Our next meeting will be held on **Thursday December 10th** from 7:00 - 9:00 p.m. at the Whittier Community Center. Member and non-members are welcome to join us for our annual holiday potluck dinner! Bring a friend and enjoy the scrumptious food and music! For more information or for potluck food ideas, contact Lynn Jones at phone 743-7818.

Our **January 14th** meeting will shift to a new location! Our 2010 meetings will held at the Jackson Extension Center on 538 Scotts Creek Rd in Sylva.

**Directions to the Jackson Extension Center** - Take exit 85 from the highway. Turn right at the stop sign and head toward town. At the 1st stoplight turn right on Hospital road. Follow Hospital road all the way down past the hospital until you reach the corner of Scotts Creek road and Hospital road. Look for the Jackson Community Service Center building on the right. The bee meeting will be held on the 2nd floor in room 234 of the Extension Center.

**Give Thanks** - Many thanks to Kelley Penn (Vice President) and Quintin Ellison (Secretary) for their hard work with the SMB Association! Kelley and Quintin are stepping down and so if you get a chance please express your gratitude!

**Bee Topics Ideas** - What do you want to learn in 2010? We cherish your ideas. When you get a chance, please let me know your top 5 topics of interest by calling me at 586-4009, 488-3848 or e-mail me at christine_bredenkamp@ncsu.edu.

**Dues** - Thinks about dues for 2010. Tom Rodgers the SMB Treasurer is now taking membership dues for 2010 ($15.00). The NC State Beekeepers Association memberships is also $15.00. You can bring your dues to the next meeting or mail to: Tom Rodgers 438 Gray Fox Ridge Cullowhee, NC, 28723. Please make the check out to the Smoky Mountain Beekeepers Association. If you have any questions contact Tom at (828)293-0678.
**Question:** Are neonicotinoid pesticides toxic to honey bees?

**Answer:** Yes, but that doesn’t mean they’re the cause of CCD

Practicing modern-day agriculture is centered around the balance between risk and reward. We have 6+ billion people on this planet that need to eat, exponential population growth, and dwindling natural resources and irrigable land. This places a high priority on maximizing efficiency in our farming systems, to get the most out of each acre. There are bounds, however, as we do not wish to sacrifice long-term sustainability for the sake or short-term gain. Therefore, we are forever searching for an optimum balance between food production and risk to the environment and human health. That proper balance, however, can be very subjective.

This impetus to balance risk with reward is responsible for the creation of a relatively new class of insecticides, called neonicotinoids. Based on certain anti-insect compounds from the tobacco plant, these chemicals can be incorporated into the entire plant treated with it, meaning that the insecticide is systemic in all of its tissues for a prolonged period of time. When an insect eats the plant, it ingests some of the pesticide, and it dies. These neonicotinoids are now used in many crops, golf courses, and even household pets to control fleas!

But these pesticides have been questioned as to their connection with insect pollinators, particularly with honey bees. They have been banned in certain European countries, and some have speculated that they may be responsible for Colony Collapse Disorder (CCD) here in the US. Empirical evidence, therefore, is desperately needed to make such a connection.

A recent report out of Italy looked at corn plants treated with these neonicotinoids. Corn plants can produce tiny droplets of dew on their leaves, called guttation drops, formed from the plant sap being excreted under certain conditions. Normally, of course, corn is wind-pollinated and not bee-pollinated, but it is possible that bees might forage for these guttation drops under certain conditions. The researchers sampled these droplets and fed them to adult worker honey bees. They found the droplets to be highly toxic, killing the bees within minutes of ingestion. They also fed bees with known doses of several neonicotinoid pesticides to generate mortality curves, demonstrating that all are highly toxic to bees are relatively low doses. Clearly, these pesticides are problematic for bees, and thus their usage needs to incorporate the impacts on pollinators.

However, it has always been known that neonicotinoids are highly toxic to bees. In fact, their label highlights this fact and specifically requires bees and other pollinators to be taken into account when they are used. The real question is what are the impacts of neonicotinoids, and guttation drops in corn, on honey bees in the environment. It is here that this study is more speculative than conclusive. The study didn’t measure any foraging rates on corn droplets, so it is unclear how much of a risk these high levels of pesticide might be. They also didn’t directly measure the neonicotinoids in the guttation drops using any chemical analyses, so there is no direct link to bee toxicity (that said, the compelling evidence is that the drops are toxic, even though the link is assumed more than empirically demonstrated). Finally, and perhaps most importantly, there was no measurement of the effect on colonies. Given that corn usually produces guttation drops in the spring (as highlighted by the authors), that CCD is probably a year-round phenomenon concentrated in the fall, and that other research has not found strong links between neonics or their by-products and CCD, there are many more links that need to be established to assess the true risk of these pesticides to bee health.

This study has stimulated a lot of discussion and additional research into the use of systemic pesticides and their impacts on honey bees. However, we need to place each piece of evidence into context and take caution in its interpretation. Clearly, these pesticides can be harmful to bees, that is nothing new. The question that needs to be answered, though, is whether or not the risk is worth it.

**Reference**

Pest Control Options
Honey Bee Strategic Plan-Mid-Atlantic States

- Aluminum Phosphide & other metal phosphides (Phosfume, Gastoxin) – Fumigants. For fumigation of diseased beehives and beekeeping equipment. Kills bees and greater wax moths. RESTRICTED USE PESTICIDE.

- Coumaphos (Checkmite+) – Organophosphate. For control of fluvalinate-resistant varroa mites, use one strip per five combs placed close to the bee cluster. Apply in spring two months before adding honey supers or in the fall after removing the honey supers. DO NOT use during surplus honey flow, and remove honey supers before treating. Supers can be replaced after a 14-day withholding period. For SHB, cut a strip in half, staple it to a piece of plastic-corrugated cardboard, and place on the bottom board of the hive. Leave strips in place for 42 – 45 days. SECTION 18 EXEMPTION.

- Fluvalinate (Apistan) – Pyrethroid. For control of varroa mites in beehives, hang two strips in the brood chamber during the spring or fall for 42 – 56 days. DO NOT use within four weeks of marketable honey flow. Remove honey before treatment and allow two weeks to pass after strip removal before replacing the supers.

- Formic Acid (Mite Away II) – Carboxylic Acid. For control of tracheal and varroa mites, use one treatment pad for 21 days when temperatures are 50°F – 79°F. Remove all honey supers before treatment and do not use during nectar flow.

- Menthol (Mite-A-Thol) – Essential Oil. Treat tracheal mites in overwintering hives during the early spring or fall when there is no surplus honey flow and daytime temperatures are at least 60°F – 80°F. Put 1.8 oz. of product in a 7-inch-square plastic screen on the top frames or on the bottom board. Replace packs as necessary, but remove packets 10 – 12 weeks after initial treatment. Remove packs at least one month before surplus honey flow.

- Paradichlorobenzene (Para-Moth) – Fumigant. For empty, stored combs, use at a rate of 3 oz. per five stacked hive bodies. Hive bodies with combs are stacked on a closed bottom board and a cover is placed on top. Place product on a piece of paper or cardboard at the top of the frames to control adult and immature greater wax moths. Does not kill eggs. Reapply after two to three weeks if crystals are gone. Air out honey supers for at least two weeks before introducing live bees. Do not use on stored frames of honey.

- Permethrin (Gardstar 40EC) – Pyrethroid. For control of SHB outside of hive ONLY. Highly toxic to bees if applied incorrectly. Use at a rate of 5 mL per gallon of water for six hives. Use a sprinkler can to drench the soil 18 – 24 inches in front of each beehive once bees are inactive during the late evening. Reapply after 45 days.

- Sucrocide solution at a rate of 1.5 oz. per frame of bees. Administer three applications (one every 7 – 10 days). Sucrocide can be as effective as Checkmite+ and Apistan in controlling varroa mites in late fall. More research is needed to assess its effectiveness at other times when the brood population is higher. Although inexpensive, Sucrocide is harder to apply because each frame must be sprayed individually. It is harmless to human skin, but goggles and waterproof gloves are necessary when applying.

- Thymol (Apiguard) – Essential Oil. Gives 90% – 95% control of varroa mites. When applied, temperature must be warm enough to volatilize the gel and accessible to bees so they can distribute it throughout the hive. Do not treat during honey flow. Do not use when the temperature is less than 60°F or when colony is very inactive. Do not use when the daily maximum temperature is above 105°F. Leave product in the colony until trays are empty. Remove product when installing supers on colony. Combine weak colonies before treatment. When ready to use, open hive, remove lid of tray (leaving one corner attached), and place tray centrally on top of the brood frames gel side up. Keep free space of at least ¼ inch between top of tray and cover board. Close hive. Replace first tray with new one after two weeks. Most effective when used in late summer after honey harvest, but may be used in spring as long as temperatures are above 60°F.

- Thymol + Eucalyptus Oil + Menthol (Api-Life VAR) – Essential Oils. For control of varroa and tracheal mites, break one tablet into quarters, enclose them in pieces of 8-mesh screen, and place on the top corners of the hive body. Reapply two additional times (after removing the old tablet pieces) at 7- to 10-day intervals. Leave the last tablet on for 12 days, and then remove all material. Remove honey supers 30 days before treating, and do not use within five months of surplus honey flow. Do not use when temperatures are above 90°F.

Taken from website: http://www.ipmcenters.org/psmp/pdf/MidAtlanticHoneyBeePMSP.pdf
**December**

- Repair and paint equipment.
- Clean supers, hive bodies, covers and frames of burr comb and propolis.
- Cull combs. Cut all combs with more than 2 square inches of drone cells from the frames.
- Render (if equipped) or pack all old comb or beeswax into a shipping container. Old comb or wax can be exchanged for foundation.

**January**

- Clean, paint and repair equipment.
- Check the apiary for wind damage.
- Check the apiary for skunk damage.
- Feed a pollen substitute, if needed.
- Check the honey stores and feed any colonies that have less than 15 pounds (six frames of capped honey in a shallow super or 2-3 frames in a deep super).

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**Happy Holidays!**

Christy Bredenkamp, Extension Agent
Agriculture-Horticulture

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