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Antibiotic Update

Progress Towards the Legal Use of Alternative Antibiotics in Controlling Cases of Oxytetracycline Resistant American Foulbrood (rAFB)

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(Article reprinted from the Fall 2001 issue of the Manitoba Beekeeper, published by the Manitoba Beekeepers' Association.)

The steps toward the legal use of alternative antibiotics for the control of oxytetracycline-resistant American foulbrood (rAFB) have been clarified over the past 12 months. Three routes for future legal use of oxytetracycline (OTC) alternatives are: 1) extension of an existing veterinary pro-

duct label to include honey bees, 2) registration of a new product (New Drug Submission) and 3) prescription of an "off-label" use of an existing product by a veterinarian. I will describe how the Canadian beekeeping industry and their government counterparts are exploring each of these routes.

Two federal acts, the Food and Drugs Act (regulated through Health Canada) and the Feeds Act (regulated by the Canadian Food Inspection Agency, CFIA) govern the use of antibiotics in livestock such as honey bees. Both Acts specify that no antibiotics can be used in Canada without meeting specific and rigid requirements specified by either federal agency. Honey bees, however, are not listed as livestock under the Feeds Act, and as such, all antibiotic medicated products for honey bees in Canada are regulated by Health Canada

under the Food and Drugs Act.

To understand how the Food and Drugs Act relates to the legal use of alternatives, it is first easier to consider how the law regulates the use of OTC.

OTC products are the only products registered under Canada's Food and Drugs Act for use in the management of American foulbrood. The OTC products registered are Oxytet 25S, Oxysol 62.5 and Foul Brood Mix and each has an approved label indicating instructions to medicate bee colonies. The registered label means that beekeepers can legally apply these drugs, as described on the label, to their colonies without a prescription from a veterinarian.

The label is only one part of the regulation of antibiotic use. Maximum Residue Limits (MRLs) are set by Health Canada to limit the public's exposure to antibiotic through the consumption of livestock and livestock products. The MRL is based on the amount of honey consumed by an average Canadian and the relative danger of the antibiotic to human health. At present, the MRL for OTC is very low and if any OTC is found in honey it cannot be consumed. The reason for the low MRL is not because the antibiotic is persistent or dangerous, but rather because of a recent and temporary realignment of Canadian MRLs, which reset the level to a default of zero.

Two new antibiotic ingredients are being considered as

replacements for OTC, tylosin tartrate (tylsoin) and lincomycin hydrochloride (lincomycin). Although both antibiotics appear to be as effective against AFB and safe to bees as OTC, they are more persistent and increase the hazard of contaminating honey with unacceptable antibiotic residues. While OTC is a more desirable antibiotic, tylosin and lincomycin allow for the management of cases of AFB not responsive to OTC treatment. Fortunately, there currently are tylosin and lincomycin products registered for veterinary use in Canada, however, there is not an approved label for use with honey bees. Consequently, tylosin and lincomycin products cannot be used by beekeepers in Canada without a prescription from a veterinarian.

Alberta veterinarians are regulated under the Veterinary Professional Act. To prescribe tylosin or lincomycin under the Act, a 'veterinarian-client relationship' must exist, with the beekeeper requiring the vet to assume responsibility for the colonies and their treatment and to have sufficient knowledge about bee colonies and AFB to make a general diagnosis and prescribe a treatment. Unfortunately, few vets in Alberta have sufficient knowledge about honey bee diseases and none have information on using tylosin and lincomycin. To remedy this situation, Alberta's Provincial Apiarist Kenn Tuckey submitted an information package to the Alberta Veterinary Medical Association. The initial

package included information for only tylosin, as data to support the use of lincomycin has yet to be released by U.S. researchers. To learn more about progress on veterinary prescription for tylosin or lincomycin contact Kenn at (780) 415-2314.

When can a beekeeper expect to be able to legally apply tylosin or lincomycin without a prescription? A label expansion requires that Health Canada review a package of data that demonstrate new antibiotics for bees: 1) do not leave residues that are harmful to consumers (residue data), 2) are not harmful to bees (target animal safety data) and 3) are effective against AFB (efficacy data). Considerable data has been generated to support a label expansion, however most of the work has been conducted in the U.S. and not in Canada. Health Canada initially indicated that they would only accept Canadian data, however, recent developments suggest that U.S. data may be sufficient given the strength of the data and the small size of the Canadian beekeeping industry.

Elanco and Pharmacia & Upjohn, companies with registered tylosin and lincomycin products, respectively, have indicated that they may be interested in submitting a request for a label extension to Health Canada, although at this time neither company has done so. Medivet Pharmaceuticals has also indicated interest in registering new products specifically formulated for beekeeping, however a submission for

these products has also not yet been prepared. Company interest is critical, as they would prepare the submissions and pay for Health Canada's cost for review and registration. Medivet has gone a step further and is supporting research to develop safer formulations of both drugs.

Owing to a backlog of submissions, Health Canada is unlikely to review a label expansion or new product submission for at least two years, unless there is an emergency. The Canadian Honey Council has indicated to Health Canada that they perceive oxytetracycline-resistant AFB as an emergency situation, however, continued lobbying is necessary. Furthermore, no Canadian MRLs exist either for tylosin and lincomycin in honey, and arguments to establish them need to be formed and presented to Health Canada. Consequently, the possibility of legally using tylosin or lincomycin products for AFB, without a prescription, remains uncertain for the immediate future.

Given the uncertainty surrounding the use of alternative antibiotics, I suggest beekeepers try to manage AFB without tylosin or lincomycin, using aggressive comb inspection, extensive culling of AFB-infected equipment and OTC. A prescription for tylosin or lincomycin should only be pursued when resistant AFB has been confirmed and levels of the disease begin to rise. I would submit that AFB, at low levels, could be managed with limited or no antibiotic use and a beekeeper should

strive to only use antibiotics when the risk of disease is very high.

In an editorial report in the same issue of the Manitoba Beekeeper, President Phil Veldhuis passed along some information he received from Grant Hicks, President of the Alberta Beekeepers' Association, "An alternative antibiotic, tylosin, is available by veterinary prescription to beekeepers whose hives are infected with rAFB. The packaging of the tylosin includes a fact sheet on how to apply it. It is to be applied in a dust, three applications, and fall use only. This has been a blessing for our producers.

The reason the prescription is for fall use only is because there is no established tolerance for tylosin in honey. Spring applications would have much less time to break down before honey is removed from the hive. Any residues found could have severe consequences for the individual honey producer, as well as the process for registering tylosin for more regular use."

New Honey Book

Hot off the presses comes a new, 106 page, illustrated, paperbound textbook on honey: "Honey, The Gourmet Medicine." The author is well known "bee broker" and very creative writer Joe Traynor, proprietor of Scientific Ag Co. in Bakersfield, CA. His previous book, "Almond

Pollination Handbook," is very well respected by both almond growers and beekeepers.

His new text includes an Introduction, a section on Honey As Medicine, a section on Honey For Athletes, and a section called The Joy of Honey. The medical section covers many ailments for which treatment with honey has been beneficial. The Joy section includes: Toxic Honeys, Storing Honey, Buying Honey, and Other Products of Bees. There are many journal references and Web sites for those who wish to really dig in deeper.

The price for a single copy is \$9.95 plus tax and \$3.00 shipping and handling. Purchasing ten or more copies (to one address) reduces the price to \$5.00 each, with a total shipping price of \$10. If you order as an E-book, it is always \$5.00. The source for the books is: Atlas Books, at 30 Amberwood Parkway, Ashland, OH 44805. The phone is:1-800-247-6553; FAX (419) 281-6883. For E-books, either www.bookmasters.com or www.atlasbooks.com should work.

New Africanized Honey Bee Book

As a "Bee Person," do you get questions about Africanized ("Killer") honey bees? Do you have enough information to answer those inquiries intelligently? Do you know what really happened in South and Central America between the 1950's and the

present? And, are you willing to guess about our future with AHBs?

If you would like to learn the historical details, the ways that South and Central American beekeepers deal with AHBs today, and a glimpse at our future, you will want to read Dr. Dewey Caron's newest, 228 page, illustrated, paperbound textbook, "Africanized Honey Bees in the Americas."

Dewey has made numerous trips to South America to help rural people learn how to live around and actually use AHBs to their benefit. He has devoted significant time to researching the history of the spread of AHBs and the effects they have had on commercial and non-commercial beekeeping. The best feature of this book is that it is written in a more conversational style than one might expect from a "textbook." Dewey has met with many South American researchers and beekeepers. He relates the information from those interviews and experiences, and sometimes the opinions differ significantly.

In the book, Dewey describes what Africanized honey bees are. He describes the spread of AHBs from Brazil to the U.S. The idea of "barriers" (Panama Canal Zone, Mexico, Canada) is discussed, as well as myths about AHB that provide support for the barrier ideas. Then, he describes AHBs as tropical species that may be maladapted to temperate climates. But, he concedes that AHBs have been much more

"successful," from the point of view of disbursing through the Americas, than even the Brazilian researchers anticipated.

You can order a book (signed upon request) directly from Dewey for \$15, postage paid (in the U.S.). Send a check in Dewey's name to D.M.Caron, Department of Entomology, 250 Townsend Hall, University of Delaware, Newark, DE 19717. When Dewey runs out of copies, the book still will be available from the A.I. Root Company, 623 W. Liberty Street, Medina, OH 44256 [(800)289-7668 Ext. 3255]. When ordering from A.I. Root, make the check payable to them.

The Powerful Almond

In the Spring 2002 issue of California Almonds, published by the Almond Board of California, there was an article titled "Get Your E." They are referring to vitamin E. Studies show that the alpha-tocopherol form (of eight possible forms) of vitamin E is the only one that the human body can utilize well. Analyses demonstrated that an ounce of almonds has more than 7 grams of that form of vitamin E. We only need 15 milligrams daily (RDA). So, how many nut meats is that?

A postage scale at home showed that there are 20 nuts in an ounce. Those 20 nuts contain 7,000 mg of vitamin E. That's 23.3 times the RDA, per nut. Or to put it another way, you would have to consume only one 467th of

an ounce of almond meats, daily, to reach the RDA.

Save your vitamin E money and eat at least one almond per day (or I guess they say "a can a week" in their ads).

Beekeeping Supplies

Having a problem locating a beekeeping item? There is a Web site that lists a whole bunch of beekeeping supply outlets across the U.S. Where available, the list includes addresses, telephone and FAX numbers, e-mail addresses and Web sites.

The comprehensive source is called: www.beesource.com.

Buckeye Poisoning

Coincidentally, I received a request for information (which I didn't think I had) then accidentally ran across an article that answered the question, in the same few days. The question was, "What is the color of buckeye pollen?" The answer appeared in a short article by Serge Lebesque, titled "Beware Buckeye Poisoning!" printed in the June 2001 issue of The Monthly Extractor, the Newsletter of the Sonoma County Beekeepers' Association.

"I should have moved the hives away three weeks ago. Now the bloom of the buckeyes is almost over. The harm is

done. I was afraid of that problem two years ago and last year. I remember talking about it and getting some information about that. Nothing significant happened then, but this year is going differently.

The explanation I have is this: Here, at home, the honey flow stopped quite abruptly around May 1st because this year is a very dry one. The buckeyes started blooming around that time. The bees had little, if any, alternative source of nectar and pollen. I started seeing some bad brood patterns two weeks ago. A week ago, I saw two hives with no eggs, no larvae, no brood, even though they had given signs of initially doing well. Now, in the morning, most of the hives have young bees on their landing boards. One is literally covered by just emerged bees. The bees are not dead, just cold, and they come to life with the warmth of the sun. Their wings are missing, deformed or folded. Then, they start walking, they fall off the landing board and they crawl in the grass, away from the hive. Not pretty. [Editor's note - sounds like tracheal mites, too.]

I remember seeing some **red** and **bright orange** pollen on the monitoring trays of my screened floors in early May. Now, I know the color of the pollen produced by buckeye trees. When I see that next year, I will know that I have to either move the hives or feed them to dilute the poisonous substances. Unfortunately, it is too late to do anything, this year. The

brood that was fed the buck-eye nectar and pollen is emerging and will be lost. Hopefully, the queens will be able to resume egg laying soon."

Ag Buffer Zones

Steve Sutter, Area Coop Extension Personnel Management Advisor for Fresno, Madera, Kings and Tulare Counties prepared this article for Nut Grower Magazine, February 2002, page 17. As a beekeeper, you might be interested in how this turns out.

"No-Spray" Buffer Zones Looming

Current agricultural worker protection regulations require a pesticide label statement reading "Do not apply this product in a way that will contact workers or other persons either directly or through drift." Each year, however, states receive about 2,500 complaints of drift from individuals, and the U.S. EPA believes many incidents are unreported.

A proposed U.S. EPA draft notice to registrants - generally the pesticide manufacturers - could result in new label statements deemed by some farm lobbyists as very troublesome, if not oppressive. Environmental groups, on the other hand, are concerned the proposed strengthened controls on pesticide spray and dust drift don't go far enough to protect human health and the environment.

To this writer, it appears that if the proposals remain substantially unchanged, more pesticide labels over the next few years may require no-spray zones - measured in feet from protected sites and to be determined for a particular product, also known as "buffer" zones. These no-spray zones would have to be part of the operator's property.

Along with that, spraying or dusting could be limited by label guidance, for example, to times when wind speed "... is 3-10 mph at the application site [and outside the orchard/vineyard on the upwind side] as measured by an anemometer." At least one environmental group suggests that the public urge the U.S. EPA to lower the upper limit to 8 mph. The U.S. EPA "... believes it is important to require applicators to measure wind speed at the application site and with an anemometer, an inexpensive instrument for this purpose, in order to obtain an accurate measurement."

IPM for Almonds

Do you want to know what the University of California is recommending for controlling pests in almond orchards?

Integrated Pest Management for Almonds, Second Edition, was published recently. The 199 page, lavishly illustrated (259 color photos), paperbound guide starts with a general

chapter on tree development and growth requirements, follows with a general chapter on managing pests, then becomes much more specific. Vertebrate pests, insects and mites, diseases, nematodes and weeds (120 in all) get individual attention, by species. The only thing that is not there is the specific registered control product, because they change frequently and this publication is designed not to go out of date that quickly. The product recommendations can be found on the Web at:
www.ipm.ucdavis.edu.

To order a copy of this very comprehensive publication, call 1-800-994-8849, or locally (510) 642-2431. Have a VISA or MasterCard handy and be prepared to part with \$32.00. The publication number is 3308.

Sincerely,

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