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AHB Update

The CA Department of Food and Agriculture released information this week about the latest four finds of AHBs in California. All four clusters (#23-26) were located within the area currently referred to as "colonized" in southeastern CA. The four latest finds were on a north-south line right down the irrigated valley - Niland, Calipatria, Brawley, Calexico.

Dr. Rob Page's graduate student, Dave Nielsen, took another sampling trip throughout the surrounding region. He was trying to determine if AHBs are moving into the state outside the urban/suburban areas, where people tend to spot clusters. After analyzing a large number of feral bees for non-European mitochondrial DNA, Dave found quite a few specimens with ancestors from Egypt (Apis mellifera lamarkii) around the date growing area of Coachella

Valley. A couple of specimens with subsaharan ancestry (AHBs to us) were found around Blythe and one outside Winterhaven. AHBs have been found in those areas, already, so Dave did not find any indication that AHBs have moved outside their known area of colonization this spring.

Loss Reports

In California, the mechanism for making it known that a pesticide application has caused damage is filing a Report of Loss with the County Agricultural Commissioner. This document is not taken lightly. It becomes part of the permanent pesticide use report in the county in which it is filed. Generally, the submission of such a report stimulates a site visit by an inspector from the Agricultural Commissioner's office. The inspector tries to determine, as best he or she can, what happened and, in many cases, takes residue

samples to back up the
suspicions.

Why is this important to bee-keepers? In California we continue to quote the last data that was collected concerning honey bee colonies damaged or killed by pesticides. That data is well aged and originated from a Report of the State Supervisor of Apiary Projects

(our State Apiarist). According to that report, about 10% (50,000) of our colonies are so affected each year.

Recently, new insecticides are being used on agricultural crops for which we have only incomplete information on honey bee toxicity caused by direct contact and contact with residues in the field. Some of these pesticides seem to be implicated in losses of bees or whole colonies, but documentation is lacking. There are a number of reasons for this lack of documenta-tion. 1. Beekeepers can only visit their apiary locations periodically. If bee poisonings happen days before they return, the only evidence is dead bees on the ground. Exposure to the elements makes them residue-free. 2. If beekeepers arrive at the scene when bees are dying, they are likely to pick up the colonies and leave as quickly as possible to avoid further damage. An inspector arriving at the scene after the bees are gone finds nothing of value to the investigation. 3. Regulatory administrators have devised a rating system for prioritizing sample analyses. Dead bees are ranked far below poisoned cattle or humans. So, it can take months to get the results back on bee kill residues. By that time, the bees have long since died off or recovered, so the sense of urgency is completely lost.

Beekeepers usually fail to instigate the Report of Loss process for any of a number of reasons. 1. They are booked solid with commitments for managing and moving hives of bees. There is no time for

paperwork and government red tape. 2. There is a lack of faith that the process is really in place to help them. They cite failure of inspectors to arrive in a timely fashion; inspectors who try to blame other causes without doing any sampling or analysis; improper sampling and failure to handle samples in a manner that will preserve residues; extremely long waits for laboratory results; and little or no consequences for the applicator if an insecticide was shown to be used in a manner that is not in compliance with the label. Even when an applicator admits guilt and immediately pays for the lost bees, that cash cannot be placed into the boxes and used for pollination and honey production. The colonies must build up, again, to become useful and income is lost during that time, while costs are increased to nurse the colonies back to health.

Another important consideration when discussing Reports of Loss is retaliation. We are not referring, here, to those fond stories of old when apiaries were "run over by trucks" or "purposefully poisoned". But we are referring to reluctance of growers or ranchers to allow beekeepers to have apiary locations on their land if the beekeeper is known to do things which bring "Big Brother" snooping around the area. Also, if you become too much of a bur under the saddle of regulatory personnel, they can become less likely to cooperate with you or go out of their way to help protect your interests.

So, where is all of this leading? For a second year in a row, cotton growers have requested an emergency registration for using Furadan® on cotton. Emergency registrations usually are requested for pests on crops for which nothing is registered. In this case, it has been stated that other, currently registered cotton insecticides, do not adequately control cotton aphids, so Furadan® is needed (see next article).

In order to continue such a registration it must be shown that Furadan causes no negative consequences when used on cotton. The fact of the matter is that Furadan, used on field crops,

leaves a residue that is highly toxic to bees for five days. Most bee-toxic residues from other insecticides break down in a day or two. The ramifications for bee-keepers who hope to produce a lot of cotton honey this year are very clear. With cotton prices up and Texas baked out of the cotton business, every strand of lint will be highly valued. Since Furadan is much less expensive than most of the other cotton aphid insecticides, be ready for a difficult year.

had the lowest counts (25.5). Metasystox-R® with endosulfan, and Dibrom® were next best (36.1 and 37.8, respectively).

If you suffer bee losses to cotton pest control this summer, it will be your choice: a. put up with the losses to protect the honey potential or; b. file the Report of Loss and, perhaps, lose access to the crop. There does not appear to be much middle ground.

Furadan® and Cotton

As a scientist, I like to see field data that relates to a topic before deciding what conclusions to draw. I will describe briefly the results obtained in 1995 in field tests conducted by UCD Extension Entomologist, Dr. Larry Godfrey, on controlling cotton aphids in a commercial field near Lindsay, Tulare County.

On June 7 the field averaged 98.6 aphids per cotton leaf (the economic treatment threshold is 100 per leaf). Nineteen different insecticide treatments and control plots were replicated four times in the field. A day after treatment, the control plots averaged 102.2 aphids per leaf. Furadan®

Seven days after treatment the populations on the control plots had more than doubled (233.1). Dibrom had lost its edge, but Furadan (3.9) and Metasystox-R/endsulfan (6.1) were much better than the rest.

amitraz in a tracheal mite control program may be contributing to the heavy losses of overwintering

By 14 days, the untreated aphids had nearly doubled, again, to 414.4 per leaf. The only treatment holding the cotton aphid below 100 per leaf was Furadan (68.1). After another week, Furadan had lost its effect (158.23 per leaf). In fact, all treatments ranged between 109.0 and 408.8 per leaf, except one. The untreated aphids had plummeted from 414.4 to 94.7 per leaf.

Cotton aphid population crashes, as seen in the control, are common but not predicatable. The cause or causes of the crashes are not known. However, the natural crash still left the aphid population just below treatment level.

There is little doubt that Furadan will be the choice of many cotton growers this year, especially since the formulation is significantly less expensive than other alternative control chemicals. Be informed that Furadan residues kill bees up to five days following application. Register your locations and be sure to request notification of Furadan applications.

Tracheal Mites and Amitraz

It is possible that popular misconceptions about the value of

colonies in the United States. The California Farm Bureau Federation reported the following percentages of colony losses last winter, as reported by beekeepers to the American Beekeeping Federation: AR-25; DE-25 to 40; FL-25; IA-43; ME-80; MD-25 to 35; MI-60; MT-1; NY-60 to 70; OK-15 to 100; SD-30 to 60; TN-50; VA-20; WA-50; and WI-67.

the study period. By the end of June, none of the colonies had an economically important level of infestation.

A review of the limited publications on the subject, and some of my own previous studies, reveal that amitraz applied as a spray or drench in a hive, does not reduce populations of tracheal mites to economically harmless levels. The two references which paint amitraz in the most favorable light are those of Eischen, et al. (1986), American Bee Journal 126:498-500 and Moffett, et al. (1988), American Bee Journal 128:805-806. In Frank Eischen's study, topically applied amitraz protected most queens and many workers from becoming infested, when they were placed into populations of highly infested bees. In the Moffett study, colonies uniformly infested at about 20% were treated in mid-April with amitraz as; 1. an aerosol (spray can) twice, at a two week interval; 2. a 10% EVA strip; 3. a 10% cattle collar; and 4. a liquid ampule that had its contents broken onto the bottom board.

Six and ten weeks after the first treatments percent infestation levels were: 2.9 and 0.67 for the aerosol; 6.3 and 0.83 for the EVA strips; 7.2 and 1.5 for the cattle collars; and 18.5 and 3.75 for the ampules. Controls started at 26.3 and dropped to 21.3 and 5.5 during

Two years later, a study by J.D. Vanderberg and H. Shimanieki (Apidologie 21:243-247, 1990) revealed that aerosol applications of 25 and 50 mg amitraz per colony produced barely significant to insignificant mortality to tracheal mites. Pieces of amitraz-impregnated plastic strips in queen cages demonstrated that mites survived all treatment levels up to doses that killed the host bees.

All packages entered the experiment in April with levels of mite infestation between 33.3 and

Back in ancient times, when tracheal mites were the problem and Varroa a new curiosity, I conducted a study on controlling tracheal mites in packaged bees. The intent was to find one or more treatments that would allow a customer to receive a mite-free package from an infested source operation. All the details of this study should be published appropriately (in a referred journal), but nobody publishes "The Journal of Negative Results."

Briefly, Rick Buchner (C.E. Farm Advisor), Katherine Garrison (Analytical Technologist) and I tested EVA strips; cattle collar; aerosol amitraz; menthol; Apistan® (queen tabs, package strips, hive strips); and fluvalinate smoke strips on heavily infested packaged bees. Katherine determined mite infestation levels and mite mortality by live dissections of workers bees. We installed the packages after treatment and followed their performance for 12 months (little was known about Apistan®, then).

71.8%. By June, infestation levels were 6% or below in every treat-ment, including the control. Since then, Dr. Lynn Royce, at Oregon State University, has written a paper explaining how swarming (natural or by packages) leads to severe decreases in tracheal mite populations. We noted induced mite mortality only with menthol and aerosol (spray can) amitraz. Mite control turned out to be totally inconsequential, since all colonies were equal in 12 months. The fluvalinate smoke treatment killed about one-fifth of the worker bees in each package. Live tracheal mites were dissected from the bodies of the dead bees.

We three also tried feeding caged, infested worker bees Apitol[®], Vendex[®], amitraz, Omite[®], and Kelthane[®] at various doses in sugar syrup in an attempt to kill the mites systemically. Apitol, caused the best mite depression, but it wasn't very effective during the first five days. Kelthane was a little better than nothing, which is the result obtained with other treatments.

An overview of all of these studies suggests very strongly that contact applications of amitraz in hives of bees do not provide adequate control of tracheal mites for the purposes of overwintering honey bee colonies in cool or cold temperate climates. I believe that overwintering results will improve dramatically when an accepted (by beekeepers, as menthol is not), effective approach is approved by pesticide regulatory personnel. Also, refer to my March/April 1996

Newsletter to determine when is the best time to treat for tracheal mites. Fall is not it!

Tucson Bee Lab

Federal belt tightening has led to the decision that one of the

USDA ARS bee labs has to be closed. The Carl Hayden Bee Research Center was selected for closure. Research staff were informed that they should choose between relocating at the Weslaco lab in deep southern Texas or the Logan lab, surrounded by Utah mountains.

A number of organizations, agencies, and individuals, including myself, wrote to USDA Administrator Horn expressing our reasons why we thought that the lab should continue to be funded. I received the following reply to my letter of May 17, 1996.

"ARS is keenly aware of the serious issues facing the bee industry. We want to assure you that we have no intention of discontinuing bee research. Rather, by transferring the work done at Carl Hayden Bee Research Center to other locations where related research is conducted, we are consolidating our resources. forward to continuing to serve the agricultural interest of this Nation."

Then I read in the May, 1996, Speedy Bee that the beekeepers went straight to their legislators and asked for help. The House Appropriations Committee decided to keep ARS bee research funding at the 1995 level, with all labs remaining in operation. Committee recommendations are usually followed, but that leaves each Tucson researcher with about \$6,000 for research and travel next year. Puts them right in there with me!

Big Vote

We believe the proposed consolidation will strengthen the ARS bee research program, achieve savings in overhead, and provide better information and technology to all of our customers. It will also place the ARS bee research program in a much stronger and more defensible position to proceed and to cooperate with other existing Federal, private sector, and research partners. ARS will continue to conduct research on mites and Africanized bees and serve as a national resource to California and other States.

We believe bee research is important and combining these offices will result in improved program and resource-use efficiency. We appreciate, however, the issues you have highlighted in your letter. They are important to us as we set priorities and develop future Departmental programs. We look

The USDA Agricultural Marketing Service soon will be sending a ballot to all qualified voters to see if they wish to continue the Honey Research Promotion, and Consumer Information Order. The ballot has one side for certification and identification information. The other side has the return address and the boxes - one of which must be checked.

This vote is very important to the future of the industry. Be sure to read all the pros and cons in the bee journals and from the industry organizations, then vote the way that you believe is best.

Bee Repellents

Researchers have dreamed of finding the magic chemical that could be sprayed into the air, near a nest site being protected by defensive bees, and turn off the reaction. Dr. Anita Collins and coworkers tested three mosquito repellents, benzaldehyde and menthol against defensive bees. All the odors reduced the number of stings in test patches, but DEET (diethyl-meta-toluamide) was, by far, the best of the tested

chemicals (75% reduction). The effects were con-fined to the area of the "cloud" of aerosol. Putting the repellents on the target did not help at all. You can find the full report in the Journal of Economic Entomology 89(3):608-613 (1996).

Are Bees Bad?

We weren't prepared to take data on the effects of imported honey bees on "Pollen Bees" (USDA term for wild pollinators) when the settlers first brought EHBS to what now is the Americas. By the time competition for pollen and nectar became an issue, honey bees had been here for centuries. The Australians have studied this phenomenon for some time, and a report in the topic is presented in Bee World 77(1):26-43 (1996). One of Robbin Thorp's graduate students studied this question a few years ago, and Robbin and Adrian Wenner are still studying the effects of termination of honey bee pollination on an island off the California coast.

I don't know if it is coincidence or cause and effect, but I have never received as many calls about carpenter bees in the 18 previous years I have been here as I received this spring. Also, in the last couple years, I have been asked to identify, and how to control, solitary "pollen bees" living in tunnels dug in people's yards.

Are these pollen bees coming into their own, again, thanks to Varroa eliminating the competition? Time will tell.

Abstracts on Disk

For decades the International
Bee Research Association has
compiled abstracts of scientific

journal articles dealing with honey bees and other pollinators from around the world. Foreign abstracts are translated into English.

At first the abstracts were available only in a periodical publication called Apicultural Abstracts. Then computer generated hard copies became available. Then microfiche, and now the floppy disk.

If you wish, you can subscribe to Apicultural Abstracts OnLine. Every three months you will receive a disk of the latest entries to the data base. The database format is supposed to be compatible with a wide range of database management programs including Pro-Cite®. Specify the size of the disk (3.5 or 5.25") and desired format (Pro-Cite or comma delimited.

For more details (like how much it costs), contact Pamela Munn at: International Bee Research Association, 18 North Road, Cardiff, U.K. CE1 3DY or use the following electronic contacts - Phone (+44) 1222 372409, FAX (+44) 1222 665522, or e-mail ibra@cardiff.ac.uk.

6th IBRA Tropical Bee Conferencee

The Sixth IBRA Conference on Tropical Bees; Management and Diversity will be held August 12-17, 1996 in San Jose, Costa Rica. The hosting agency is the Universidad Nacional Costa Rica Programa Regional de Apicultura y Meliponicultura.

The program is oriented toward the biology and management of Africanized honey bees and sting-

less bees. Sessions will include oral presentations, posters, work-shop discussions and technical visits to various beekeeping operations.

For more information, contact the International Bee Research Association in a manner suggested in the previous article on abstracts.

Another Killerbee Booklet

In response to a recent ad in the American Bee Journal, I was sent an English and Spanish copy of a new booklet: Killerbee - Honeybees Are Here, Don't Panic. The author is Sam Mellifera. Designed to be a "Guidebook to coexistence with Honeybees - one of MAN'S BEST FRIENDS," the cover cautions; Bee Careful, Bee Informed, Bee Prepared, Bee Quick, and Bee Cool.

Sam has compiled an interesting mix of facts and near misses that should maintain your interest while you read them. Also discussed are yet to be realized high tech honey bee subduing devices: 1. Bat Signal Device - scares off Killerbee-Honeybees "by making them think that a bat is 'locked on'" and 2. Pheromone Diversion Grenade - a pocket-size, portable device that explodes liberating a large charge of pheromone that will divert the attention of defensive bees long enough to let you get away.

For more information, or copies of the booklets (at \$5.95 plus appropriate state sales tax), contact Pete Morgan, Marketing Director, America Publications, 405-C South Beeline Hwy., Suite 200, Payson, AZ 85541.

Need Mites

Maintaining Varroa-infested colonies for research purposes can be quite a challenge, especially if you want to work with large number of mites. It's sure that our

neighbors won't be too happy, but we are requesting that anyone who has a colony, or knows of an easily accessible colony, that is heavily infested, contact Christine Peng so that she can send out the crew to get the mites. If you do an extraction of a heavily infested colony, try to save as many mites and bees as possible. Christine can be contacted at: (916) 752-0490, FAX (916) 752-1537, or e-mail cyspeng@ucdavis.edu. There is about a 100 mile limit to the distance that we can go to get

bees. If they can be delivered, all the better. Thanks for your help.

Sincerely,

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