SOUTH CAROLINA NEWS

South Carolina Beekeepers Spring Meeting - The South Carolina Beekeepers will hold their spring meeting Saturday, March 4, at the Farm Bureau Building, 724 Knox Abbott Drive, Cayce, (West Columbia) SC. The meeting site can be reached easily from I-26 by taking the Airport Exit; go north toward Columbia which will run into Knox Abbott Drive. The building is on the left approximately 3 miles from I-26. Registration will begin at 8:00 AM and the meeting program will get under way at 8:30. Registration cost is $5 per person or $8 per family.

Our new President, Henry Chasssereau, will be the first speaker and welcome us and deliver his “Presidents Comments.” South Carolina Senator Jake Knotts, Jr. from Columbia, who represents District 23 (Lexington County) will give a “Legislative Update” and South Carolina Department of Agriculture Commissioner Hugh E. Weathers will bring us up to date on agricultural news in the state. Fred Singleton, our State Apiarist, will address beekeeping regulatory issues. Mike Hood will discuss small hive beetles and varroa mites and Steve Genta will follow with a presentation on “how to prepare honey and other hive products for competition.” Jennifer Berry, Research Coordinator, UGA – Athens, will finish out the morning session with a talk on her research and announce plans for the 2006 EAS annual meeting to be held at Young Harris College near Hiawassee, GA. The afternoon session will include commercial beekeepers Eric Mills who will discuss his recent visit to California to pollinate almonds and Ronald Moore who will speak on honey house construction and maintenance. Mike Hood will give the last presentation on queen issues. Beekeepers or anyone interested in honey bees and beekeeping are invited to attend this very informative meeting. For further meeting information, call Mike Hood, Extension Apiculturist, Department of Entomology, Soils, and Plant Sciences, Clemson University (ph. 864-656-0346 or email mhood@clemson.edu).

Other News – Six local beekeeper associations will offer Master Beekeeper Program certified level short courses this winter and spring. These courses are being hosted by the Aiken County Beekeepers, the Lakeland Beekeepers, the Low Country Beekeepers, the Mid-State Beekeepers, the Pickens County Beekeepers and the York County Beekeepers. The certified level courses normally run for 5-6 weeks and are concluded with written and practical tests.

Small Hive Beetles – All regions of South Carolina now have small hive beetles. Beekeepers should practice good bee management practices to reduce colony stress which could lead to major small hive beetle problems. Colony stress conditions which may lead to beetle problems are the presence of European foulbrood, mite problems, queen failure, insufficient food, excessive swarming, and over-supering. Any factor that reduces the ratio of the colony bee population to its comb surface that the bees are no longer able to protect the brood area adequately may lead to serious beetle problems. Under normal situations, strong, well populated colonies do not have beetle problems because honey bees have their own natural defense mechanism of confining beetles to the peripheral areas of the colony away from brood and pollen. When colonies become stressed and the bee population declines, the female beetles begin laying eggs in the pollen and brood area.

One small hive beetle control option available to beekeepers is the use of beetle traps placed within the hive to keep the beetle population to a minimum. There are several traps that beekeepers can manufacture or purchase. The newest trap on the market will be presented at our spring meeting in Columbia.

There are presently two pesticide products available to South Carolina beekeepers to control small hive beetles. Gardstar® is a ground drench product which is used to kill beetle larvae as they enter the soil to pupate. South Carolina has requested the renewal for the use of Check Mite+ Beehive Pest Control Strip (Al. 10% Coumaphos) for small hive beetle and varroa mite control. Currently, there is no EPA registration number for this product. All applicable directions, restrictions, and precautions on the proposed product label submitted by the state must be followed. The renewal request should be granted soon and will last for the 2006 treatment year. This will be the seventh year that South Carolina has sought and received the use of coumaphos impregnated plastic strips to be hung in beehives to control varroa mites or placed on the bottom board to control small hive beetles under section 18 of FIFRA. The treatment of small hive beetle infested
colonies with Check Mite+ should be limited to periods when daytime temperatures are 65º F or higher. At lower temperatures, beetles may not be active enough to come in contact with the strips. No treatment thresholds have been developed to recommend to beekeepers the number of beetles necessary in a colony that warrant treatment. A general guideline is - treatment is not recommended when very few adult beetles are present in a colony. If several adult beetles are present or a single beetle larva is discovered, a treatment is warranted.

Beekeepers should practice good sanitation in and around the honey house to prevent beetle problems. Wax cappings should be melted and processed timely and slum gum removed from the area. Supers of honey should be extracted within a day or so and not stored in the honey house for long periods.

**51st ANNUAL EASTERN APICULTURAL SOCIETY SHORT COURSE**

Hello and Greetings from Georgia,

The University of Georgia Honey Bee Lab, the Georgia Beekeepers Association, and Young Harris College invite you to the 51st annual Eastern Apicultural Society short course and conference at Young Harris College, July 31st – August 4th 2006. Young Harris College, founded in 1886, is a small, private, liberal arts college located in the picturesque, Appalachian mountains of northern Georgia. The mountains are breathtaking and offer numerous activities for everyone including antiquing, camping, hiking, white water rafting, horse back riding, fishing, and boating. Dorms located on campus are air conditioned with some having private bathrooms. If you choose to stay off campus, there are plenty of hotel rooms, cabins and B&Bs located within a five to ten minute drive. A cafeteria located on campus will furnish breakfast, lunch and dinner for the duration of the meeting.

If you have never been to an EAS meeting before, let me give you a little background so you know what to expect. The short course begins on Monday morning, July 31st running through Wednesday afternoon, August 2rd. The short course is a comprehensive three day program offering classes and hands-on workshops for beekeepers at all levels of experience. The conference, which is slightly different from the short course, will begin Wednesday morning, overlapping with the short course. It offers morning lectures with afternoons dedicated to show and tell demonstrations in the bee yard and how-to classes inside. There is also the Master Beekeeper program, Annual Honey Show, Honey Exchange, and a whole host of exhibitors selling all the latest in beekeeping supplies. The evening activities will include a traditional southern pig roast with all the trimmings, a low country boil, a costume ball, live music, and entertainment to showcase the many wonderful sides of beekeeping in Georgia. EAS is the largest non-commercial beekeeping organization in North America. If you want to know more about honey bees, here’s your opportunity.

Both the conference and short course will host numerous, well known speakers from around the state, the country, and the world. It's a regular Who's Who of beekeeping. Here are the speakers we have lined up so far for this year’s event. Dr. Denis Anderson, Principle Research Scientist for CSIRO in Australia; Dr. Ernesto Guzman, associate professor at the University of Guelph; Dr John Harbo, research entomologist at the USDA/ARS Honey Bee Laboratory in Baton Rouge; Dr. Dewey Caron, professor of entomology at the University of Delaware; Dr. Clarence Collison, professor and head of the entomology Department at Mississippi State University; Dr. Marion Ellis, professor of entomology at the University of Nebraska; Dr. Greg Hunt, associate professor of entomology at Purdue University; Dr. Mike Hood, professor of entomology at Clemson University; Dr. John Skinner, associate professor at the University of Tennessee; and Dr. James Tew, associate professor at Ohio State University. For more about each of these speakers and other important information please go to our website in February at [www.easternapiculture.org](http://www.easternapiculture.org).

We plan on rolling out the red carpet, southern style, so it is my hope that you will make the journey to visit our fine state and join us for EAS. It’s an experience you'll really appreciate, and one you won't find anywhere else.

Sincerely,

Jennifer Berry, EAS President 2006

**FDA APPROVES TYLAN SOLUBLE FOR THE CONTROL OF AMERICAN FOULBROOD IN HONEY BEES**

The U.S. Food and Drug Administration (FDA) has approved TYLAN (tylosin tartrate) Soluble for the control of American foulbrood (Paenibacillus larvae) in honey bees. This is the first approval for the use of TYLAN Soluble in a minor species (honey bees).

TYLAN Soluble, a product of Elanco Animal Health, a division of Eli Lilly and Company, Greenfield, Indiana, is already approved for therapeutic uses in chickens and swine and production uses in turkeys.

TYLAN Soluble is the second approved new animal drug for honey bees that controls American foulbrood (Paenibacillus larvae). FDA reviewed extensive data to ensure the product met all necessary effectiveness animal health, human food safety, and environmental standards. The approval of this supplemental new animal drug application relied on publicly available safety and effectiveness data contained in Public Master File 5783, which were compiled under the oversight of the National Research Support Project-7 (NSRP-7), a national agricultural research program for obtaining clearances for use of new animal drugs in minor animal species and for special uses. Studies were conducted by USDA's Bee Research Laboratories. FDA has concluded that the honey derived from honey bees fed tylosin tartrate is safe...
when the animals are fed according to the approved labeling.

Additional information on this approval may be obtained by contacting Joan C. Gotthardt, D.V.M., Director, Division of Therapeutic Drugs for Food Animals, FDA, Center for Veterinary Medicine, Office of New Animal Drug Evaluation, 7500 Standish Place, HFV-130, Rockville, MD 20855, 301-827-7571; e-mail:jgotthar@cvm.fda.gov.


MOTHS NABBED AT AIRPORT
Crop-Killer Species Attracts Collectors

In November federal agents ensured the safety of North Carolina's tomatoes, potatoes and honey bees by seizing a half-dozen pubescent moths named for death. Customs officers at Raleigh-Durham International Airport took the pupae of the rare moth, called the death's head hawk, from the luggage of two people arriving from England. The passengers said they were bringing the insects so their son could raise them. But the death's head hawk, large in wingspan and freakish in coloration, is unwanted in the United States. Its larva munch on plants in the potato family. Its adults sneak into bee hives and feast unnoticed, on honey.

The six pupae—a kin to a butterfly's chrysalis—were seized Nov. 4. They are the first death's head hawks known to be intercepted in the United States. "They're capable of movement. That's what tipped off the officer," said Glenn Landau, an entomologist with the U.S. Department of Agriculture who identified the pupae after their seizure. The pupae have been destroyed, dunked first in scalding water, then in alcohol.

The moths are found naturally in Africa, Asia and parts of Europe—but not in the United States. If they get a foothold here, they could wreak havoc on potato, tomato, and, possibly, tobacco plants, said Tony Pittaway, a database specialist for CAB International, an agriculture think tank in the United Kingdom. He is a specialist on the family of moths that includes the death's head hawks. They could be devastating, he said, in states such as Texas, New Mexico and Arizona. (From The News & Observer, story by Barbara Barrett)


PHYSICS OF FLYING KEEPS INSECTS AS BUSY AS A BEE WHILE IN THE AIR

Insects were the world's first aviators, and to this day their evolutionary descendants perform aerial stunts more dashing than the Blue Angels: They zip past your eyes like meteors, then hover like helicopters over flowers, then vanish out of sight before you can swat them.

Scientifically speaking, insect flight was shrouded in mystery for much of the 20th century and even now is haunted by enigmas. Studies have shown how insects fly by frantically flapping their wings and taking advantage of physical forces too microscopic to be exploited by airplanes. Now scientists are beginning to investigate how insects' brains, although extremely tiny, can manage the incredibly complex motions required for them to stay aloft.

Traditionally, scientists assumed that the basic physics of insect flight resembled the basic physics of human aviation.

For example, there's an urban legend that many decades ago, scientists analyzed the plump bodies and stubby wings of bumblebees and concluded they were too heavy to fly. Over the years, during repeated retellings of this story in schoolyards and barrooms, it acquired a punch line: "But bees don't know they can't fly, so they fly anyway."

The urban legend is based on fact: A bumblebee study was conducted in 1934 by the European scientists Antoine Magnan and Andre Saint-Lague. They applied mathematical analysis and known principles of flight to calculate that bee flight was "impossible," say insect-flight researchers Douglas L. Altshuler, Michael Dickinson and three colleagues at Caltech and the University of Nevada, Las Vegas in an article for today's issue of the Proceedings of the National Academy of Sciences.

"Since this time," the authors note, "bees have symbolized both the inadequacy of aerodynamic theory as applied to animals and the hubris with which theoreticians analyze the natural world."

The mystery of bee flight is the tip of the iceberg, though. Researchers have long struggled to understand the flight of all types of insects, from teeny fruit flies to the satanic-looking dragonflies. That's partly because insect aviation and human aviation are very different feats; the physics of the latter can't explain the physics of the former, as scientists have long known. Because of their tiny size, flying creatures like bumblebees, dragonflies, fruit flies and other insects must take into account microscopic and incredibly complex physical forces and effects that have negligible impact on 747s.

The latest example of such research is the study by Altshuler, Dickinson and their colleagues. As they report in their article, they used high-speed (6,000 frames per second) digital cameras to image the wing-flapping of honeybees leaving a hive at the University of Nevada, Las Vegas. The scientists also analyzed bee motions inside transparent acrylic chambers, where the insects made a beeline to containers of sugary fluid and pollen grains.

Their conclusions include that bees, while hovering, swing their wings over amplitudes of about 90 degrees, a narrower range than other insects. But they also beat their wings unusually quickly for insects their size. Insect-flight experts have long assumed that the smaller the insect, the faster it beats its wings; but in the case of honeybees, the creature—technically known as Apis mellifera—beats its
10mm-wide wings about 240 times per second, faster than the much smaller fruit fly, which manages only 200 beats per second.

In addition, the researchers observed how the creatures flew under stressful, high-altitude conditions when they were flying inside chambers containing a low-density mixture of oxygen and helium gases. True to the saying "busy as a bee," the bees put in a hard day's work for the scientists, who, as Altshuler's article notes, continued analyzing the little creatures until they "exhibited lethargy or disinterest."

Mathematician Laura A. Miller of the University of Utah, who works on mathematical models of insect flight, said the Altshuler team's article is "excellent ... a significant contribution to the field of insect flight aerodynamics ... (It) should motivate many future studies on comparative insect flight."

Today's paper is the latest in a series of studies on insect flight over the last decade. A key finding has been that there's a big difference between the flight of insects and the flight of airplanes.

An airplane flies because the upper part of its wing is a fixed, curved structure. That way, air flowing over the top of the wing has to travel faster, and a greater distance, in the same amount of time as air flowing under the wing. This causes the upper wing's air pressure to drop, so that the higher pressure beneath the wing forces the wing upwards -- and the plane with it. That's the basic principle behind airplane flight.

For insects, flight is much more complicated. In insects, "the morphology (shape) of the wing has almost no role," Dickinson, a professor of bioengineering at the California Institute of Technology, said in an interview. "What matters is not the shape of the wing but how the insect moves it.

That's very different from conventional (airplane) aerodynamics, where the shape of the wing is everything."

Insect wings are constantly in motion, he said, so they're more like propellers than fixed aircraft wings.

In the 1990s, crucial work in the field of insect-flight research was conducted by Charles Ellington of Cambridge University in England. He and other scientists, including Dickinson, built big "robotic" models of insects. With these mechanical critters -- "Robolly," Dickinson named one of them -- they measured the forces on different parts of the robots' wings as they flapped back and forth. Also, improved observational techniques (using miniature wind tunnels) and high-speed computers made it possible to model the dynamics of air around the flapping wings. Also in the 1990s, experimenters using sensitive observational equipment and high-speed cameras discovered that a beating insect wing forms a swirling funnel of air -- technically known as the leading-edge vortex, a kind of micro-tornado -- just above, and clinging to, the upper part of the wing. Air pressure inside the vortex is lower than surrounding air, just as air pressure inside a tornado is lower than in surrounding air. Thus higher-pressure air beneath the bug wing pushes it upward, providing lift to the insect.

But such things alone don't explain how insects stay aloft once they're airborne.

Bugs' wings also flap backward and curl while flapping. This rotational motion creates additional uplift for the same basic reason that the backspin on a soaring baseball keeps it aloft longer than it would in the absence of backspin. To be specific: Because the ball's top turns back toward the pitcher while the bottom turns away from him, air flows faster over the top than the bottom. Faster-flowing air has lower pressure. Therefore, the air pressure is lower on top of the ball, hence the higher pressure underneath the ball pushes it upward. This gives the ball "lift," which keeps it from falling back to Earth as fast as it would in the absence of backspin.

Scientists still have only scratched the surface of the puzzle of insect flight. An insect must continually flap its wings to stay aloft, and must continually alter its wing and body orientations to counteract the numerous forces that are dragging it downward. This requires more than wing agility; it also requires a sharp little brain.

"What would you need to know if you really wanted to build a fly?" Dickinson asks. "Understanding what the wings do is just a tiny part of it." If you built a robotic fly and its wing simply flapped back and forth, "the thing very rapidly crashes like a brick."

To fly, "every moment (the insect) has to be constantly figuring out: 'Am I yawing? Am I pitching? Am I rolling? Am I drifting backward? Am I falling? Am I rising? And all that information is constantly streaming into a brain the size of about a poppy seed. Understanding insect flight requires understanding how that little 'computer' works -- and that's just as essential as understanding how the wings work.

"There's still a lot of stuff to be excited about -- we're not going to solve it all in my lifetime."


BEES RECOGNIZE HUMAN FACES

Think all bees look alike? Well we don't all look alike to them, according to a new study that shows honeybees, who have 0.01% of the neurons that humans do, can recognize and remember individual human faces.

For humans, identifying faces is critical to functioning in everyday life. When we look at another person's face, a special brain region, the fusiform gyrus, lights up (ScienceNOW 14 February, 2004). But can animals
Knowing honeybees' unusual propensity for distinguishing between different flowers, visual scientist Adrian Dyer of Cambridge University in Cambridge, England, wondered whether that talent stretched to other contexts. So he and his colleagues pinned photographs of four different people's faces onto a board. By rewarding the bees with a sucrose solution, the team repeatedly coaxed the insects to buzz up to a target face, sometimes varying its location.

Even when the reward was taken away, the bees continued to approach the target face accurately up to 90% of the time, the team reports in the 2 December Journal of Experimental Biology. And in the bees' brains, the memories stuck: The insects could pick out the target face even two days after being trained. Dyer says the results challenge the idea that a specialized part of the brain is necessary to recognize a human face. "You see things in humans which you might attribute to having complex, mammalian brain, but until you go and test it in bees, you can't exclude the fact that a simple brain can do it."

It's a "neat study" that shows that bees are smarter than most people think, says cognitive neuroscientist Michael Tarr of Brown University in Providence, Rhode Island. But he believes the task the bees completed doesn't have much to do with how humans recognize each other's faces: "If they had used potatoes, I suspect they would have obtained the same result." Ethologist James Gould, who has done extensive research on how bees recognize flowers, agrees that humans have a specific evolutionary reason to be able to identify other people's faces, whereas for bees, it's just another shape and pattern. "For bees, faces are just a really strange looking flower," he says.


BRITISH COUPLE TRIED IN IMPORTED HONEY SCAM

LONDON, Nov. 24 (UPI) -- A British couple is on trial for passing off tons of cheap honey imported from Argentina and China as a more expensive English variety.

William Baker, 58, and his wife Lynn, 54, deny 12 charges of making false descriptions of food and a further 12 charges of obtaining property by deception.

Prosecutor Miles Bennett said the Bakers mixed and supplied 17.7 tons of foreign and English honey in jars labeled "Smith of Norwich," and made "honey runs" across the county, delivering the product and generating up new business.

The couple allegedly made sales to greengrocers, village shops, butchers and other Norfolk traders totaling $120,000 between 2001 and 2003.

A search of the Bakers' home found records referring to 10.8 tons of honey from Argentina, 2.9 tons from China and 6.5 tons from elsewhere in Britain, The Telegraph reported.

The investigation began when a beekeeper became suspicious about the huge quantity of honey on sale from a producer he had never heard or, the newspaper said.


AFRICAN HONEY BEES IN FLORIDA

Chief Apiarist Jerry Hayes recently sent a letter to all county managers in Florida under the signature of Agriculture Commissioner Charles Bronson, which contained the following derived from press releases and other information:

"It has become clear that the African honey bee population has gained a foothold here and will continue to grow in Florida due to its numerous pathways into the state and the lack of effective eradication products or techniques," Commissioner Bronson said. "The department, in cooperation with other agricultural stakeholders, is developing tools to protect the beekeeping industry and educate the public on how to learn to live with this potentially dangerous insect."

To date, the total U.S. fatalities due to AHB stinging incidents remain at 14. Thousands of non-fatal stinging incidents have been reported in the Southwestern U.S. which is now home to the AHB. We believe that we need to do as much as we can to protect Florida's citizens and reduce these types of insects.

One of the fundamental rules of nature is that competition for food and nesting resources keeps insect populations in check and low. If not handled properly, gentle honey bees will be artificially excluded from an area which would create an un-natural biological void or empty space in the environment. Being so closely related to gentle managed honey bees, AHB's would then fill this void because there would be no competition for food or mates and they would flourish.

In order to deter such an environmental void, of major importance to the long term mitigation of the AHB is to maintain managed European honey bee colonies in and around urban/suburban areas. Therefore, we are urging municipalities to encourage Registered Florida Beekeepers to place their gentle honey bees in those areas in the greatest numbers possible.

"Large populations of European honey bees managed by beekeepers are probably our best defense against African bees," Dr. H. Glenn Hall said. "The European honey bees compete with African bees for food sources.
When they inter-breed with the African bees, their defensive stinging behavior is reduced."

We would strongly encourage you to support and embrace Registered Florida Beekeepers in your community. They are a major part of the solution in lessening the negative impact from AHB’s and are a vital component in the successful production of fruits, vegetables and nuts that feed our growing populations."


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**RECIPIES**

**STICKY BUNS**

1 cup packed brown sugar  
½ cup honey  
½ cup butter  
1 cup coarsely chopped pecans  
½ cup sugar  
¼ cup ground cinnamon  
2 tubes (17.3 oz each) large refrigerator biscuits

In a saucepan, combine the brown sugar, honey, and butter; cook and stir until sugar is dissolved. Add the pecans. Spoon into a greased 9” x 13” baking pan. In a shallow bowl, combine sugar and cinnamon. Cut each biscuit in half; dip in cinnamon-sugar. Place, cut side down, over brown sugar mixture. Bake at 375˚ for 25-30 minutes or until golden brown. Invert onto a serving plate; serve warm. Makes 12-16 servings.


**HONEY BUTTER**

½ cup butter  
½ cup honey

Mix together until well blended.


**GRANOLA BARS**

½ cup packed brown sugar  
½ cup honey  
½ cup peanut butter  
½ cup raisins or peanuts, etc.  
3 ½ cups granola mix (can use 2 cups oatmeal, 1 ½ cup Rice Krispies)


**HONEY BBQ CHICKEN**

3 lbs. Chicken breasts or cut up chicken pieces  
1 bottle of Bull’s Eye Original BBQ Sauce  
1 cup of honey  
1 cup of brown sugar  
1 tsp. Liquid Smoke

Heat sauce until sugar is dissolved. Brown chicken breasts. Put 1 cup of sauce in bottom of 9” x 13” pan and lay browned chicken breasts on top of sauce. Pour remaining sauce over top of all chicken breasts. Bake at 350˚ for 1 hour. This recipe can also be done in a crock-pot.


Respectfully submitted,

William Michael Hood  
Extension Apiculturist
8:00 AM ..........Registration & Coffee  
   Meeting Registration Fee - $5/person or $8/family

8:30 ..................Invocation - TBA  
   Welcome & President's Comments - President Henry Chassereau, Bamberg Co.  
   Introductions & Announcements - Mike Hood, Exec. Sec. SCBA

8:45 ..................South Carolina Legislative Update - Senator John M. "Jake" Knotts, Jr., District 23, Lexington County

9:00 ..................South Carolina Department of Agriculture News - Commissioner Hugh E. Weathers

9:15 ..................South Carolina State Fair News - Cliff Ward, West Columbia

9:25 ..................Regulatory News - Fred Singleton, Apiary Inspector, Clemson University, Department of Plant Industry, Summerville

9:40 ..................Break

9:55 ..................Door Prizes

10:00 .................Business Meeting - SCBA President Henry Chassereau

10:15 .................Status of the Small Hive Beetle and Their Control - Mike Hood, Dept. of Entomology, Soils, and Plant  
   Sciences, Clemson University

10:45 .................How to Prepare Honey and Other Hive Products for Competition - Steve Genta

11:15 .................Upcoming Events for 2006; EAS and UGA Research - Jennifer Berry, Research Coordinator, UGA, Athens

11:45 .................Word from Our Vendors

11:55 ..................Lunch On Your Own

1:10 PM ............Door Prizes

1:15 ..................The California Pollination Connection, Commercial Beekeeper Eric Mills, Timmonsville

1:45 ..................Honey House Construction and Maintenance, Commercial Beekeeper Ronald Moore, Pamplico

2:15 ..................Queen Issues and More, Mike Hood, Clemson University

2:45 ..................Final Comments and Questions for Speakers, President Henry Chassereau

3:00 ..................END - Have a Safe Trip Home & See You in Clemson on July 20-22.

*SCBA Executive Committee will meet at end of meeting.
Please mail your change of address to: News for SC Beekeepers, Tammy P. Morton, 116 Long Hall, Clemson University, Clemson, SC 29634-0315.

Name: 

Address: 

City: ___________________________ State: ______ Zip Code: ______________________

County: _________________________ Phone number: (____) ___________________________

E-mail address: ________________________________