

12TH ANNUAL BEE LAB FIELD DAY SUMMARY

Dr. Tom Rinderer discussed the history and current state of the Russian honey bee breeding program. He described the selected traits and discussed stock improvements. He described how the current stock was selected and how the future breeding program will be conducted by the Russian Honey Bee Breeders Association.

Dr. Jeff Harris presented an update of the research on honey bees that are being bred for varroa-sensitive hygiene (VSH bees). This behavior results in the removal of varroa-infested pupae from capped brood by adult bees, which kills the mite offspring. A brief video clip of VSH bees opening mite-infested cells and removing pupae was shown. The VSH research group (which includes Drs. Bob Danka and José Villa) continue to try and develop methods for measuring VSH behavior that queen breeders could easily use to select for the VSH trait. Additionally, the group is incorporating the VSH trait into desired commercial Italian honey bees. The hope is to improve the transfer of this important trait to the U.S. beekeeping industry.



Dr. Lanie Bourgeois talked about ongoing molecular genetics research at the USDA-ARS Honey Bee Lab. She discussed recent research that measured genetic diversity of Russian bees produced at the lab and about development of a genetic stock identification tool that will be used to certify Russian honey bee stock used by commercial beekeepers. She also discussed the development of a method of identifying and quantifying both *Nosema apis* and *N. ceranae* with genetic tools. She also gave an update on research that involves the search for genes associated with traits related to varroa and tracheal mite resistance and genes associated with colony decline relative to migratory beekeeping practices for pollination. All studies utilize state-of-the-art technology.

Dr. Christine Wagener discussed ongoing research regarding effects of migratory beekeeping practices on colony size and health. The robustness of USDA-developed Russian and varroa sensitive hygiene (VSH) honey bees was compared with locally produced, treated and untreated commercial Italian bees during 2008 migratory beekeeping operations throughout the U.S. Over 200 colonies were tracked through California, Louisiana, New York, Maine and Massachusetts. Russian bees and VSH bees did as well as commercial controls. The project will be ongoing throughout the upcoming year.

Ms. Amanda Frake discussed research that she is doing with Dr. Lilia DeGuzman on small hive beetles. Because small hive beetles are becoming an increasing problem not only in the colonies and in honey production, but also in queen rearing, they are working to understand the beetle better and to find methods to slow down SHB growth. They have found that warmer temperatures accelerate SHB development and there tend to be more adult beetles in the warmer months. To combat the growing numbers of SHB in the colonies they have found entrance reducers a useful tool, and have also noticed that Russian colonies tend to have fewer SHB than Italian colonies. She also discussed ongoing research that is looking at the effectiveness of USDA traps and bait in reducing the number of beetles in the yards and the use of additives to pollen supplements to reduce or stop SHB reproduction. They are also studying a mark-release-recapture technique.

During the afternoon there was a rotation of a variety of presentations. Several activities are pictured below. And for beginners, a separate session on the basics of beekeeping is available.



Honey Extraction



Diseases & Pests



Grafting Cells



Beginner Session



Cell Builders