
THE BEE LINE

The Newsletter of the Oregon State Beekeepers Association

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Integrated Pest Management of Varroa Mites

By Dr. Keith Delaplane

(a summary of comments from his presentation at the OSBA Fall Conference)

We are moving away from the days when Apistan was the one and only control available for varroa mites. Experience from decades of agricultural production shows that pests become resistant to pesticides when they are exposed, generation after generation, to the same chemicals. In the long run, such a chemical-intense program is unsustainable for a host of reasons – excess chemical residues in hive products, chemical disruption of the bee society, unknown effects of chemicals in the environment, chemical-resistant mites, and growing consumer disapproval. It's in everyone's best interest to control mites in such a way to limit our reliance on synthetic miticides. The answer is IPM – Integrated Pest Management, an approach that seeks to keep pests at non-damaging levels with a variety of means, chemical and non-chemical.

Central to an IPM strategy is the treatment threshold. This is the level of mites in a colony at which the beekeeper should treat in order to prevent an escalating level that would irreparably damage the colony. Implicit in this is the notion that a certain level of mites is tolerable. This is one of the most significant ways in which IPM departs from conventional treat-by-the-calendar control. It is understood that pest eradication is not possible or even necessary.

Treatment thresholds can be made by expert estimates, and such has been the case in much of the history of varroa in North America. However, published work from my lab has determined that colonies can tolerate up to 3200-4300 mites before suffering irreparable harm. We determined that a colony population of 3200-4300 mites corresponds to ether roll (1 ½ inches of bees per quart jar) yields of 15-38 mites, or an overnight bottom board sticky sheet (without miticide) of 59-187.

Armed with a known threshold, a beekeeper can next go about finding ways to delay that threshold as long as possible before treating with a miticide. It is desirable to delay as long as possible the inter-treatment interval in order to preserve through genetic recombination across generations the chemicals *susceptible* genes in the mite population.

Just how one goes about delaying that threshold is the nuts and bolts of IPM. In my talk I described the bottom screen, a false floor or 8-mesh

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President's Notes

by Ray Varner

As promised, this month you will find several more articles from the speakers at the Fall Conference. Dr. Keith Delaplane and Dr. Diana Sammataro contributed a total of three articles. Dr. Steve Pernal's extensive article will be in the March 2001 issue. I hope you enjoy this follow-up to the Conference.

The Willamette Valley Beekeepers have invited the OSBA to their picnic this summer. Tentative location is Silver Creek Falls. Thanks for inviting us, Willamette Valley! More details to follow as we get into 2001.

Thanks to Tualatin Valley Beekeepers for their prototype screened bottom boards. This active club is producing 30 of these for the OSU Bee Lab, specifically for Dr. Lynn Royce to use on her project. This new design features an access drawer at the BACK of the hive for easy cleaning of the bottom board, and insertion/removal of the drop board, thus reducing stress on the bees and the researchers. Dan Hiscoe designed and built the prototypes. Thanks!

We heard so much about the use of hygienic queens as part of an IPM approach to mite control that I have invited queen breeders to write brief articles for *The Bee Line* to tell us about what they are offering for 2001. Watch for responses in the March issue.

We got fewer than a dozen responses to our Conference survey. VP Dave Graber is still looking at dates for 2001. We should have more information by the next issue.

This newsletter goes to the printer on December 18th, and still no grandbaby. It should be back from the printer by the end of the month, and we should have news by then. Diane tells me she will use a blue or pink highlighter marker on the sticky tabs she uses to hold the folded newsletter together. We're over-excited first-time grandparents (can you tell?). Now we understand the enthusiasm of other grandparents, and we'll have pictures and stories to share, too!

Wishing you a Happy, Healthy Holiday Season and a Prosperous New Year!

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hardware cloth that permits mites to fall through the screen and effectively be removed from the colony. Our studies show that this simple device slows mite population growth. Best of all, once installed on a colony the bottom screen is on-duty 24 hours a day, seven days a week.

Another easy IPM approach is the use of hygienic queens. Research by Dr. Marla Spivak at the University of Minnesota demonstrates that hygienic stock can effectively slow mite population growth. I encourage beekeepers to patronize queen producers who are selecting and propagating stocks displaying hygienic behavior. I reported a University of Georgia study in which we showed that hygienic stock was the most important factor limiting chalkbrood in a comparison with comb age and interior hive humidity. Thus, there are multiple benefits to be realized from hygienic stock.

Other IPM practices can be expected to slow growth of varroa mites and delay the need for chemical applications. These include drone brood trapping, apiary isolation from other apiaries, and other traits of genetic resistance in bees such as grooming behavior and bee-induced mite infertility.

Once chemicals are engaged in an IPM strategy, there is one other IPM practice that helps a great deal in the fight against chemical resistant mites, and that is chemical rotation. Insofar as alternative miticides are available, it is a good idea to use one chemical one time, and another chemical the next. This minimizes the genetic selection pressure toward any one class of chemistry.

Northwest Beekeeping

January/February

- Lift the hives to find any light ones. Give these emergency feed of dry sugar or sugar candy on top of the brood frames.
- By the end of January or *early* February, treat hives for varroa mites. Use one strip of Apistan for every five combs of bees or less in each brood chamber (Langstroth deep frames or equivalent in other sizes). Hang the strips within two combs of the edge of the bee cluster. If two deep supers are used for the brood nest, hang Apistan strips in alternate corners of the cluster, in the top and bottom super. Mark 56 days on your calendar, so you can remove the strips *before* the honey flow arrives. Be sure to read all directions on the Apistan box label.
- Move stores closer to brood area.
- Continue the repair and/or assembly of next year's equipment.
- Dust all colonies three times at seven day intervals with a 2 Tablespoon portion of Terramycin (TM25) mixed with eight parts powdered sugar. Sprinkle on top of brood frames.
- The following flower bloom and pollen vary from year to year, from weeks 5-12, which stimulates brood rearing and winter break-up: pussy willow, crocus, skunk cabbage, flowering plum, tulip bush, filberts, daffodil, dandelion and Oregon grape.
- When daytime highs are above 55 degrees F., start feeding brood pollen supplement and cane sugar syrup in Doolittle or hivetop feeders.
- Make up or buy at least six 5-ounce pollen supplement patties per colony, storing in the freezer until needed.
- Check stored frames for wax moth infestation.
- Attend beekeeping meetings in your area, to learn, have fun and share.

Thank you to Portland Beekeeper Association members Stephanie Barnes, David Gage, Rosemary Marshall, Ernie McCormack and Bill Ruhl, for Almanac review and suggestions, 1996. Revisions and updates are now in progress.

Honey Bees as Pollinators: Can large Populations make up for individual inefficiency?

By Dr. Keith Delaplane

(a summary of comments from his presentation at the OSBA Fall Conference)

About ten years ago a study was released from Auburn University in which researchers showed that a single honey bee visit to a rabbiteye blueberry flower has about a 1% chance of successfully pollinating that flower. Insult was added to injury when the same study showed that bagged flowers that never received any bee visit at all were able to achieve a 3% fruit set. The winners in this contest were the native bumble bees and a ground-nesting solitary bee, the southeastern blueberry bee, whose single visits had a 30% chance of setting fruit. This research was widely publicized in the southeast and blueberry growers abandoned commercial honey bee pollination in droves.

A PhD student of mine, Selim Dedej, former Deputy Minister of Agriculture for the government of Albania, arrived at the University of Georgia last winter in time to test a hypothesis that had nettled me for years – can honey bees make up for individual pollination inefficiency with their large colony populations? In other words, can a colony of 40,000 comparatively inefficient foragers still get the job done, owing simply to their numbers and repeated flower visits?

Selim caged rabbiteye blueberry plants with the following densities of honey bees – 0, 400, 800, 1600, 3200, 6400 and 12800 bees plus an open plot that was freely visited by insects. There was a significant increase in fruit set, even higher than in the open plot, with honey bees at densities of 1600-6400. There was an accompanying increase in seed number as pollination rates improved. Thus, the answer to our hypothesis was “yes.” The general message here is that even though honey bees may not be the most specialized and efficient pollinators for some crops, they are able to compensate for this to some extent because of their large populations. No other pollinating been in North America has forager populations that come close to that of honey bees. This is an important advantage that beekeepers must communicate with their pollination clients.

A Novel Approach to IPM

By Dr. Diana Sammataro

(a summary of comments from her presentation at the OSBA Fall Conference)

During the summer of 1999, a three-level combination of IPM techniques was tested to determine if varroa populations could be kept from overwhelming bee colonies by late fall and thus reduce pesticide use. Fifty colonies started as nucs at two sites tested three IPM tactics: a) mite-reducing queens, b) screen inserts and c) thymol oil strips. Five treatment groups (ten colonies each) were divided into 1) no treatment (control), 2) queens and oil, 3) queens and screens, 4) screens and oil, and 5) queens, screens and oil. When the oil strips were inserted a significant knockdown effect was observed in oil-treated colonies but it did not last. The queen/screen treatment exhibited a significant reduction in mite population as early as Day 65 of the experiment and had a significantly lower mite drop than those in other treatment groups. Location differences were also observed. By Day 65, the apiary located near the top of a hill in an open field had significantly fewer mites than the site enclosed in shrubs. This location effect was seen throughout the study. Starting on Day 65, control and queen/oil colonies at the enclosed site had larger mite drops than the other treatments. Mite drop at the enclosed site after Apistan treatment was significantly higher in the controls and queen/oil colonies than the other treatments. While mite drop increased throughout the study period, the number of mites in the queen/screen and queen/screen/oil groups (combined locations) never exceeded 100 mites per day (96.4016741), showing that high mite levels could be moderated.

OSBA General Meeting Minutes November 2-4, 2000 Hood River

The meeting was called to order at 4:15 by President Ray Varner. By unanimous approval there was no reading of the 1999 Conference Minutes. The Treasurer supplied copies of the 1999 Financial Report and reported a current balance of \$20,789.59. Only a portion of the 2000 Conference funds were included in that total. The report was accepted and a

request was made for a mid-year preliminary report for the 2001 Conference. Diane Varner reported that current paid membership is 228.

Discussion opened on retention of the web page. Anita Alexander moved to suspend the page. Mike Rodia moved to amend the motion to read that the domain name be retained, that the President look into changing providers, report results to the membership via the Bee Line in six months, with a decision to keep it or suspend to be made at the next annual meeting. Amendment seconded, the original motion as amended was seconded and passed.

Ray told the members of Dr. Burgett's retirement and the need for OSBA to work toward retention of his position. It was urged that letters supporting that position be sent to the Dean of Agriculture and OSU. Fred VanNatta will chair a committee to advise members of the process and key contacts.

Dave Graber moved to increase the dues to \$20 beginning in January of 2001. Following a lengthy discussion the motion was seconded and passed.

Ray brought up the Field Day saying he thinks it appropriate that the Portland Association head up the event and that an effort be made to involve 4-H, FFA and Boy Scouts. For better coordination of dates, area representatives should inform Ray of their Association dates for Field Day.

Washington wants a joint meeting in 2001. There was talk of changing the days to a Friday, Saturday and Sunday with the expectation that more members would be able to attend. Dave said planning must begin right away because facilities are often booked a year in advance. There will be a questionnaire in the November issue of the Bee Line asking members their preference. Because of a tight time line, responses must be made by December 1. Washington members will also be polled.

Dave Graber moved that Dr. Lynn Royce and George Hansen be designated life members. Motion was seconded and passed.

Members heard about the possibility of OSBA sponsoring a Master Beekeeping Class. Chuck Hunt will look into the details.

Chuck Sowers, Nominating Committee Chair, presented his list of candidates. There were no nominations from the floor. The current slate of officers was reelected by a unanimous ballot. Regional representatives remain unchanged except for Columbia Basin area, where Bill Edwards will replace Rocky Pisto. For the record, those elected were: Ray Varner – President, Dave Graber – Vice President, Phyllis Shoemake – Secretary/Treasurer, Bill Edwards – Columbia Basin, Jan Lohman – Eastern Oregon, Chuck Sowers – Metropolitan Area, Bob Allen – North Coast, Joann Olstrom – Southern Coast, George Steffensen – Southern Oregon and Chuck Hunt – Willamette Valley.

Meeting adjourned at 5:30 pm.

Change in OSBA Dues

OSBA dues were set at \$20 per year at the Fall Conference in Hood River, effective January 1, 2001. The increase was needed to cover current expenses such as the newsletter, and future expenses such as the committee to help retain Dr. Burgett's position at OSU.

There have been questions about how local associations retain the \$1 portion of each OSBA member's dues. In order for Branch Associations to collect that dollar and keep it at the local level: OSBA members should pay their OSBA dues to the branch association. The Branch Association Treasurer then forwards the OSBA portion of the dues (\$19) to Phyllis Shoemake, and retains the \$1 portion. Only those persons who reside where there is no branch association should mail their membership form and check to Phyllis directly. This procedure is taken from the Bylaws, Article I, Section 2, Paragraph D.

The membership form in *The Bee Line* has been amended to clear up this question. The date code on mailing labels shows the actual membership expiration date; the 60 day grace period (see page 11 of each issue) should allow time for the Branch Association Treasurers to process the checks and forward them to Phyllis in order to avoid members missing any issues.

E-Mail, Anyone?

It was suggested at the Conference that in order to keep costs down some members might prefer to receive *The Bee Line* via email. Our non-profit status at the Post Office requires a base of 200 pieces of mail to benefit from lower rates. If a mailing goes below 200 pieces, the first class rate of 55 cents for each piece applies. Current non-profit rates are .169 cents and .148 cents for each piece, depending on zip codes. The difference is significant and could erase any benefit. There are currently 228 paid members.

However, an "Email Tree" might be helpful for members when timely information comes across my desk. It could be sent out immediately in a bulletin format rather than wait for the next issue of *The Bee Line*. An example would be the notification of the Section 18 approval of coumaphos. If you would like to be included in such a list, or if you have other thoughts about the use of email, please contact me at RayBee@bandwidth.net.

ABF Letter to the Industry

The Directors of the ABF recognize that some of you will probably begin to believe the misstatements and accusations of some individuals and organizations if those misrepresentations and assertions are repeated often enough and go unanswered long enough. Apparently, even some publications turn to our critics and detractors as the "source" of the slanted and sometimes disturbingly erroneous information about our policies, goals and accomplishments.

The integrity and honesty of the ABF and its members have been assaulted by slander, misrepresentation and purposeful omission. We condemn this assault. We believe you deserve all the facts, not just our opponents' rhetoric, hyperbole and misrepresentations. Therefore, we are taking this opportunity to explain to the entire industry what we have been doing, are doing and plan to do.

The Antidumping Cases: After careful study, the ABF decided not to become a petitioner in the new antidumping case. This was not an easy decision to make, but in the end, it was a unanimous decision of the ABF Board of Directors.

Every ABF Director would like to see some sort of curbs on honey imports, but all had concerns about the prospective cases as they were presented in April 2000. It was not simply a matter of recreating the 1994 case against China. Proving dumping on a free-market country (Argentina) is far more difficult than against a controlled-market economy (China). Moreover, potential dumping penalties, quotas and tariff projections were far lower than in the 1994 case. Conversely, the projected legal expenses were far higher.

We went back and analyzed the contribution pattern in the earlier case. In 1994 and 1995, a total of \$311,637 was given for antidumping by 840 persons. In the current case, we were looking at a cost of \$750,000 or more. Could the same contributors be expected to meet the new challenge? In 1994-95, only 64 persons from all national organizations combined gave \$1,000 or more; only 83 persons gave \$500 to \$999. So, while the benefit to all US producers was, indeed, considerable, the cost of providing this benefit was shouldered by a relative handful of producers.

And, the ABF membership shouldered about two-thirds of the cost of the successful case against China. Having been maligned continually over the financial matters, even as they carried the load on the 1994 case, the ABF Directors were determined that they would commit to paying no more than 50% of the cost of any new antidumping cases. Unfortunately our erstwhile partners would not accept responsibility for the other half. Nor would they commit to working harmoniously with ABF to pursue this and other joint goals.

In the end, the ABF Directors decided that this activity was not where the ABF wanted to spend its funds. It was felt that the ABF could better benefit its members by focusing its resources on securing temporary and, ultimately, permanent federal agricultural policy changes to benefit beekeepers and obtaining other objectives as directed by vote of our membership.

However, even though the ABF would not become a petitioner in the case, the ABF did commit to and has provided important assistance to the petitioners and their attorneys in the new case. Since the inception of the new cases, the ABF staff has spent several hours providing information to assist the petitioners' cases and the government investigation. You may have heard rumors about the letter the petitioners requested the ABF to send to the Dept. of Commerce outlining ABF's position. We sent the letter as requested, the petitioners included it in their petition, and, the petitioners' attorney wrote us: "We really appreciate your getting us such a helpful letter by today." And later, after we send additional information: "Your quick response to our requests for information allowed us to make a filing this morning... We greatly appreciate the assistance you quickly gave us."

As befits a democratic organization like the ABF, our members were urged to examine the issues and contribute to the antidumping case if they felt so inclined. It also appears that many ABF members are actively supporting the case financially; in fact, the petitioners claim that 25% of the ABF's beekeeper membership has made contributions.

The LDP/Honey Loan Program: We hope you will soon have in your pocket concrete evidence of the ABF commitment to assisting our members in ways other than the antidumping case. But again, there has been a lot of misinformation spread about the loan deficiency payment for 2000-crop honey. Who was responsible for getting it? Who did nothing?

Here's what happened: The ABF and the AHPA issued a joint statement urging Congress to provide much needed financial assistance for America's beekeepers. The appeal germinated in the Senate, where the AHPA has a special relationship with Sen. Thad Cochran of Mississippi, who is Chairman of the Senate Agricultural Appropriations Subcommittee. With Sen. Cochran on board, attention turned to the House Agricultural Appropriations Subcommittee and its Chairman, Rep. Joe Skeen of New Mexico. The AHPA's lobbyist asked the ABF's lobbyist to help, and the ABF was able to gain Rep. Skeen's approval where the AHPA could not. In addition, the ABF secured

other critical support for the Honey Marketing Assistance Program in the all-important Conference Committee.

Who did what is not the important part of this story. The important part is that both organizations and their Washington lobbyists were able to capitalize on relationships they had been developing over several years. This highlights the necessity of ongoing work in Washington. The ABF is committed to building long-term relationships in Washington with Congress and Congressional staffers. The immediate goal of this effort is to secure financial support for beekeepers in the next farm bill.

Working on the next Farm Bill: We have already taken several steps to accomplish these goals. We have presented fruit baskets to the members of the House Agriculture Committee. The baskets were filled with bee-pollinated fruit and nuts, seeds for other bee-pollinated crops, honey and beeswax candles, etc. Also included were honey recipes, information on the benefit of bees to agriculture, and legislative issues of the industry. Our plans are the present similar baskets to other key members of Congress. We are also preparing an information/resource file on the industry and on bee-honey issues which we will supply to each Congressional office.

To be successful in Washington, we have to be united in our efforts. If one group asks for one thing and another group asks for the opposite, Congress will take the easy way out and do nothing. This also applies to the federal agencies, such as EPA and USDA.

And for the industry to be successful in Washington, your Congressman has to know that bees are important to his district and state. Each of us needs to have periodic contact with his Congressman. Remember, campaign contributions help them remember you. You don't have to be Mr. Moneybags; a \$50 or \$100 check goes a long way (remember to send personal, not company checks). If you aren't sure who your Congressman is or how to contact your Senators, ask your public library, your local newspaper, or contact the ABF office for assistance.

A Federation of all interest: The ABF includes members from every segment of the industry. A year ago we re-structured our Board of Directors to ensure that decisions are coming from a broader base. Even so, honey producers are our largest group of members, the backbone of our organization. No decision of the ABF membership nor the ABF Board of Directors (nor the ABF Executive Committee before that) has been contrary to the interests of our honey producer members.

To learn more about the ABF, write us at PO Box 1038, Jesup, GA 31598, or visit our website at www.ABFnet.org.

ABF Annual Convention 2001

The ABF 2001 Convention in San Diego will include sessions of the American Bee Research Conference. On the first afternoon of the convention, Friday, Jan. 12th, the ABF general session will feature ABRC presentations most applicable to beekeepers. On Saturday, beekeepers will be welcome to attend the separate ABRC presentations.

The activities in San Diego will begin even before the convention, on Thursday, Jan. 11th, when a day-trip will visit Buddy Ashurst's American Honey packing and beekeeping operation in El Centro. Tour buses will take the group from the San Diego hotel up through the scenic Laguna Mountains to the Crestwood Springs Summit (el. 4,109 ft.) and back down to the below-sea level Imperial Valley desert floor where the winter vegetable harvest will be in full swing. The Ashursts promise an interesting and educational tour, including a look at their unique system of making up nucs – and a Mexican lunch with hamburgers for the weak hearted.

The regular convention will open on Friday, Jan. 12th at the San Diego Marriott Hotel in Mission Valley, and run through Monday, Jan. 15th. The ABF Delegates Assembly will begin at 7 am on Friday; the annual business meeting is on Monday afternoon; and the annual banquet will be on Monday evening.

An evening in Mexico is set on Saturday, featuring shopping in Tijuana and dinner and entertainment at La Escondida hacienda.

For travel discounts contact ATC at 1-800-458-9383. Use of the official air carrier earns the ABF tickets for official association travel needs. For reservations at the San Diego Marriott Mission Valley, call 1-800-842-5329. Tell them you're with the American Beekeeping Federation Convention.

NHB Promotional Items Available

To help your honey make it into shopper's carts, check out these promotional items available from the NHB: posters, recipe brochures, cookbooks, camera-ready art, hangtags and more. To take a look at what the NHB has available to you, visit the industry visitor's desk at the Honey Board's web site – www.nhb.org or call 1-800-421-2977 and press 5 for a free promotional items catalog and samples of some of the most popular items.