Honey Bee Research

Why study honey bees?

There are several reasons why honey bees are perhaps one of the most studied insects (probably next to *Drosophila* in terms of amount of money spent and number of papers published).

- Honey bees play a critical role in agriculture. The most important role honey bees play is actually not honey production, but pollination. The value of crops that require pollination by honey bees, in the United States alone, is estimated to be around $24 billion each year and commercial bee pollination was valued around $10 billion annually. There is also a trend to consume more bee-pollinated crops (such as fruits and vegetables), making honey bees more and more important in agriculture. Honey bees also produce honey and beeswax, which are valued at $285 million in US annually. Besides that bees also produce pollen, propolis, royal jelly, and bee venom that are playing increasing roles in health food and alternative medicine. Bee stings are routinely used for treatment of arthritis, multiple sclerosis and other auto-immune diseases.

- Honey bees are studied extensively, also because they are fascinating organisms. Bees have captured mankind's attention since as early as Aristotle. Not only because they produce honey and honey is the earliest sweetener human beings have found, but because of their industriousness (working to their death), selflessness (producing honey for humans and dying to defend their home), and most importantly, their social organization. Honey bees, like other social insects, show "division of labor" whereby different workers specialize on different tasks. In some sense, the complexity of their society rivals that of our own. Who governs their day-to-day chores? How do workers know what to do in a city bustling with tens of thousands of individuals? Clearly these have been the questions of humankind since long time ago, as evidenced in the Bible: "Ants are creatures of little strength, yet they store up their food in the summer...Locusts have no king, yet they advance together in ranks." [Proverbs 30: 25-27].

- Honey bees are increasingly being used as a model system to study other aspects of biology. Besides their intricate social organization, honey bees are easily maintained, are cost effective in terms of obtaining large numbers of insects, and their genetics can be precisely controlled. Honey bee workers take 21 days to develop from eggs to adults, this compares favorably with other insects commonly used in classrooms (such as cockroaches, grasshoppers). Since a queen can lay as many as 1,500 eggs a day, large numbers of bees can be obtained easily. Honey bees are probably the only insect that has "artificial insemination" technique successfully invented. This is used extensively both commercially and in research to speed up the selection process and to control the exact genetic makeup of a colony.

Below is a list of research laboratories that study various aspects of honey bees. Please feel free to email me if you study honey bees and have a web page which is not presently listed here. If you would like www.cyberbee to host your page directly, please also contact me.

Bee Research Labs Around the World

Australia

1. Dr. Denis Anderson, CSIRO
2. Dr. Ben Oldroyd, University of Sydney
3. Dr. Ryszard Maleszka, Visual Science, The Australian National University

4. Insect Vision, Navigation and "Cognition" Laboratory, The Australian National University
5. Macquarie University Dr. Ken Cheng

Austria

1. Dr. Karl Crailsheim, University of Graz, Austria

Canada

1. Simon Fraser University: Dr. M.L. Winston
2. University of Guelph: Dr. E. Guzman | Dr. G.W. Otis | Dr. C.D. Scott-Dupree
3. University of Manitoba Dr. R. Currie

China

1. Apiculture Research Institute of Jilin Province
2. Department of Apiculture, Fujian Agricultural University
3. Eastern Bee Institute, Yunnan Agricultural University
4. Institute of Apicultural Research Academy of Agricultural Sciences, Beijing, China

England

1. Sheffield University Apiculture and Social Insect laboratory

France

1. Dr. Yves Le Conte, Institut national de la Recherche Agronomique, Centre d'Avignon

Germany

1. Freie University Berlin Prof. Dr. R. Menzel
2. Johann Wolfgang Goethe-Universitaet Frankfurt am Main Prof. Dr. N. Koeniger | Prof. Dr. S.D. Fuchs
3. Martin-Luther-Universitaet Halle-Wittenberg Prof. Dr. R.F.A. Moritz
4. Technische Universitaet Berlin Prof. Dr. J. Erber
5. Technische Universitaet Darmstadt Prof. Dr. W. Kaiser
6. University of Konstanz Prof. Dr. W. Kirchner

India

1. Indian Institute of Science Prof. R. Gadagkar

Israel

1. Prof. G. Bloch, The Hebrew University of Jerusalem
2. Prof. A. Hefez, Tel Aviv University
3. Yaacov Lensky, The Hebrew University of Jerusalem
4. The Triwaks Bee Research Center, The Hebrew University of Jerusalem
5. Prof. Sharoni Shafir, The Hebrew University of Jerusalem

Japan

1. Honeybee Science Research Center - Tamagawa University
2. Dr. Sasaki (in Japanese)
3. University of Tokyo Prof. T. Kubo (in Japanese)

New Zealand

1. Dr. Louise Malone, HortResearch
2. Dr. Alison Mercer, University of Otago
3. Dr. Peter Molan, University of Waikato

Norway

1. Dr. Stig W. Omholt, Agricultural University of Norway

Philippines

1. Bee Program, University of Philippines Los Banos

Poland

1. Dr. Woyke, Agricultural University SGGW

Thailand

1. Dr. Siriwat Wongsiri, Chulalongkorn University

United States of America

1. Arizona State University | Dr. G.V. Amdam | Dr. J.H. Fewell | Dr. J. Harrison | Dr. R.E. Page | Dr. S.C. Pratt | Dr. B.H. Smith |
2. Bucknell University Dr. B. Capaldi
3. Clemson University Dr. W.M. Hood
4. Cornell University Bee Lab Dr. N. Calderone | Dr. T. D. Seeley
5. East Tennessee State University Dr. Darrell Moore
6. Georgia Institute of Technology BioTracking Team
7. Juniata College Dr. J. Hosler
8. Kentucky State University Dr. T. Webster
9. Michigan State University Bee Lab | Dr. G. Ayers | Dr. F.C. Dyer | Dr. Z.Y. Huang
10. Mississipi State University Dr. C.H. Collison
11. North Carolina State University Apiculture Program | Dr. C.M. Grozinger | Dr. D.R. Tarpy
12. Ohio State University S. Coby | Dr. J. Tew
13. Oklahoma State University Dr. C.I. Abramson
14. Penn State University M. Frazier | Dr. N. Ostiguy
15. Purdue University Dr. Greg Hunt
16. Texas A&M University Bee Lab | Dr. T. Pankiw
17. University of California Davis Dr. Eric Mussen | Dr. C.Y.S. Peng
18. Universtiy of California Riverside Africanized Bees | Dr. K. Visscher
19. University of California San Diego Dr. J. Nieh

20. University of Colorado at Boulder Dr. M.D. Breed
21. University of Delaware Dr. Dewey Caron
22. University of Florida Dr. J. Ellis | Dr. H.G. Hall
23. University of Georgia Bee Program | Dr. K. S. Delaplane
24. University of Illinois (Urbana-Champaign) Bee Lab | Bee Brain EST | Dr. G.E. Robinson | Dr. C.W. Whitfield
25. University of Kansas Dr. D. Smith | Dr. O.R. Taylor
26. University of Miami Dr. K.D. Waddington
27. University of Montana Bee Lab | Dr. J.J. Bromenshenk
28. Universtity of Minnesota Twin Cities Bee Lab | Dr. M.S. Spivak
29. University of Nebraska Beekeeping Page | Dr. M. Ellis
30. University of Nevada Las Vegas Dr. M.M. Elekonich | Dr. S.P. Roberts
31. University of North Carolina Charlotte Dr. S. Schneider
32. University of North Carolina Greensboro Dr. O. Rueppell
33. University of Puerto Rico, Dr. Tugrul Giray
34. University of Tennessee Dr. J. Skinner
35. Virginia Polytechnic Institute & State University Beelab | Dr. R. Fell
36. Wake Forest University Dr. S. Fahrbach
37. Washington State University Bee Molecular Lab | Dr. S.W. Sheppard
38. USDA Bee Lab: Baton Rouge, LA
39. USDA Bee Lab: Beltsville, MD | BeeNome
40. USDA Bee Lab: Carl Hayden, AZ
41. USDA Bee Lab: Weslaco, TX

Taiwan

1. National Chung Hsing University Dr. E.C. Yang

Bee Organizations & Associations

1. American Association of Professional Apiculturists
2. International Bee Research Association
3. National Honey Board

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