

APIS



Apicultural Information and Issues

From IFAS/University of Florida
Department of Entomology and Nematology

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Update on Pollination Value

DRS. R. MORSE and N. Calderone at Cornell University have written a 15-page insert in the March 2000 *Bee Culture* (Vol. 128, No. 3) titled: *The Value of Honey Bees As Pollinators of U.S. Crops in 2000*. It updates previous publications, estimating the annual increased agricultural production of honey bee pollination to be \$14.6 billion versus the \$9.3 billion figure established in 1987. Other previous estimates are in the same relative range^{1,2,3}. A major thesis of this publication is that honey bees are part of modern American agriculture with over two million colonies on the road each year pollinating crops and producing honey and beeswax.

The publication provides a summary of major crops now pollinated by honey bees. At the top of the list are California almonds, with some 420,000 acres of nut-bearing trees and another 80,000 acres of non bearing trees soon to come online. Thus, there will be over a half-million acres of almonds in that state in the future, with growers using two or more colonies of honey bees per acre for pollination. Apples are also on the move with a 10 percent increase in production over the past decade, using some 275,000 honey bee colonies. Alfalfa seed production is discussed as well, since much of the area where this cultivation takes place is not suitable for either leafcutter or alkali bees. Other crops mentioned are melons⁴, seedless watermelons⁵, plums and prunes, avocados, blueberries⁶, cherries, vegetable seeds, cucumbers, pears, sunflowers, kiwifruit and pumpkins.

The publication concludes that as farms grow larger and management schemes become more intense, most growers will depend more on honey bees. Only these social insects are available throughout the growing season, pollinate a wide variety of crops, and can be concentrated in high numbers when required. All this leads to the conclusion that commercial pollination continues to be a growth industry, something previously discussed in these pages⁷. What is not detailed in the publication is the current state of pollination research using honey bees. It is woefully lacking in many areas and in large part responsible for commercial pollination continuing to languish as the forgotten agricultural input⁸. To inquire about reprints of this pollination insert from *Bee Culture* write 623 Liberty St., Medina, OH 44256, call 1-800-289-7668 or e-mail: beeculture@airoot.com. ■

¹ <http://www.ifas.ufl.edu/~mts/apishtm/apis92/apnov92.htm#4>

² <http://www.ifas.ufl.edu/~mts/apishtm/apis87/apjun87.htm#4>

³ <http://www.ifas.ufl.edu/~mts/apishtm/apis84/apfeb84.htm#1>

⁴ <http://www.ifas.ufl.edu/~mts/apishtm/papers/vinopol.htm>

⁵ <http://www.ifas.ufl.edu/~mts/apishtm/apis98/apmay98.htm#2>

⁶ <http://www.ifas.ufl.edu/~mts/apishtm/apis91/apfeb91.htm#4>

⁷ <http://www.ifas.ufl.edu/~mts/apishtm/apis93/apnov93.htm#5>

⁸ <http://www.ifas.ufl.edu/~mts/apishtm/papers/ALTPOL.HTM>

Communicating the Joy of Keeping Bees: Year 2000 Challenge from the *APIS* Newsletter

THERE HAS BEEN MUCH HAND WRINGING over the lack of young beekeepers in the United States and elsewhere. The reasons are many; the most prevalent opinion is that young people are not attracted to activities that have little monetary reward. In my discussions with beekeepers, however, I find that money is not always, indeed may not be the main reason, most people keep bees. There are other possibilities including love of nature and the outdoors, fascination with social insects and cooperative systems, and the beauty of the individual insects as exhibited in queen, drone, and worker morphology and behavior. Many beekeepers are creative types and love to develop gadgets to help themselves and others keep bees more efficiently. These reasons bring to mind the book *The Joys of Beekeeping* by Richard Taylor (New York: St. Martin's Press), which continues to be widely read and appreciated. In the preface, Dr. Taylor writes: "...I have in mind readers who have never seen a beehive and who have no intention of ever owning one but who might want to know how things are done by devotees of this strange craft. I have also had in mind my fellow victims of this obsession, hoping that I have expressed something of their own joys and supplied them with an idea or two."

Other possible joys for beekeepers might be interest in the rich variety of worldwide honey bee races based on behavior and ecological niche, or the plants that honey bees as vegetarians depend on and that they pollinate in return. And, of course, there's the use of bee products like honey, beeswax, royal jelly, even venom. The latter is a reason for much recent excitement, given advances in apitherapy and the respect this activity is increasingly being given by the mainstream medical community⁹.

HOW THEN is it possible to encourage more young folks to take up the craft? One way is for each and every beekeeper to communicate their own individual passions and joys when they are involved with these insects. In reality this is not hard to do. My experience is that just taking an observation hive, jars of honey, cakes of beeswax, lumps of propolis or some other honey bee-related material (pictures, video tapes, books, beekeep-

ing equipment (smoker, veil, bee suit, gloves) into a classroom is enough. Not only students but also teachers get excited when this happens. You don't have to be a wonderful public speaker; but only need to authentically communicate what turns you on about the insects. Generally, the materials or props you bring take care of themselves by providing the basis for questions and answers. Will this activity ensure that young folks take up the craft? Hard to determine in advance, but if youngsters cannot first hand see the excitement of a real live beekeeper describing their experiences, the chances they will become beekeepers are certainly reduced.

So I issue a year 2000 challenge to each and every beekeeper that reads this newsletter to get into action. Call up a local school; no, two schools, and simply ask the question, would some science or other

teacher be interested in having a volunteer come in for a half-hour discussion with students about honey bees? Once your experience is complete, send me an account by e-mail or regular mail and/or call me on the phone telling me how it went, what it meant to you and ideas you used to stimulate discussion. I will then make up a page of these responses, which will be linked to the *APIS* World Wide Web site so that others will see what is being done and are able to capitalize on ideas already generated. This is the first project of this kind I know of, and it will be truly global in scope, as the electronic version of this document goes to over 1,870 persons, with another 1,400 paper editions being issued each month. The results on the *APIS* web site will be available 24 hours a day, seven days a week. Good luck and may the bees we all love inspire you. ■

Fulbright Grant to Ecuador

I HAVE BEEN AWARDED a Fulbright lecturing grant to Ecuador from May through September 2000. I plan to teach entomology and beekeeping at the Pontificia Universidad Católica del Ecuador (PUCE)¹⁰, cooperating with Dr. Giovanni Onore of that faculty. The Fulbright Program is recognized as the U.S. government's flagship program in international educational exchange. It was proposed to the U.S. Congress in 1945 by then freshman Senator J. William Fulbright of Arkansas. Senator Fulbright viewed the proposed program as a much-needed vehicle for promoting "mutual understanding between the people of the United States and the people of other countries of the world." The program was signed into law by President Truman in 1946¹¹. The University of Florida had six Fulbright grants awarded in 1999 and three in 1998¹².

Although physically absent, I plan to continue to publish this newsletter electronically as I have in the past when away in Italy¹³, Egypt¹⁴, and France¹⁵. ■

Pollination Contracts: Not a Necessity, But Good Business

ARE POLLINATION CONTRACTS necessary, and are they good business? These questions are asked by Editor Kim Flottum in the *Bee Culture* article following the pollination insert discussed elsewhere in this issue. The answers, he says, are a qualified no and an unqualified yes. Although many beekeepers may conclude an agreement on a handshake, there are many possible pitfalls, including those concerning liability insurance, payment defaults and penalties. The article concludes: "There's certainly much more to the business of pollination than the writing of good contract. But if you are just starting out this season, these

are contract points to consider that can make or break your business before you even begin." Model contracts can be found in many places, but perhaps the best is found in the pollinator's bible, *Agricultural Handbook 496, Insect Pollination of Cultivated Crop Plants* by S.E. McGregor, published by The Agricultural Research Service in 1976¹⁶ and found online in a couple of places¹⁷. I have published a modified version that is available online¹⁸. Other information on pollination is also available on the *Bee Culture* web site in the April 2000 column of "Beekeeping in the Digital Age"¹⁹. ■

HACCP: Coming Soon to a Quality Assurance Program Near You

SEVERAL READERS SUGGESTED that I discuss the term HACCP as used in the March 2000 *APIS*, when I wrote: "Honey... processed and packaged at the HACCP-approved facilities in Spruce Grove, Alberta and Winnipeg, Manitoba"²⁰. The acronym HACCP is pronounced "hassip" and stands for Hazard Analysis and Critical Control Point. The U.S. Food and Drug Administration (FDA) has adopted this food safety program, developed nearly 30 years ago for astronauts and first applied to seafood. HACCPs for meat and poultry processing plants, as well as fruit and vegetable juices, have also been established. The FDA is considering developing regulations that would establish HACCP as the food safety standard throughout other areas of the food industry, including both domestic and imported food products²¹.

That brings us to honey. Fortunately, the sweet is forgiving to process, pack and sell. However, there is increasing concern about using it in other products, something the National Honey Board has been promoting for a long time²². In fact HACCP is already part of the National Honey Board's Pride Program. It is based on seven principles:

1. Do a hazard analysis – Identify and list the food safety hazards that could occur in the production process and the preventative measures necessary to control the hazards.
2. Identify Critical Control Points (CCP) – Points of procedure at which control can be applied and a food safety hazard can be prevented, eliminated or reduced.
3. Set critical limits – Establish critical limits (a minimum and maximum allowable level) for preventive measures associated with each CCP.
4. Monitor – Observations or measurements to determine whether a CCP is within established limits.
5. Take corrective actions where appropriate – A corrective action procedure must be part of the HACCP when monitoring indicates a deviation from a critical limit.
6. Keep good records – Consistent, reliable records should be generated and available for review.
7. Regularly examine your plan – HACCP must be verified periodically to see if systems are in compliance with the

original plan and if modification is necessary.

Tools needed to develop a HACCP plan include:

1. A list of good manufacturing processes.
2. Sanitation standard operating procedures
3. Product identification, tracking and recall procedures.

The key is to have a well-thought-out plan and to put it into place slowly but surely. Trying to do everything at once can be overwhelming and counterproductive. Begin with one line or area, be flexible, and be able to modify your plan according to specific needs.

At present, HACCP does not apply specifically to honey. This probably will change, however, according to Dr. Gary Fairchild at the University of Florida, who prepared a report on honey adulteration for the National Honey Board²³. A follow-up of that study, published in *American Bee Journal* (Vol. 140, No. 2, February) pp. 144 – 146, is titled: "Why a Quality Assurance Program?"

DR. FAIRCHILD is quoted in this article as saying: "Increasingly consumers want to know more about the history of their food. Their desire for information includes genetic material, chemical inputs, handling and storage, manufacturing processes, and environmental inputs. Sooner or later significant numbers of consumers will want to know the background of their honey. Mandatory HACCP systems for raw ingredients are coming in the near future and eco-labels that certify the impact of produc-

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”

- Dr. Gary Fairchild

tion, processing, handling and marketing systems on the environment are becoming increasingly important to selected consumer segments in many markets. The generalization can easily be made that food and food-ingredient markets will witness increased monitoring of production, processing, and marketing activities in the future. There are implications for the honey industry, which should be viewed as being consistent with a quality assurance program."

These remarks add to concerns that many have about the possible fate of the quality assurance program that is part of the upcoming referendum on the honey marketing order²⁴. If quality assurance is not somehow communicated to the consumer, there is a real danger that the reputation of honey as a special product could suffer²⁵. For more information on HACCP, see the National Honey Board's web site²⁶, and/or ask for the Pride packet/kit by calling the Board at 1-800-553-7162. ■

⁹ <http://bee.airoot.com/beeculture/digital/1999/column14.htm>

¹⁰ <http://www.puce.edu.ec/>

¹¹ <http://www.iie.org/cies/fulsp.htm>

¹² <http://www.napa.ufl.edu/Digest/old/1999-2000/faxcfullbright.htm>

¹³ <http://www.ifas.ufl.edu/~mts/apishtm/apis89/apjul89.htm#1>

¹⁴ <http://www.ifas.ufl.edu/~mts/apishtm/apis92/apmar92.htm#1>

¹⁵ <http://www.ifas.ufl.edu/~mts/apishtm/letters/aixind.htm>

¹⁶ <http://edis.ifas.ufl.edu/AA169>

¹⁷ <http://bee.airoot.com/beeculture/digital/2000/column20.htm>

¹⁸ <http://edis.ifas.ufl.edu/AA169>

¹⁹ <http://bee.airoot.com/beeculture/digital/2000/column20.htm>

²⁰ <http://www.beemaid.com/beemaid/beemaid.html>

²¹ <http://vm.cfsan.fda.gov/~lrd/bghaccp.html>

²² <http://www.ifas.ufl.edu/~mts/apishtm/apis99/apjun99.htm#2>

²³ <http://www.ifas.ufl.edu/~mts/apishtm/apis99/apoct99.htm#3>

²⁴ http://www.ifas.ufl.edu/~mts/apishtm/apis_2000/apmar_2000.htm#1

²⁵ <http://www.ifas.ufl.edu/~mts/apishtm/apis99/apnov99.htm#2>

²⁶ <http://www.nhb.org/howto/HACCP.html>

National Organic Standards Proposed Again: Apiculture Not Included

SOME 275,603 COMMENTS based on the proposed regulations governing the USDA's National Organic Program (NOP), published December 16, 1997, in the Federal Register and another 10,817 in response to an October 24, 1998, Federal Register entry is the largest public response to a proposed rule in USDA history. It caused the authors to go back to the drawing board. Thus, March 7, 2000, the USDA released its second proposal for the National Organic Program²⁷. Again comments are solicited electronically²⁸. The following is a change in the livestock production section²⁹.

"4) **Apiculture Standard.** The first proposal allowed bees to be brought into an organic operation at any stage of life and required that the predominant portion of their forage be organically produced. Several commenters, including producer and industry groups, pointed out that bees differ significantly from other livestock types and that the first proposal lacked sufficient details to guide honey producers. Many consumers stated that the provisions proposed for bee forage, which required only that a predominant portion of the bees' forage be organic, were too vague and lenient. Recognizing that the provisions in the first proposal for certifying beekeeping operations were inadequate, we removed them entirely from this proposal. We will review the detailed production and handling standards for beekeeping operations that several certifying agents have developed and assess the feasibility of developing a practice standard. The NOSB has agreed to

review and recommend an apiculture practice standard for organic honey production and hive care, including the origin of organic bees."

There is also a proposed change from the original document regarding wild crop harvesting, something I thought might be applicable to apiculture³⁰.

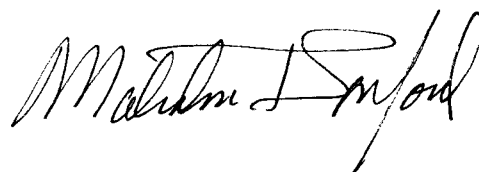
"(7) **Wild-crop Harvesting.** We received few comments on the provision in the first proposal concerning wild-crop harvesting, and, therefore, this proposal retains similar requirements. Changing the term for the location from which wild crops may be harvested from 'land' to 'area' is the only substantive difference between the first proposal and this one. We made this change to be consistent with the language in the OFPA. One commenter stated that maps should be required as part of the certification process. A certifying agent could reasonably require such maps to assist in evaluating the organic system plan, but we have not made their inclusion a requirement.

"The provisions of this section apply only to the management of wild crops. The OFPA includes 'fish used for food, wild or domesticated game, or other nonplant life' in the definition of livestock, and we are considering additional standards for animals and animal products harvested from the wild. We received substantial public comment on the opportunities for developing standards for marine and freshwater aquatic animals (encompassing finfish and shellfish) and apiculture operations. Additional comments ad-

ressed the feasibility of developing production standards for harvesting wild terrestrial animals."

I have written about the organic honey conundrum before³¹. The following dictates the philosophy of organic labeling in subpart C of the proposed regulations: "This subpart sets forth the requirements with which production and handling operations must comply in order to sell, label, or represent agricultural products as '100 percent organic,' 'organic,' or 'made with organic (specified ingredients).' The producer or handler of an organic production or handling operation must comply with all applicable provisions of subpart C. Any practice implemented in accordance with this subpart must maintain or improve the natural resources, including soil and water quality, of the operation. Production and handling operations which sell, label, or represent agricultural products as organic in any manner and which are exempt or excluded from certification must comply with the requirements of this subpart, except for the development of an organic system plan." The bottom line for organic customers will be whether the characteristics of the honey they want are in fact exhibited by the product, based on information provided by the producer, and certified by some independent group.

Sincerely,



²⁷ <http://www.ams.usda.gov/nop/>

²⁸ <http://192.239.92.75/waiscomment.html>

²⁹ http://www.ams.usda.gov/nop/rule2000/production_handling.htm

³⁰ <http://www.ifas.ufl.edu/~mts/apishtm/apis98/apjan98.htm#1>

³¹ <http://www.ifas.ufl.edu/~mts/apishtm/apis97/apmay97.htm#3>

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