

Georgia's Bee Lab

Rich in tradition, research, and accomplishments.

Jennifer Berry

In our 21st century, fast-pace lifestyles, we tend to be unmindful about how it is our jobs came to be. Whose hard work, sweat and tears occurred previously in order to pave the way for our job to exist today? Until just recently, I, too, knew little about the history of the bee lab in which I work. So, let's take a look back over the past 38 years of the University of Georgia's Honey Bee lab.

In 1969, Dr. Alfred Dietz was hired as the state's only beekeeping research and education professor at the University of Georgia. He was fresh out of the University of Maryland where he successfully coordinated the 1967 Apimondia world congress, which, by the way, was the last time it was in the United States. Dr. Dietz quickly came to realize that just because you work for a large, land grant institution doesn't necessarily mean your lab will be financed. In fact he learned it was the opposite. He had very little financial support, so in order to survive in the land of research, he quickly became an expert at writing grants to fund his projects. While learning the ropes in grant writing he began working with electron microscopy and took the first pictures of the honey bee sensory organs and the bee louse (*Braula coeca*). Shortly afterward he returned to his roots and began delving into honey bee nutrition. While studying at the University of Minnesota he worked for Dr. M. Haydak, the famed honey bee nutritionist. His work with pollen led to the determination that purple brood came from pollen collected from summer tite (*Cyrrilla racemiflora*). He also expanded his research concerning queen storage and found that using emerged queens in mating nuclei was better than using queen cells.

Dr. Dietz, having an instructional appointment as well as a research one, began teaching a beekeeping course at UGA. His classes were not well attended at first, with only six students, so he decided to try the theatrics in

order to lure more students to class. He would dress up in traditional German costume and pose as the infamous Dr. Karl von Frisch. He would then present lectures on bees around the campus. He also mentored students as well as post docs during his years of service at UGA. Two of his students became well known in the honey bee world; Dr. Jeff Pettis, researcher at Beltsville Bee Lab and Dr. Malcolm Sanford, retired entomologist at the University of Florida. His post doctorate, Dr. Frank Eischen, forged on and is now a research entomologist at the Weslaco Honey Bee Research Facility. In 1980, Dr. Dietz expanded his program by building the original bee lab at the horticulture farm in Watkinsville. That lab was the only semblance of a honey bee research facility in the state until 2000 when Dr. Delaplane received money from the state to build an additional lab. By 1983, Dr. Dietz's program was the top recipient of grant money for the entire department of Entomology at UGA, earning a total of \$2 million. In 1977, Dr. Dietz became an exchange professor at Erlangen and in 1995 a guest professor at the University of Tubingen. But probably his greatest legacy was his work in Latin America on Africanized honey bees in the 1980s.

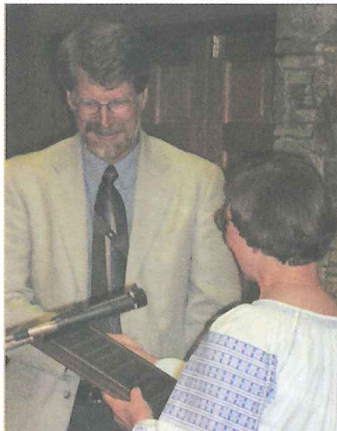
In January of 1990, Dr. Keith Delaplane took a position as assistant professor in the Department of Entomology at UGA. He was a recent graduate of Louisiana State University, mentored by Dr. John Harbo. His position replaced Rodney Coleman who retired as the extension apiculturalist before him. In the good ole days when money was available in the College of Agriculture, there were actually two Georgia state apiculturalists; one for extension and one for research. Rodney Coleman was Dr. Dietz's extension partner at UGA until he retired. Dr. Delaplane then filled the position as entomologist with the appointment being 100% extension. During this



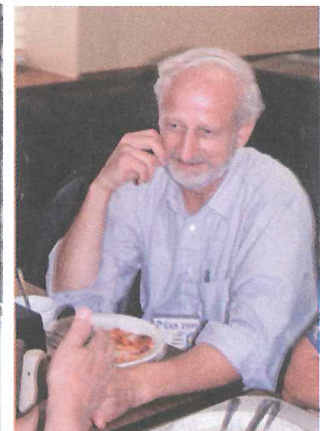
Al Dietz



Malcolm Sanford



Jeff Pettis



Frank Eischen



Keith Delaplane in the Georgia Bee Lab.



The Georgia Bee Lab.

time, Dr. Dietz was a consultant on Africanized Honey Bees in Washington DC. It wasn't until 1994 that Dr. Dietz retired from UGA and gained Emeritus status from the department of Entomology. No plans were made to hire a replacement for Dr. Dietz so the lab became Dr. Deleplane's responsibility. One year later Dr. Delaplane was offered associate tenured professor, becoming a full professor in 2000.

During Dr. Delaplane's first years at UGA, he created his much watched public TV series "A Year in the Life of an Apiary". Dr. Delaplane's initial idea was for a short 30 minute beekeeping overview to be used at beekeeping and extension meetings. The idea expanded and grew until it became an eight part television show. The series follows the start up, management and maintenance of productive honey bee colonies through an entire year. He also wrote a book which accompanies the series which has recently been revised. Dr. Delaplane's name became well known almost over night due to the public TV series. To this day he believes the video project, his first inspiration at UGA, may be his best work.

Early in his career, Dr. Delaplane decided to coordinate an annual beekeeping event with Young Harris College. The Young Harris Beekeeping Institute has been

an annual occurrence for 15 years and has been a huge success. It has hosted numerous speakers from all across the country and the world with attendance growing to over 100 participants over the years. The institute is held every year in May at Young Harris College in the beautiful mountainous region of north Georgia.

In between the extension responsibilities, writing monthly articles and extension publications and lecturing, Dr. Delaplane also found time for research. In the early 90s, he looked at controlling tracheal mites with vegetable oil and menthol. Then shortly afterwards, he and Dr. Mike Hood from Clemson University took on a three year project to determine the economic threshold for *Varroa* mites in the southeastern US. In the 1990s, very little attention had been paid to IPM in the beekeeping world. Determining the economic threshold was the first step in laying the foundation work and has become instrumental in future IPM research projects (which I'll discuss later). Dr. Delaplane felt that the beekeeping industry needed to break free of its dependence on chemicals. That is why this lab has worked for over a decade on IPM for *Varroa* mite and small hive beetle control.

Along with his research accomplishments, Dr. Delaplane is the author of numerous research and extension publications. He is author of *Honey Bees and Beekeeping: A Year in the Life of an Apiary* and Dadant's revised edition on *First Lessons in Beekeeping*, plus he co-authored with Dan Mayer on *Crop Pollination by Bees*. Along with Tom Webster, he edited *Mites of the Honey Bee* as well as several chapters in books. He is currently the senior editor for the *Journal of Apicultural Research*.

Over the past eight years, Dr. Delaplane has mentored five graduate students and one post doc and with them came research projects, lots of research projects. Here is a condensed list of those projects. His first graduate student, which was me, explored how old comb effected colony growth, brood survivorship and adult mortality. We also investigated whether top or bottom supering increased honey yields and found no differences. During that time, Selim Dedej came to UGA in 1999 as a Fulbright Scholar. His research project explored what effects hygienic queens, comb age, and colony microclimate have on chalkbrood disease. He then returned in 2000 to pursue his doctorate which focused on blueberry pollination. His work proved that when honey bees are



Jamie Ellis' Small Hive Beetle incubation chamber.

introduced to blueberries they increase productivity of that crop. He also investigated the interaction between honey bees and carpenter bees on blueberry pollination efficacy and the effectiveness of honey bees in delivering the biological control agent *Bacillus subtilis* to blueberry flowers in order to suppress mummy berry disease. Next on the scene was master student Nabor Hector Mendizabal Chavez from Bolivia. Nabor worked on selecting queens with reduced colony *Varroa* levels, high brood production, hygienic behavior, high honey production, and gentleness. Then the Ellis team showed up with Dr. Jamie Ellis as the bee lab's post doctorate and Amanda Ellis as a PhD student. Dr. Ellis continued his work on small hive beetles since they had become such a pest here in the south east. It was also the main topic for his doctorate work in South Africa.

He took on several ambitious projects during his two years here at UGA. One project was to determine the economic threshold of SHB's in honey bee colonies and the other one to determine if IPM methods for *Varroa* mite control are cost effective for the beekeeper. He also explored certain nematodes as biological control agents for the larval stages of SHB's.

In 2006, Amanda Ellis finished her second year of research and will join the lab once again this spring to finish her final season. Her research will attempt to quantify the secondary effects of parasites on pollination efficacy and foraging energetics of honey bees. *Varroa* mites and small hive beetles served as the model parasites, and blueberry as the study plant. She also evaluated the pheromone-based attractant Fruit-Boost™ to determine if it enhanced pollination by honey bees in seedless watermelon systems.

Finally, to round out the students we have master student Eleanor Spicer from North Carolina. Eleanor is investigating the pollinator's role in sustainable agricul-



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ture. In a nutshell, when there is a shortage of pollinators, plants begin to compete with one another. Therefore how does one reconcile for this when fewer pollinators force floral competition. Her project focused on watermelon and sunflower. From her work this summer, she showed that when plants compete for pollination, the least attractive suffers. In this case watermelon was pollinated less than the sunflowers.

Well there it is, 38 years at the University of Georgia bee lab. Since I have run out of room, later I'll bring the lab into the present and discuss in more detail our decade long IPM studies and queen breeding project. Till then, see ya! **BC**

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