brood is not present. When brood is present, 70 - 80% of the mites will be in sealed brood cells.

We know that the method is a safe, inexpensive, and highly efficient way to check adult bees for mites. We hope that you will find creative ways to use the technique to lower varroa mite infestations and reduce the frequency of chemical treatments. Dare we even dream of eliminating them altogether.

From *Bee Tidings U of Nebraska Cooperative Extension & Nebraska Beekeepers Association*

Research Highlights from the Penn State Bee Lab

Jamie Fisher is a senior undergraduate student at Penn State University who has been doing research on honey bees for the past 4 years. Jamie has many years of experience working with bees. Her parents, Sandy and Paul Fisher, are beekeepers with about 300 colonies. Jamie came to the Penn State Bee Lab the summer before her first year of college and has been working on a variety of research projects. At the annual College of Agricultural Sciences Research Exhibition, her most recent work won an award for 3rd place, and earned her a cash prize of $100. Her advisors on this project have been Dr. Diana Cox-Foster, who studies the immune response of insects, and Dr. Scott Camazine, head of the Penn State Bee Lab. The following is a summary of her research results.

The effects of tracheal mites on honey bee survival

In recent years, honey bee colonies have experienced increased losses as high as 80%, largely due to parasitic mites. Some of these losses can be attributed to the tracheal mite (*Acarapis woodi*), an internal parasite that lives and breeds in the breathing tubes of bees. This research is an attempt to answer the question of how bees respond to tracheal mite infestation and why tracheal mite infested bees are more apt to die during the winter. In earlier work, we examined the immune response of bees by measuring the

levels of an enzyme FAD-glucose dehydrogenase (GLD) in the presence of mites. This enzyme is involved in the honey bee's immune response. We found that GLD activity is decreased in the mite-infested tracheae, and hypothesized that tracheal mites may suppress the immune response of bees and make them more susceptible to other diseases. To test our hypothesis, the survival of both mite-infested and healthy bees was monitored after the bees were inoculated with a bacterial pathogen. Experiments were conducted with bees from both the summer and winter to determine whether there were any differences in disease susceptibility at different times of the year. *Pseudomonas* and *Serratia* bacteria were highly pathogenic and rapidly killed bees. A different bacterium, *Micrococcus* was non-pathogenic and did not decrease the survival time of healthy bees. However, bees infected by tracheal mites died more quickly if infected with Micrococcus bacteria.

Our experiments also demonstrated differences in the survival of winter and summer bees. Summer bees are generally considered less stressed than winter bees. Winter bees, confined to the colony throughout winter, are more stressed and more likely to be infected with opportunistic pathogens. Winter bees died more quickly than summer bees under a variety of test conditions.

In our experiments we treated bees with carbon dioxide to anesthetize them. They were then injected with a minute amount of bacteria or sterile saline solution (the control treatment). Among our summer bees, survival was not different between the carbon dioxide, and saline groups. Furthermore, *Micrococcus* bacteria was non-pathogenic and did not negatively affect the survival of bees that were healthy (not infected with tracheal mites.) Among mite-infested bees, however, injections of *Micrococcus* bacteria resulted in a more rapid rate of death.

Winter bees were more susceptible to all invasive treatments or stress. Mortality occurred quickly after carbon dioxide treatments, as well as with injections of *Micrococcus* and sterile saline. Death occurred most quickly among mite-infested bees injected with Micrococcus.

We conclude from these studies:

- Micrococcus (opportunistic bacteria) significantly increases bee mortality in mite-infested summer bees and all winter bees.
- Winter bees succumb more quickly to infections and induced stress, because they are more stressed than summer bees.
- Tracheal mite-infested bees have a decreased ability to survive non-pathogenic bacterial infection, suggesting that tracheal mites cause immunosuppression.

What are potential implications for beekeepers of this research? In order to effectively treat any disease or pathogen there must be some understanding of how the pathogen kills. For example, in some human bacterial diseases, an understanding the mechanism of action of a specific bacterium can help in developing effective treatments. Doctors can then prescribe the appropriate antibiotic that works to eliminate that particular bacterium. Similarly, we hope that by understanding how the mites are killing the bees that we will be able to find a treatment that will target that killing mechanism. From the evidence we have so far, there are indications that tracheal mites weaken the honey bee immune system. This may mean that the mites themselves are not killing bees, but that they die because they are now more susceptible to other infections. In order to develop effective treatments to improve colony survival it is essential to understand how the mites affect the bees. Scott Camazine, Penn State University

MAAREC NEWS

The Fund for Rural America grant is completed this summer. Additional grants have been applied for by PA and DE researchers and extension specialists. NJ and MD will discontinue their contributions to the MAAREC effort at Penn State; MD will support research by Mike Embrey at University of Maryland's Wye Research and Education Center and likely will continue regional extension funding while NJ has funds from their state legislature that Rutgers will use to hire a research/extension specialist to work at the Blueberry/Cranberry lab on priorities established by the NJ beekeepers. The research program at Penn State will continue under Scott but unless a grant is obtained the applied efforts of Diana Sammataro will not. It is anticipated that MAAREC efforts such as this newsletter, the web site, publications, etc. will continue but at an undetermined level. Stay tuned for details.

EAS - Maryland Beckons

Salisbury State University, on Maryland's Eastern Shore is the site of this summer's annual Eastern Apicultural Society (EAS) conference from July 31 - August 4. It promises to be abuzz with beekeepers from all over the United States and Canada.

EAS offers two levels of short courses which begin bright and early on Monday July 31st. Level I, directed by EAS Master Beekeeper Steve McDaniel from Maryland, is designed to cover all of the basics for new beekeepers (defined as 5 years or less of experience) with many activities geared towards practical beekeeping. The Level I short course includes demonstrations, labs, and workshops so the participants have an opportunity to reinforce lectures with hands-on practice.

The Level II Short Course is designed for experienced beekeepers wishing to advance their basic understanding of bee husbandry with a strong dose of bee biology and bee behavior. The Level II short course focuses on the queen honey bee using demonstrations, labs, and in-hive workshops to reinforce the lectures. There is an increase in the number of sessions spent in the beeyard in both levels of the short course from the past couple of years and more practical activities that build confidence and encourage participants to return home and apply some of these lessons to their beekeeping operation.

On Wednesday, both levels come together for a morning session which concludes with a beekeeper's version of the popular Public Broadcasting Series "Antiques Roadshow" hosted by Dr. Wyatt Mangum. Bring your beekeeping antiques for show and tell or bring in that confounding old beekeeping item and have Wyatt try to identify it for you! Honey show entries will be accepted from 9:00 AM until 1:30 PM for BOTH the traditional EAS Honey Show and the MD State Beekeepers Association (MSBA) Honey Show! As a change this year, the MD State Beekeepers and EAS have decided to hold two concurrent but separate honey shows. Also opening on Wednesday will be the vendor booths where a large variety of supplies, and newly introduced items will be on display and available for purchase.

The EAS conference begins Wednesday after lunch with a presentation from Dr. Norman Gary, who has spent his professional career as a bee researcher and has moonlighted working as a bee wrangler for Hollywood movies! Also on the program is the ever popular and extremely entertaining Dr. James Tew, who will discuss a few of the challenges involved in moving bees. At the end of the day there will be a beekeeper's social featuring homemade honey ice cream and honey root beer donated by Maryland's Carroll County Beekeeper's Association followed by a showing of some of Dr. Gary's more memorable movie clips.

On Thursday, the conference program continues with presentations from prominent USDA researchers Dr. Hachiro Shimanuki, Dr. John Harbo, and Dr. Jeff Pettis, as they describe research progress with parasitic mites and the newly introduced small hive beetle. Thursday afternoon marks the start of our huge workshop program. Master Beekeepers Bill and Nancy Troup along with Master Beekeeper Steve McDaniel have organized an amazing collection of workshops of interest to all. Bring your favorite local honey for tasting and sharing at the "Taste(s) of Honey" workshop hosted by EAS Master Beekeepers Jim and Penny McCaig from Ontario! In keeping with the historical theme on this 45th Anniversary EAS conference, Paul Jackson, a Texas bee inspector, will bring his fabulous antique smoker collection for display. You may wish to bring your antique smoker along and have Paul assess its age for you. Finally, SSU is a beautiful campus, alive with flowers, flowering trees and shrubs which delight the senses. Mr. Les Lutz, the campus horticulturist, will lead tours of the campus grounds, pointing out and discussing the plantings.

The activities on Thursday conclude with a bona fide Maryland crab feast featuring steamed hard shell Maryland blue crabs caught in the local waters of the Chesapeake Bay! We will have plenty of Marylanders on hand to show you how to crack your crabs and enjoy the local flavor of sweet tasting crab meat spiced with "Old Bay" seasoning. For landlubbers, more traditional selections include barbecue chicken, macaroni and potato salads, locally grown watermelon and more! The crab feast and barbecue will be followed by a live auction of donated items to benefit the wide array of EAS programs, including the Honey Bee Research Foundation.

Friday morning's program will be different from past years. The American Association of Professional Apiculturalists (AAPA) will present their American Bee Research Conference (ABRC). The ABRC will be particularly interesting as bee researchers present some of their latest results directly to the EAS and AAPA membership. This is an opportunity to hear the very latest research results concerning varroa mites, the small hive beetle, and many other challenges facing today's beekeepers. The ABRC program will continue concurrently with the Friday afternoon EAS workshop sessions. The week concludes on Friday evening with the semi-formal awards banquet followed by a fascinating slide show of a collection of postage stamps depicting bees and beekeeping, presented by Dr. Marion Ellis.

For details on any aspect of this year's week-long program visit the EAS internet website, http://iaa.umd.edu/mdbee/EAS2000.html or telephone EAS 2000 President, David Bernard at 301-414-2317.

Upcoming Events

Maryland MSBA Fall Meeting
Nov 6, location TBA
Contact Dave Simmons 410 734-4188

EAS Annual Meeting & Short Course
July 31- Aug 4, 2000. Salisbury State Univ, MD
Contact Dave Bernard 301 414-3217

WV Annual Meeting
Sept. 29-30, 2000 Cedar Lakes
Contact 304 478-3675

NJBA Meeting
Contact Ray Markley 609 261-1638
RAMBeeman@aol.com

Delaware Beekeepers Fall Meeting
Sept. 16, 2000. Redden State Forest
Contact Warren Seaver 302 674-8969

Pennsylvania summer meeting
July 15, Berks County
Contact Dane Snyder 215 362-6031

MAAREC, the Mid-Atlantic Apiculture Research and Extension Consortium, is an official activity of five 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

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