News For South Carolina Beekeepers

February 2011 **Vol. 22, No. 1**

LOCAL NEWS

SPRING MEETING. The South Carolina Beekeepers will meet jointly with the North Carolina Beekeepers on 4-5 March 2011. The meeting will be held at Gaston College (210 Hwy 321 South, Dallas, NC 28034) which is near Gastonia, NC. **Directions**: Take I-85 Gastonia exit 17 toward Lincolnton. Turn left at US-321 North (N. Chester Street) and go about 1.5 miles, then take the exit toward Gaston College. Turn left at Grier Beam Blvd. At the traffic circle, take the 3nd exit onto Life Skills Lane. Turn left at Safety Officers Drive. Take the 1st left to stay on Safety Officers Drive.

This will be a very informative meeting and we hope to have a good turnout of South Carolina beekeepers. You will find in this newsletter a meeting program. The executive committee of the South Carolina Beekeepers will have a meeting at 11:00 on Friday, 4 March. The meeting program will begin at 1:00 with a general session and the evening program will feature Larry Connor who will give the keynote address titled “The Problem with Queens.” A general session will kickoff the program on Saturday morning and it will be followed by workshops that will continue into the afternoon. See the program in this newsletter for further details.

You will find a pre-registration form included in this newsletter. You will want to complete the form and mail it along with your check 10 days prior to the meeting, otherwise you will be charged an extra $5 fee for onsite registration. Lodging is your responsibility, so check out the large selection of hotels that are listed at the bottom of the pre-registration form. Hope to see you soon at Gaston College. If you have any questions about the meeting program, travel, or lodging, please give me a call at 864-656-0346 or email: mhood@clemson.edu.

SUMMER MEETING. The South Carolina Beekeepers will meet at Clemson University on 14-16 July 2011. The meeting will begin on Thursday, 14 July, at 1:00 with an intermediate level beekeeper short course and a queen rearing short course held separately. Out-of-state speakers for this meeting include Keith Delaplane from the University of Georgia, Debbie Delaney from the University of Delaware, Jeff Harris from the Baton Rouge USDA-ARS Bee Lab, and Juliana Rangel from NC State University. Make plans now to attend this meeting.

GENETIC WEAPON DEVELOPED AGAINST HONEYBEE-KILLER

By Victoria Gill
Science and nature reporter, BBC News

Researchers have developed a genetic technique which could revitalise the fight against the honeybee's worst enemy - the Varroa mite.

The method enables researchers to "switch off" genes in the Varroa mite, a parasite that targets the honeybee.

The scientists say this could eventually be used to force the mites to "self-destruct".

The treatment is now at an early, experimental stage but could be developed into an anti-Varroa medicine.

Varroa destructor is widely accepted to be the major pest affecting the European honeybee, and has been linked to a worldwide decline in these important pollinating insects.

Dr Giles Budge from the National Bee Unit in Yorkshire, who was involved in the study, said the mites operated a particularly "severe form of parasitism".

The human equivalent, he explained, would be having "an organism on your back that's about the size of a dinner plate, which creates a hole through which it can feed and through which its family can feed".

"The hole doesn't seal up - they drink blood through it and inject viruses into it."

To tackle this particularly nasty pest, bee researchers and parasite specialists came together to harness a method called RNA interference (RNAi).

This involves putting a tiny chunk of genetic code into an organism. This code cancels out a specific gene, essentially switching it off.

The researchers added this piece of genetic material to a solution that they soaked the Varroa mites in.

They described in the journal Parasites and Vectors that, via this soaking, their experimental treatment found its way into the mites and switched off the gene they were targeting.

Fool-proof

Dr Alan Bowman from the University of Aberdeen led the research.

He told BBC News that the approach "fooled the immune system of the mite" into attacking itself.

Dr Budge explained that this proved it was possible to "control gene expression in the mite".

"In the experiment, we've targeted a non-lethal gene. Because we were able to monitor if we have successfully silenced it.“

"Now, we'll be looking to target genes which, when we silence them, the mite won't be able to function."

In the coming years, the researchers hope to develop this into a medicine, which could be added to the bees' food in order to protect them against Varroa.

"The mites hide in the food that is being provided by the other bees in the colony for honeybee larvae," Dr Budge explained.

"They will hide for several days in that food, so [a beekeeper could] put the treatment into the brood food and the mite, through its normal behaviour, would come into contact with that treatment."

This could solve a conundrum for beekeepers - how to tackle the mites without damaging the bees they live so intimately with.

Currently, beekeepers use chemicals, or mitocides, in carefully controlled doses to control the parasite. They even use trapping methods - physically removing mites from hives.

Dr Bowman said: "This [new method] can target the mite in the hive.

"It would be completely selective - it wouldn't target the bees and wouldn't affect any other pollinating insects, such as ladybirds."

Professor Francis Ratnieks, a bee researcher from the University of Sussex, cautioned that it would be a long time before this technique could be applied in the control of Varroa.

"It may be possible to use gene knockout techniques such as RNAi to learn more about the physiology of pests and to use this to develop ways of controlling them, maybe by the development and application of novel pesticides," he said.

"But to do this is a huge undertaking involving [many years] of testing and certification."

SOURCE: BBC NEWS: http://news.bbc.co.uk/go/pr/fr/-/earth/hi/earth_news/newsid_9306000/9306572.stm

FLOWER SHARING MAY BE UNSAFE FOR BEES

Eleven species of wild pollinators in the United States have turned up carrying some of the viruses known to menace domestic honeybees, possibly picked up via flower pollen.

Most of these native pollinators haven't been recorded with honeybee viruses before, according to Diana Cox-Foster of Penn State University in University Park. The new analysis raises the specter of diseases swapping around readily among domestic and wild pollinators, Cox-Foster and her colleagues report online December 22 in *PLoS ONE*.

Gone are any hopes that viral diseases in honeybees will stay in honeybees, she says. "Movement of any managed pollinator may introduce viruses."

A pattern showed up in the survey that fits that unpleasant scenario. Researchers tested for five viruses in pollinating insects and in their pollen hauls near apiaries in Pennsylvania, New York and Illinois. Israeli acute parasitic virus showed up in wild pollinators near honeybee installations carrying the disease but not near apiaries without the virus.

In domestic honeybees, such viruses rank as one of the possible contributors to the still-mysterious malady known as colony collapse disorder that abruptly wipes out a hive’s workforce, Cox-Foster says.

Now she and others are looking at what the viruses do to wild pollinators. Preliminary results of ongoing lab tests show some disturbing effects, Cox-Foster says. “Is this part of the reason why we’ve seen the decline of native pollinator species in the U.S.?” she muses.

Surveys show that wild bumblebees, for example, are dwindling in numbers, and the new study raises further concerns. “We recognize that those viruses likely pose a major threat to wild bumblebees,” says Sarina Jepsen of the Xerces Society, an invertebrate conservation group in Portland, Ore.

One of the most interesting results in the study is the detection of deformed-wing virus and sacbrood virus in pollen carried by foraging bees that weren’t infected themselves, comments Michelle Flenniken of the University of California, San Francisco, who has studied bee viruses but was not involved in the new work.

Healthy foraging insects carrying virus-laden pollen are one of the pieces of evidence that Cox-Foster and her colleagues use to argue that pollen by itself can transmit viral infections. “Knowing that viruses are found in and can be transmitted from pollen is an important finding,” says Flenniken.

This raises concerns about possible virus transmission through the 200 tons of honeybee-collected pollen used to feed bumblebees in bee-raising operations worldwide, Cox-Foster says.

SOURCE: Science News

USA - MAKE THE AUSTRALIAN BEE BAN PERMANENT

Editorial written by Kim Flottum, Editor, Bee Culture Magazine

Recently APHIS halted imports of honey bees from Australia into the U.S. They cited as a reason reports of a virus found in Australia, but not in the U.S., slow paralysis virus. After a short time, they released a report that said simply all imports were temporarily banned, citing no specific reason. This is good, but below I propose over 300 reasons why this ban should remain in effect - forever.

Let me share a bit of history on quarantines in this country. When tracheal mites were first discovered in the U.S. over 25 years ago, quarantines were set up by APHIS to stop the spread. Thousands of colonies were "depopulated" in an effort to slow or stop the spread of this creature in the southern U.S. Texas beekeepers closest to the Mexican border where the mites were found went out of business. Queen and package operations went out of business because they were banned from selling bees outside the quarantine zone.
In California, beekeepers protected by the quarantine zones fought to keep their bees clean and restrict travel of those living outside the no-mite zone. Once friends, now enemies had fist fights in their efforts to keep the dirty bees from mixing with those believed clean. Twenty years later, the few who survived still have not forgotten, nor forgiven the trespasses of their neighbors.

The sad thing was…tracheal mites moved where ever there were bees. All the fights, the lines drawn in the sand, and rules and regulations…were for naught. Mites, and the bees that carry them are immune to state and country borders, written rules, and lines in the sand.

When Varroa mites were found in Florida and Wisconsin a few years later the same scenario was played again. Colonies were "depopulated", beekeepers put out of business, friends became enemies, and still the mites and the bees that carried them went wherever they wanted to go.

African honey bees….it's the same story. They go where they want to go. No rules, no human interference will ever stop a mite, or a bee from moving from there to here. And that same story is being played in Australia with *Apis cerana*. Since its first excursion into that country, over 300 swarms have been captured. 300. Hundreds of people have been chasing it for years, and still it goes where it wants to go. These bees are no better at reading the lines in the sand in that country than the bees here.

The band aid Australian bees have been to solve the mess in almonds each year has kept everyone here blind to the biological facts that exist. The science says that *Apis cerana* will spread in Australia to every corner in that country and eventually to every corner in this country. Not this year, maybe, but some year soon if the ban is lifted.

Did you know there were several strains of *Apis cerana*? I suspect most people don't. But there are. The strain in Australia is called the Java strain. It is different from its cousins found in southeast Asia that can be kept in boxes, are not aggressive and will yield a small surplus of honey. This is the strain most often encountered by U. S. beekeepers because they are in apiaries. And this is the reason so little resistance to this bee has been felt so far when it is mentioned that they may come to our shores…"Oh, I've worked those bees. They're gentle and cute, and I don't see the problem", has been heard so often that people are beginning to believe it.

Don't for a moment believe the bees in Australia are anything like that. NOT FOR ONE MOMENT! The difference between the cerana bees in Australia and the bees in Thailand and Japan is the difference between the honey bees in your back yard and a nest of yellow jackets…or African honey bees.

The Java strain of this beast is not gentle. In fact they are aggressive and dangerous. They cannot be kept in boxes, so live in small places that cause all manner of problems for home owners, mailboxes, water boxes and the like. They abscond at the slightest disturbance, and they do not produce any surplus of honey at all. Like their very distant African cousins, they turn all the food they collect into more swarms. And they do collect a lot of food…food honey bees could be collecting and storing. Moreover, they nest in places no other bee will nest, and beekeepers have no incentive at all to remove them or to even collect swarms. Who will the public turn to when stinging incidents occur with increasing frequency? Further, reports from Australia talk of the swarms actually taking over bird nests for the cover, and killing the birds that lived there. The Audubon folks will have something to say about that.

Beekeepers and growers in this country do not want to contend with another pest. The science exists that says this bee will be counterproductive to beekeeping in this country, to the pollination business in this country, to the safety of the citizens in this country, and to the balance of pollinators in this country. What they will eat is food a native pollinator or your honey bees would have eaten. And over 300 swarms caught with no end in sight in Australia so far, with the government considering the task too great to handle and abandoning the hunt altogether argues that even they cannot handle the problem.

So should we continue to import bees from Australia when the history and science of containing any creature has always failed? My answer is no.

And here's one more thought on this Christmas Eve. Look closely at those who seek to continue this practice. Have they considered the long term effects of this effort? And look, too, at the suits that will write the rules and regulations and hold that the science is not good enough to keep the ban in place…will their jobs and pensions and personal status suffer when, not if, the lines in the sand are crossed once again? Beekeepers will go out of business. Bees will be regulated to death. And beekeeping businesses and suppliers will suffer. But the suits…There is no arguing when they say…"we weren't funded enough to keep the lines in place, and beekeepers simply violated the rules."

That's been the reason for every failure so far, and every attempt has failed. Why would it be different this time?

APHIS initially said that bees from Australia could come into the U.S. as long as there was only one species of Apis on the Australian land mass. When that changed, APHIS believed the Australians when they said it didn't matter. Three hundred swarms later Australia is rethinking that statement. Aphis made a wise decision to halt imports of Australian bees. Maintaining that ban forever is the next wisest thing they can do.

SOURCE: http://www.apinews.com/en/component/k2/item/12852

CRYSTALLIZATION OF HONEY

By
Khalil Hamdan, Apeldoorn, the Netherlands

Regular contributor Khalil Hamdan turns his attention to a subject that is little understood by the average consumer. Honey crystallization or granulation is a natural phenomenon by which honey turns from liquid (runny) state to a semi-solid state. Beekeepers refer to this as set honey.

Crystallization of honey is little understood by the consuming public. Many assume crystallized honey to be an adulterated or unnatural product. That is not so, the crystallization process is natural and spontaneous. Most pure raw or unheated honey has a natural tendency to crystallize over time. Crystallization does not affect the honey except for colour and texture. Crystallized honey is not spoiled and preserves the flavor and quality characteristics of the liquid honey. Some honey users like it in this state as it is easy to spread on bread or toast without dripping off and the taste is richer.

Honey is a highly concentrated sugar solution. It contains more than 70% sugars and less than 20% water. There is much sugar in honey relative to the water content. This means that the water in honey contains more sugar than it could naturally hold – it is supersaturated. The overabundance of sugar makes the solution – the honey – unstable.

The two principal sugars in honey are fructose (fruit sugar) and glucose (grape sugar). The content of fructose and glucose in honey varies from one type of honey to another. Generally, the fructose ranges from 30-44% and the glucose from 25-40%. The balance of these two major sugars is the main reason that leads to crystallization of honey. The relative percentage of each determines whether it crystallizes rapidly or slowly. In fact, it is the glucose that crystallizes, due to its lower solubility. Fructose is more soluble in water than glucose and will remain fluid. When glucose crystallizes, it separates from the water and takes the form of tiny crystals. More glucose crystallizes and those crystals spread throughout the honey. The solution changes to a stable saturated form, and ultimately the honey becomes thick or crystallized.

Some honeys crystallize uniformly; some will be partially crystallized and form two layers, with the crystallized layer on the bottom of the jar and a liquid layer on top. Honeys also vary in the size of the crystals formed. Some form fine crystals and others large, gritty ones. The more rapid honey crystallizes, the finer the texture will be. Crystallized honey tends to set a lighter/paler colour than when liquid. This is due to the fact that glucose sugar tends to separate out in dehydrating crystal form, and that glucose crystals are naturally pure white. Darker honeys retain a brownish appearance.

How fast will honey crystallize?

Different types of honey will crystallize at different rates. Some honey crystallizes within a few weeks after extraction from the combs, whereas others remain liquid for months or years. The following factors influence the speed of crystallization:

- the nectar source collected by bees (the sugar composition of honey),
- the methods in which honey is handled (processed),
- the temperature in preservation.

The time it will take the honey to crystallize depends mostly on the ratio of fructose to glucose and the glucose to water ratio. Honey high in glucose sugar, with a low fructose to glucose ration, will crystallize more rapidly. Honey from alfalfa, cotton, dandelion, mesquite, mustard and rape (*brassica napus*) will fall into this category. Honey with a higher fructose to glucose ratio (containing less than 30% glucose) crystallizes quite slowly and can stay liquid for several years without special treatment, for example, robinia (black locust), sage, longan, tupelo and jujube/sidr (*ziziphus spina-christi*).

The higher the glucose and the lower the water content of honey, the faster the crystallization. Conversely, honey with less glucose relative to water is a less saturated glucose solution and is slow to crystallize.

Honey with heightened water content often crystallizes unevenly (not as a homogeneous mass) and separates into crystallized and liquid parts.

The speed with which honey crystallizes depends not only on its composition, but also on the presence of catalysts, like seed crystals, pollen grains and pieces of beeswax in the honey. These minute particles serve as nuclei for crystallization. Raw honey (unheated and unfiltered) contains bits of wax, pollen and propolis, and crystallizes faster. Honey that has been processed (e.g. heated and filtered) will remain in its liquid form longer than raw honey due to the elimination of nuclei. Honey prepared for commercial market is usually heated and filtered. Heating and filtration of the honey dissolve any sugar crystals and remove foreign particles that might be present in it. Therefore, the crystallization is hindered.

Honey crystallization is most rapid around 10-15°C (50-59°F). At temperature below 10°C (52°F) the crystallization is slowed down. Low temperature increases the viscosity of honey (honey is thicker when cool), and this retards the formation and diffusion of crystals. Honey resists crystallization best at higher temperatures more than 25°C (77°F). When the temperature is 40°C (104°F) the crystals dissolve.

It is important to note that temperatures above 40°C (104°F) will damage the properties of honey.

The table below shows the relative speed of crystallization in descending order of various honeys.

Relative crystallization speeds of various honeys	
Honey Type	Crystallization
Australian acacia	Very slow
Black locust (*Robinia pseudoacacia*)	Very slow
Cranberry	Very slow
Litchi	Very slow
Longan	Very slow
Milk vetch (*Astragalus*)	Very slow
Milkweed (*Ascelpia syriaca*)	Very slow
Sage (*Salvia officinalis*)	Very slow
Sidr/jujube	Very slow
Tulip poplar	Very slow
Tupelo	Slow
Bell heather (*Calluna cinerea*)	Slow
Blackberry	Slow
Borage (*Borago officinalis*)	Slow
Buckwheet	Slow
Chestnut (*Castania sativa*)	Slow
Citrus (Orange blossom honey)	Slow
Eucalyptus	Slow
Fireweed (*Epilobium angustifolium*)	Slow
Linden/lime/basswood (*Tilia*)	Slow
Maple (*Acre* spp.)	Slow
Hawthorn (*Crataegus* spp.)	Slow
Nodding thistle (*Carduus nutans*)	Slow
Rosemary	Slow
Sourwood (*Oxydendrum arboreum*)	Rapid
Spanish Lavender (*Lavendua Stoechas*)	Rapid
Thyme (*Thymus vulgaris*)	Rapid
Alfalfa	Rapid
Apple, pear, plum and cherry	Rapid
Clover (*Trifolium*)	Rapid
Cotton	Rapid
Dandelion	Rapid
Lavender (Common lavender)*	Rapid
Phacelia (lacy or tansy phacelia)	Rapid
Field bean (*Vicia faba*)	Rapid
Goldenrod (*Solidago*)	Rapid
Holly (*Ilex aquifolium*)	Rapid
Ivy (*Hedera Helix*)	Rapid
Mesquite (*Prosopis* spp.)	
Mustard	
Oilseed rape	
Raspberry	
Star thistle (*Centaurea solstitialis*)	
Sunflower	
Wild thyme (*Thymus serpyllum*)	

*Temperature dependent tending to crystallize quickly when stored below 21-23°C (70-75°F). If it is stored at higher temperatures such as 23-32°C (75-90°F) it usually does not crystallize very quickly.

Liquefying crystallized honey

Crystallized honey can be brought back to liquid consistency by gently heating it in a hot water bath (Bain Marie) or warming cabinet (box) until the honey re-liquefies. Heating should be applied indirectly, not by direct flame to a container.

The temperature in the beehive is about 35°C (95°F) and can rise to 40°C during summer periods when bees are ripening honey. In order to liquefy honey, it is best to heat it at 35-40°C (95-104°F). The temperature should not go beyond 40°C (104°F) to avoid overheating. Overheating honey for any period of time will reduce its quality by destroying its enzymes, lead to loss of the delicate flavour, aroma and darkening the honey colour. Heating must be done with care if the nutritional value of the honey is not to be spoiled. It is possible to re-liquefy crystallized honey without damaging its quality by the methods described below.

Hot water bath

Heat a saucepan, filled with enough water to reach the level of honey in the jar, to 35-40°C (95-104°F), then remove it from the heat or turn off the heat. Take the lid off of the honey jar and immerse the jar in the water. Let it stand for about 20-30 minutes. The heat will slowly

dissolve the glucose crystals and the contents will become liquid again. Stir occasionally to distribute the heat evenly throughout the honey, as crystallized honey is a poor conductor of heat. Replace the hot water if needed. Remove the jar of honey from the water bath when honey becomes liquid again.

This works well with honey in glass jars, but no so well with plastic containers. They can warp or melt. If honey is packaged in a plastic container set in warm water, not hot water. Honey in a plastic bucket can be re-liquefied by transferring or scooping it into glass jars, and using the above process.

Honey warming cabinet

Another method to re-liquefy honey on a small scale is to heat it in a warming box with a 40 watt light bulb until it is liquid. This is a slow process and may take 12-48 hours. The ideal box temperature is between 35-40°C, although some beekeepers use higher temperature to speed up liquefaction of the honey. A lower temperature for a longer time is better for the honey. When the honey to be re-liquefied is in buckets, stir the bucket from time to time to speed up the process.

A warming cabinet can be an insulated wooden box or a modified old refrigerator fitted with an electric light bulb at the base as the heat source and a thermostat to monitor the temperature. It is suitable for decrystallizing a stack of honey jars, or one or two buckets of 13 or 14 kilos (30 lb.).

Building a warming box for your honey is easy. Basically, the process of construction is to heat the space with a light bulb which provides a constant, steady, safe heat source. For information regarding making a honey heater, see the links below.

Avoiding crystallization

- Store honey at room temperature in tightly closed containers.
- The optimum temperature for storing honey is 21 to 27°C (70-80°F).
- Avoid storing honey in cold temperatures of 11 to 18°C (52-64°F), which is ideal for crystal formation.
- Don't store in refrigerators which accelerate the process of crystallization.
- Filter honey through 80 micro filter, or pass it through one or more sheets of fine nylon cloth supported with a wire sieve to remove any small particles such as pollen grains, flecks of wax, crystals and air bubbles that could initiate crystallization.
- Heat honey in a double boiler or in a hot air to 40°C or 104°F to melt any sugar crystals which may be present and delay crystallization.
- Check the temperature with a candy thermometer to avoid the risk of overheating.

Packers of supermarket honey in the US heat liquid honey to 63°C (145°F) for thirty minutes, or 71°C (160°F) for one minute or so (flash heat) and then it is quickly cooled at 49-52°C (120-125°F) for minimization of heat damage. This high temperature kills the yeast cells that cause fermentation and keeps honey from crystallizing on the shop shelf for a long period of time. The resulting honey contains very little of the nutritional value of minimally processed or raw honey including amino acids, minerals, vitamins, live enzymes, and the antioxidants that are considered essential for good health.

When storing supers of empty combs for winter it is important to get your supers thoroughly cleaned after the extraction of the honey. Place them back on the hive for the bees to clean the residual honey from the cells and store it in the brood chamber. Extracted combs stored with traces of wet honey can form micro-crystals causing next year's honey to crystallize prematurely.

Note

Using an inner hive cover with an open feeder hole between the wet supers and the brood chamber makes the bees more likely to move the honey below it.

Related Books

CRANE, E. (1979) *Honey: A Comprehensive Survey.* Heinemann, London.

CHAPMAN, R. *How to Make a Warming Cabinet (Box) for two Honey Buckets* (A BeeCraft Publication).

Links

Building a Honey Heater
"In the Beekeeper's Work Shop"

SOURCE: Bee World, Volume 87, Issue 4, December 2010. Reprinted with permission.

Calendar for 2011

Mar. 4-5, 2011. NCSBA/SCBA Joint Meeting to be held in Gastonia, NC

July 14-16, 2011. SCBA Summer Meeting to be held at Clemson University

RECIPE CORNER

HONEY ROASTED NUTS

Makes 3 cups

- 3 cups nuts
- 1/2 cup honey
- 2 Tablespoons butter or margarine
- 1/2 teaspoon grated orange peel
- 1/2 teaspoon ground cinnamon

Combine all ingredients; mix well. Microwave at HIGH (100%) in 600 to 700 watt microwave oven 4 to 7 minutes or until nuts are toasted, stirring halfway through cooking time. Spread nuts on foil to cool.

SOURCE: http://www.honey.com/nhb/recipes

CINNAMON HONEY BUNS

Makes 12 buns

- 1/4 cup butter or margarine, softened and divided
- 1/2 cup honey, divided
- 1/2 cup chopped toasted nuts, optional
- 2 teaspoons ground cinnamon
- 1 lb. frozen bread dough, thawed according to package directions
- 2/3 cup raisins

Grease 12 muffin cups with 1 Tablespoon butter. To prepare honey nut topping, mix together 1 Tablespoon butter, 1/4 cup honey and chopped nuts. Place 1 teaspoon topping in each muffin cup. To prepare filling, mix together remaining 2 Tablespoons butter, remaining 1/4 cup honey and cinnamon. Roll out bread dough onto floured surface into 18 x 8-inch rectangle. Spread filling evenly over dough. Sprinkle evenly with raisins. Starting with long side, roll dough into log. Cut log into 12 (1-1/2-inch) slices. Place 1 slice, cut-side up, into each prepared muffin cup. Set muffin pan in warm place; let dough rise for 30 minutes. Place muffin pan on foil-lined baking sheet. Bake at 375°F. 20 minutes or until buns are golden brown. Remove from oven; cool in pan 5 minutes. Invert muffin pan to remove buns.

SOURCE: http://www.honey.com/nhb/recipes

FAT-FREE HONEY HERB DRESSING

Makes 1/2 cup

- 1/4 cup white wine vinegar
- 1/4 cup honey
- 2 Tablespoons chopped fresh basil or mint
- 1 Tablespoon minced green onion
- Salt and pepper, to taste

In small bowl, combine all ingredients. Mix well

SOURCE: http://www.honey.com/nhb/recipes

HONEY GINGER ROASTED PORK

Makes 6 servings

- 1/4 cup honey
- 2 Tablespoons cider vinegar
- 2 Tablespoons fresh ginger root or ground ginger, grated
- 2 to 2-1/4 lbs. boneless pork loin roast, whole

Combine honey, vinegar and ginger; mix well. Sprinkle pork with salt and pepper; brush generously with honey mixture. Bake at 325°F about 1 hour or to 170 degrees internal temperature. Brush with honey mixture every 15 minutes. Let stand 10 minutes before slicing.

SOURCE: http://www.honey.com/nhb/recipes

CANDIED YAMS

Makes 8 servings

- 6 yams, sliced and cooked
- 2 Tablespoons cornstarch
- 1-1/2 cups honey
- 1/8 teaspoon salt
- 1-1/2 cups water

Combine all ingredients in medium saucepan and cook on medium-low heat until clear. Pour over cooked sweet potatoes and bake at 400°F until brown.

SOURCE: http://www.honey.com/nhb/recipes

BROWN RICE PUDDING

Makes 6 servings

- 1-2/3 cups Water
- 2/3 cup brown rice
- 2 large eggs
- 1/3 cup honey
- 1/4 teaspoon salt
- 3/4 cup milk
- 1 cup plain yogurt
- Nutmeg or cinnamon

In medium saucepan, bring water to a boil. Stir in rice. Cover. Reduce heat and simmer until rice is tender (about 35 minutes). Beat together eggs, honey, salt and milk. Stir in yogurt and hot rice. Pour into 1-quart baking dish. Sprinkle with nutmeg or cinnamon. Set dish in pan of hot water. Bake at 350°F, 50 to 60 minutes or until barely set. Cool. Top each serving with desired accompaniments.

HONEY 'N' FRUIT TEA

Makes 6 servings

- 4 tea bags
- 1 cup boiling water
- 1/2 cup honey
- 1/4 cup crushed mint leaves, packed
- 1 cup orange juice
- 3/4 cup pineapple juice
- 1/4 cup fresh lime juice
- 1-1/2 quarts carbonated water
- Ice cubes

Steep tea bags in boiling water 10 minutes. Remove tea bags. Add honey and mint; mix well. Add fruit juices and refrigerate until ready to use. Fill a 12 oz. glass with ice cubes. Add 1/2 cup fruit juice mixture and fill glass with 1/2 cup carbonated water.

Tip: *Finishing tip: Garnish each drink with a pineapple spear.*

SOURCE: http://www.honey.com/nhb/recipes

Respectfully submitted,

William Michael Hood,
Extension Apiculturist

ADVANCE REGISTRATION FORM

2011 SPRING MEETING—March 4 & 5, 2011

Gaston College, Dallas, NC

Joint meeting --North Carolina State Beekeepers and South Carolina Beekeepers

Please Print:

NAME (last) _____(first) _____ I D #: _____

(spouse is member) (last)_____ (first) _____ I D #: _____

(children of the family) (first)_____ (first) _____ (first) _____

ADDRESS: (street) _____(city)_____ (state)____ (Zip) _____

Email address: _____@_____ Phone (_ _ _) - _ _ _ - _ _ _ _

County of Residence in NC_____ NCSBA Local Chapter _____

REGISTRATION FEE

Individual Registration (NCSBA or SCBA member) $20.00 _____
Family Registration (NCSBA or SCBA member) $25.00 _____
Non-NCSBA individual member registration $35.00_____ (includes annual member dues)
Non- NCSBA family registration $40.00_____ (includes one annual member dues)

SCBA and VABA members are not required to join the NCSBA, but may join if you choose. You will need to furnish SC/VA Beekeepers verification.

VENDORS: All vendors need to register and request number of tables _____ or space _____
Contact Harry Strand- <hlstrand@embarqmail.com> (there is no charge for tables or space)

Notes on DUES for the NCSBA:

(If you have not paid your Annual dues for the YEAR 2011, you are an INACTIVE NCSBA member and you must pay your 2011 Annual dues to Register)
(If you are not an NCSBA member, Annual dues are included with registration)
(If you have paid your 2011dues at the Local Chapter or directly to the NCSBA, you need to furnish your current membership card as this will show verification of your 2011 current membership.

Annual 2011 NCSBA Membership - $15.00 _____
Annual Commercial Membership - $30.00 _____

HOTELS – ***Hotels are at I 85, Exit 20- Members are responsible for making their own reservations. Note –Cutoff date for these rates is Feb 18, 2011 unless extended by the hotel.***

Courtyard by Marriott (704) 852-4411 or (800) 891-3766 (Beekeepers rate) $70.00 + Tax

Fairfield by Marriott (704) 867-5073 or (800) 891-3955 (Beekeepers rate) $65.00 + Tax

Hampton Inn (704) 825-6100 (ask for Beekeepers rate) $70.00 + Tax -also see web site

Holiday Inn (at I-85 Exit 17) (704) 884-3300 (ask for Beekeepers rate) $79.00 + Tax

Comfort Suites (704) 865-6688 (ask for Beekeepers rate) $68.00 + Tax

Sheraton Inn (at I-85 Exit 33) (704) 392-1200 (ask for Beekeepers rate) $49.99 + Tax

Rates are valid for March 4,5, and 6, 2011 **Note: Tax rate is 13.75%**

Mail pre-registration forms to:
NCSBA, Attn: Laurie Shaw, 605 Poole Drive, Garner, NC 27529

OFFICE USE ONLY

How Paid: Cash _____ Check # _____ Date Paid _____

Received by: _____ TOTAL PAID _____ **1/16/2011**

North Carolina State Beekeepers Association
Spring Meeting March 4- 5, 2011
Gaston College

Friday, March 4, 2011

8:00-10:00 a.m.	Open for vendor setup ..... Myers Center Café area
10:00 a.m.	Registration opens..... Myers Center Lobby
11:00 a.m.	**Executive Committee Meetings (NCSBA and SCBA)** ..... Rauch Science and Fine Arts Building
1:00 p.m.	Opening Session..... Myers Center Auditorium Call to Order / Welcome..... Jeanne Price, *President NCSBA* Invocation..... TBD
1:15 p.m.	**Presidents Report** NCSBA..... Jeanne Price, *President NCSBA* SCBA ..... Wes Boomer. *President SCSBA*
1:30 p.m.	**NC Extension update**..... Dr. David Tarpy, *Professor, NC State University*
1:45 p.m.	**NC Apiary inspectors report**..... Don Hopkins, *NC Head Apiary Inspector* **SC Apiary inspectors report**..... Fred Singleton, *SC Head Apiary Inspector*
2:15 p.m.	**SHB Research at Clemson**..... Dr. Mike Hood, *Professor Clemson University*
2:45 p.m.	Break
3:10 p.m.	Door prizes
3:15 p.m.	**Honey Bee Health Issues and Breeding for Resistance** ..Dr. Greg Hunt, *Professor, Purdue University*
4:00 p.m.	**Marketing outside the beehive** ..... Virginia Webb
4:45 p.m.	Panel Discussion: Dr. Hood, Dr. Connor, Dr. Hunt, Don Hopkins, Fred Singleton
5:30 p.m.	Recess for dinner on your own
7:00 p.m.	Keynote address - **<u>The problem with queens</u>** ..... Dr. Larry Connor, *Owner, Wicwas Press and Bee Culture Magazine Contributor* ..... Myers Center Auditorium

Saturday, March 6

8:30 a.m.	Opening Session..... Myers Center Auditorium Welcome ..... Danny Jaynes, *1st Vice President NCSBA* Door Prizes
8:45 a.m.	**Biology driven beekeeping** ..... Dr. Larry Connor
9:30 a.m.	Break and visit the vendors
9:40 a.m.	**South Carolina Business meeting** ..... Myers Auditorium
10:00 a.m.	Workshops ..... Rauch Building (see schedule in packet)
11:00 a.m.	Workshops ..... Rauch Building (see schedule in packet)
11:45 a.m.	Visit Vendors & Lunch on your own
1:00, 2:00, 3:00	Workshops ..... Rauch Building (see schedule in packet)
4:00 p.m.	Conference Ends – Drive Home Safely

Spring Meeting Workshops

Specific times and locations to be announced

Saturday workshops in the Rauch Building	
Workshop	**Presenter**
Africanized Bees update	Dr. Greg Hunt
Trapping Small Hive Beetles	Dr. Mike Hood
MBP Written Examinations	MBP Committee
Nosema detection with a microscope - training Preregistration required	Glen Hackney
“Hivetracks” demonstration	Dr. James Wilkes
Preparing Products of the Hive for Competition and Sale	Danny Jaynes
Skep Beekeeping	Richard Flanagan
Bees wax candle making	Virginia Webb
Bees wax ornaments and other wax products	Virginia Webb
Inspecting your hive like an inspector	North Carolina Bee Inspectors
Marking and Identifying Queens	North Carolina Bee Inspectors

Clemson University
Dept. of Entomology, Soils, & Plant Sciences
Attn: Tammy P. Morton, Editor
"News for SC Beekeepers"
Box 340110
116 Long Hall
Clemson, SC 29634-0110
Phone: 864-656-3111
Fax: 864-656-0274
e-mail: tmrtn@clemson.edu

ADDRESS SERVICE REQUESTED

Please mail any questions you make have to: News for SC Beekeepers, Tammy P. Morton, 114 Long Hall, Clemson University, Clemson, SC 29634-0315 or call the number listed above.