

APIS



Apicultural Information and Issues

From IFAS/University of Florida
Department of Entomology and Nematology

February 1997

Inside APIS:

Christmas present for honey bees a reality
... thanks to the U.S. Agricultural Research Service. *Page 1.*

Honey bee importation law to be changed
Do bee regulations restrict free trade? *Page 1.*

Off-spec corn syrup in Canada: A risk to honey bees
Some HFCS may not be a bargain. *Page 2.*

Canadian joint meetings
Setting the trend for the future of bee research, and preparing for Apimondia '99. *Page 3.*

Extension apiculturist in France
Reports from the field. *Page 4.*

Formic acid registration comments
Your comments needed. *Page 4.*

APIS Volume 15, Number 2
ISSN 0889-3764

Copyright© M.T. Sanford "All Rights Reserved"

Christmas Present for Honey Bees a Reality

THE HONEY BEE has unexpectedly received the Christmas gift I discussed in the January *APIS*. Dr. Edward B. Knipling, acting administrator, Agricultural Research Service (ARS), has pledged to take \$100,000 from USDA-ARS emergency contingency funding and put it to use in honey bee mite research. The funds are to be distributed as follows:

- The Baton Rouge bee laboratory will get \$50,000 for research on developing a Varroa-resistant bee stock.
- The Beltsville bee laboratory will get \$50,000, which will be used for testing formic acid under different climates. These funds will be distributed to four land grant universities: University of Nebraska, University of Minnesota, Pennsylvania State University and Texas A&M University, for conducting the tests using a standard protocol.

The beekeeping industry owes a good deal of thanks to Dr. Knipling for this action. Also, it should be recognized that *The New York Times* article played a role in getting enough public attention to make the gift a reality. ■

Honey Bee Importation Law to be Changed

DR. ERIC MUSSEN, in his latest newsletter, *From the UC Apiaries*, provides a discussion of changes in the offing for the honey bee importation law, originally passed in 1922. The current act, according to Dr. Mussen, is basically a prohibition to import anything involving live bees and reproductive products into the United States. USDA researchers and their cooperators were the only possible exceptions.

However, international trade agreements like GATT are forcing changes in these kinds of laws, Dr. Mussen says, because they require open trade unless there is a demonstrable health threat. New Zealand, Australia and European countries, for example, have been knocking on the United States' door for years, to allow

Continued next page

Importation continued

their stocks to come into the country. Any agreement with those countries that do not have tracheal or Varroa mites, of course, cannot be reciprocal, because of demonstrated health risks to the bee populations there.

THE NEW LOOK at the 1922 bee law (under the Federal Advisory Committee Act) will involve formulation of a Technical Advisory Group (TAG) that would decide who is allowed to import what from where. This still would allow "research" imports, Dr. Mussen says, but exotic queen and/or semen importations would have to arrive through an approved quarantine facility, be reared under close scrutiny, then released following review of data by the TAG.

Importations, Dr. Mussen says, would have to be done in compliance with the National Environmental Policy Act, which requires acceptable environmental assessment and environmental impact statements. Violators would receive more than a slap on the hand; a \$10,000-per-queen fine is being discussed. Commercial stock importations from the previously mentioned countries, plus Canada and Mexico, would be allowed through a permitting system. Using the FAO guidelines (Risk Assessment Process), if no health threat is perceived, and the importer adequately justifies the need for importation, the permit would be issued.

According to Dr. Mussen, Bob Flanders from USDA/APHIS Risk Assessment – Organism Permitting intends to formulate and publish the new regulations in the Federal Register (for comment) in August, and have them be implemented as a new law by the end of 1997. He urges those concerned to contact Bob and provide him with ideas on this topic: (301) 734-8896 [FAX (301) 734-8700] or mail to PPQ Permit Unit, 4700 River Road, Unit 133, Riverdale, MD 20737-1228.

As a postscript, I was at the Canadian Association of Professional Apiculturists (CAPA), the Canadian Honey

Council, and Manitoba Beekeepers Association joint meetings in late January, 1997. Similar to GATT, the NAFTA agreement also is a strong factor in determining whether Canadians can keep the border closed to U.S. bees and beekeepers.

In order to maintain border closure, Canadians must also go through a bee health risk assessment procedure, which includes wording like "based on

science," "cannot be a technical barrier to trade," and "no more restrictive than necessary." How long such an assessment can continue to rationalize the border closure, therefore, remains only a guess. As a corollary, look for increasing pressure from Mexico to allow bees from south of the border to provide pollination for California's almonds and other high-value crops in the United States. ■

Off-Spec Corn Syrup in Canada: A Risk to Honey Bees

LAST WINTER, some Canadian beekeepers saw many indoor-wintered colonies die. The reason was not immediately apparent, but research finally provided a great deal of evidence that the culprit was what is known as "off-spec" corn syrup. This is high fructose corn syrup (HFCS) that cannot be used by the eventual customer for some reason and is subsequently sold by the manufacturer at a discount. In the past, many beekeepers used such products with great success.

At the Manitoba Beekeepers Association meeting in Winnipeg, Dr. Rob Currie, University of Manitoba, revealed how his research led to the above conclusion. After sorting through many variables, including incidence of nosema, effects of pesticide applications, and/or granulation of feed, all signs pointed to off-spec HFCS. One piece of evidence was the wide variability in content of hydroxy-methylfurfural, or HMF, in these products. There is evidence that high levels of HMF have injured bees. A high level of HMF is considered 114 parts per million (ppm); honey could have as high as 40 ppm. However, Dr. Currie does not consider this the full answer. Undissolved solids or incomplete hydrolysis also could have contributed. High acidity levels (low pH) may be an indication of this. However, honey itself is often low in pH (a level of 3-4 is not unusual for the sweet on the pH scale of one through 14, seven being neutral). Dr. Currie found almost by accident, however, that many syrups are in fact produced using acid hydrolysis (those required in beer making, for example) instead of enzymes (the usual production technology). Acid hydrolysis is known to result in syrup injurious to honey bees.

Although there is a good deal of evidence that off-spec syrup is indeed the culprit in the Manitoba incident, Dr. Currie cannot point to the actual mechanism causing the problem. He does warn beekeepers, however, to be aware of two possible problems in off-spec HFCS: low pH (four or lower), and a colored syrup. Most HFCS is colorless; colored syrup may be an indication that it was manufactured by acid hydrolysis. ■

Other Canadian Research/Issues

BESIDES THE OFF-SPEC syrup scenario, a good deal other research and general information was reported at the joint meeting of CAPA, Canadian Honey Council, and Manitoba Beekeepers Association in Winnipeg. Dr. Cynthia Scott Dupree, University of Guelph, discussed a study showing evidence for a genetic basis to susceptibility of nosema in bees. A new bioassay using bees in cages was developed for this study.

Dr. Dupree also reported on a study designed to reduce the number of female greater wax moths in equipment storage facilities. Male greater wax moths generate pheromones (odors) that attract females. Traps using both live males and synthetic male pheromones attracted females. Research is continuing to find the best trap design and best blend of synthetic pheromone. It is thought this will lead to an environmentally safe way to control greater wax moths.

Dr. Gard Otis, University of Guelph, discussed the continuing effort to breed bees that are resistant to honey bee tracheal mites (HBTM). In general, Buckfast bees seem to be much more resistant to tracheal mites than others in Canada. However, this is not always the case, Dr. Otis concludes, and he is looking for alternative explanations. In the meantime, Dr. Medhat Nasr, University of Guelph, working with the Ontario Beekeepers Association, has mounted an effective program of monitoring resistance and breeding from bees that continue to have low infestations of tracheal mites.

In British Columbia, Dr. Mark Winston reported on work with several students, including effects of neem on honey bees, their pests and parasites, and on the various nutritional, temperature and pheromonal factors that affect worker development. Other nutritional experiments were reported by Dr. Currie, University of Manitoba, and Dr. Gard Otis, University of Guelph. In the former, pea flour was analyzed for its effectiveness in bee nutrition through

analysis of pharyngeal glands and ovarian development. The material was avidly collected by honey bees, but the insects either can't or don't use it effectively. In the latter study, the effects of pollen shortages on the symmetry of bees' body parts is being used to help gauge a colony's nutritional status.

RESearch in the United States was also reported at the combined meeting in Canada. Dr. Marla Spivak, University of Minnesota, discussed her experiments with oils of essence in Varroa mite control. Although in some instances these oils are effective, they are not uniformly so, Dr. Spivak concludes. They are especially problematic because they cannot effectively get to Varroa that are sealed in brood cells. Dr. Spivak also reported on her research concerning hygienic bees. These continue to be resistant against most of the maladies affecting modern beekeeping. The technology to find hygienic bees is in place, according to Dr. Spivak. Now it is up to the beekeeping community or individual operators to bring this technology into mainstream beekeeping. Jim Bach, Washington state apiarist, also called for a North American stock improvement program that would incorporate genetic material from across the continent into a working breeding program.

Pesticide use in Manitoba was addressed by Don Dixon, Manitoba provincial apiarist. He discussed a vigorous, aggressive campaign by the bee-

keeping community to produce and distribute public relations materials to growers and their associations. In a related effort, Dr. Marion Ellis, Nebraska extension beekeeping specialist, relayed information on his study to determine the effects of the alarm pheromone 2-heptanone in repelling bees from fields of corn that have been sprayed with pesticides. Study is continuing, and a technology of using encapsulated pheromones in commercial applications is being explored.

Perhaps the most exciting thing in Winnipeg was excitement concerning Canada being chosen as the site for the 1999 Apimondia meeting. Now that the official bid has been accepted, the Canadians are moving to the implementation stage. Vancouver is a hot tourist destination and inexpensive rooms will be scarce; some 1,700 rooms already have been confirmed at several price levels, and more are being sought. Other areas of activity include trying to find sponsorship, contracting with special service providers, and developing the agenda. One aim is to make the program much more relevant to North American beekeepers than has been the case at other Apimondia meetings. Specifically, there will be a lot of attention given to the display area, which will show the best the world has to offer in equipment and innovations. In addition, workshops and symposia will be as practically oriented as possible.

Continued next page

Canadian Bee Research Fund

At the Manitoba/CAPA meetings in Winnipeg, Dr. Mark Winston and colleagues of the professional community announced development of the Canadian Bee Research Fund in response to government cutbacks in this arena. This trend-setting fund will be operated and controlled by beekeepers who donate to it. Contributions are tax deductible and voluntary. The first donor was the Canadian Association of Professional Apiculturists (CAPA) with a sum of \$5000 Canadian dollars. As I left Manitoba, more than \$10,000 Canadian dollars had been contributed. Dr. Winston said his personal goal was to see a million Canadian dollars in the fund which would be a sustainable source of research dollars far into the future. ■

Canadian issues continued

Financial sponsorship is available at several levels for the Vancouver meeting: It costs \$10,000 to be an official sponsor, \$5,000 to be a symposium sponsor and \$2,500 to be a workshop

sponsor. This allows the sponsoring organization input into the program. Anyone having interest in this area is asked to contact Don Dixon, Manitoba provincial apiarist, at Manitoba Agri-

culture, 204-545 University Cres., Winnipeg MB R3T 5S6, Canada. Tel: 204-945-3861, Fax: 204-945-4327; E-mail: ddixon@gov.mb.ca. ■

Extension Apiculturist in France

I ARRIVED IN FRANCE the first of this month and am writing this issue of *APIS* from my third-floor apartment, 23 Boulevard de la République, No. 8, 13100, Aix-en-Provence, France. There is more winter here than in Florida, but signs of coming spring are apparent. Some fruit trees are in bloom, including almonds, and that old standby I remember from the midwestern United States, forsythia, is out.

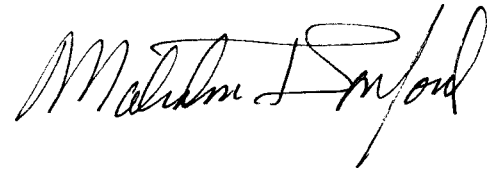
I am hosted here by Pascal Jourdan, Executive Director of Association pour le Développement de l'Apiculture Provençale (ADAPI). He is headquartered at Maison des Agriculteurs, 22 Avenue Henri Pontier, 113626, Aix-en-Provence.

The organization of French beekeepers within the other professional groups of agriculturalists is complex. So far, I have met with two groups involved with ADAPI.

On February 7, members of both pollination GRAPPs (Groupement des Apiculteurs Pollinisateurs Professionnels) visited the pollination research station at the Laboratoire de Pollinisation Entomophile, INRA Unite de Zoologie in Avignon, some 70 kilometers from Aix (see October 1995 *APIS*). I reported on that visit to the Apis-L list on February 9, 1997. The full text can be seen at: (http://www.ifas.ufl.edu/~mts/apishtm/letters/Aix2_9.htm).

The next week I attended a meeting of SAPP (Professional Beekeepers Association of Provence) at Les Moyens in the Department of Var, a political entity like a state or province; France has 95 departments, including several in the New World (Guyana and Martinique). Subjects brought up at that meeting included honey labeling and quality, pesticide application and the annual budget of the association. Research on Varroa control was also presented by Pascal Jourdan, my host in France. I reported on that visit to the Apis-L list on February 11, 1997. The full text can be seen at: (http://www.ifas.ufl.edu/~mts/apishtm/letters/Aix2_11.htm). ■

Sincerely,



Temporarily at:

23 Blvd. de la République No. 8, 13100
Aix-en-Provence, France
ph 33-04-42-93-16-47
e-mail: sanford1@aix.pacwan.net

Formic Acid Registration Comments

FORMIC ACID APPEARS to be the best possible alternative chemical control for Varroa and tracheal mites in the United States. In this regard, it is encouraging that the EPA is in the process of establishing what kind of tolerance there should be for this chemical in bee products. The document, requesting comments regarding the EPA's proposal to establish exemptions from the requirement of a tolerance for formic acid in honey and beeswax, was published in the Federal Register February 5, 1997 (Volume 62, Number 24), pages 5370-5373. The full text can be seen at: <http://www.ifas.ufl.edu/~mts/apishtm/papers/formic.htm>. ■

APIS, a monthly newsletter, is celebrating its 15th year of service to beekeepers. For subscription or other information, please write, phone, fax or e-mail.

Malcolm T. Sanford
P.O. Box 110620, Building 970
University of Florida
Gainesville, FL 32611-0620

Phone: (352) 392-1801, Ext. 143
Fax: (352) 392-0190
Internet: MTS@GNV.IFAS.UFL.EDU

Back issues are available on the World Wide Web:

<http://gnv.ifas.ufl.edu/~entweb/apis/apis.htm>.

For an electronic subscription, send a subscribe message to:
listserv@nervm.nerdc.ufl.edu.

The Cooperative Extension Service, Institute of Food and Agricultural Sciences, is an Equal Employment Opportunity - Affirmative Action Employer authorized to provide research, educational information and other services only to individuals and institutions that function without regard to race, color, sex, or national origin.