

**SUSAN W. COBEY**  
**CURRICULUM VITAE**

530-754-9390

swcobey@ucdavis.edu

---

**SUMMARY OF QUALIFICATIONS**

An acknowledged world expert in the field of honey bee breeding with over 30 years experience in establishing and managing a closed population breeding program. An important accomplishment includes the development of techniques and equipment for the field of instrumental insemination of honey bees. Over 16 years of management of the Ohio State Honey Bee Research laboratory providing honey bee stock and assisting faculty, post-doctoral researchers, graduate and undergraduate students in honey bee research. Development of an independent research program focused on post-insemination survival of honey bee queens and the selection of behavioral traits including hygienic behavior. Additional skills include extensive experience in data gathering, analysis, writing and instructional skills for both scientific and public audiences.

Activities and expertise include:

- ◆ Worldwide consulting in honey bee breeding and instrumental insemination.
- ◆ Training of hundreds of beekeepers, research scientists and their staff in honey bee insemination and queen rearing.
- ◆ Development and maintenance of the world-renowned and industry respected New World Carniolan Honey Bee line.
- ◆ Recognized international authority on honey bee insemination techniques and specialized equipment.
- ◆ Provide select breeding stock to researchers and the beekeeping industry

**PROFESSIONAL EXPERIENCE**

UNIVERSITY of California, Davis May 2007 – Present  
***Staff Research Associate IV, Harry H. Laidlaw Honey Bee Research Facility***

Develop programs to enhance the ability of the California bee breeders to select and maintain breeding stock to supply industry demand. Continue to maintain selected lines of bees and improve these with semen collected from superior stocks abroad. Develop information and outreach programs to assist beekeepers in honey bee breeding methods. Provide instruction and in queen rearing and instrumental insemination.

OHIO STATE UNIVERSITY (OSU), Columbus, Ohio June 1990 – May 2007  
***Staff Apiarist, Rothenbuhler Honey Bee Laboratory***

Coordination and technical support of projects related to bee genetics, bee behavior in collaboration with Prof. B. H. Smith and non-chemical controls of parasitic honey bee mites. Coordinate the New World Carniolan Closed Population Breeding & Stock Maintenance Program. Instruct annual courses, present seminars, workshops and presentations on queen rearing, instrumental insemination, bee breeding and bee related topics, nationally & internationally.

HONEY BEE INSEMINATION SERVICE June 1990 – Present  
***Sole Proprietorship***

Provide specialized equipment for instrumental insemination of honey bee queens. Custom instrumental insemination service and training. Provide custom genetic crosses for research and commercial stock.

---

---

VACA VALLEY APIARY, Vacaville, CA September 1982 – May 1990  
**General Partner & Owner**

Establishment and operation of a diverse commercial beekeeping business devoted honey bee stock improvement. Development of the highly regarded New World Carniolan Breeding Program. Management of 1000 field colonies for queen production and pollination services. Production of 1500 queen mating nuclei for production of 5000 naturally mated queens annually.

USDA BEE BREEDING & STOCK CENTER, Baton Rouge, LA. January 1981 – August 1982  
**Biological Technician,**

Technical assistance related to honey bee reproduction, instrumental insemination, semen storage, honey bee behavior and physiology. Queen rearing, management of field colonies, construction and maintenance of beekeeping equipment in collaboration with Dr. John Harbo.

UNIVERSITY OF CALIFORNIA, Davis, CA. August 1978 – Oct. 1980  
**Biological Technician, Department of Entomology, Honey Bee Laboratory**

Assist in federal research project studying honey bee behavior in collaboration with Dr. Norman Gary and Dr. Rebecca Brown-Westerdahl

GENETIC SYSTEMS, INC. LABELLE, FLA. January 1978 – July 1978  
**Laboratory Technician,**

Instrumental Insemination of honey bee queens. Rearing and banking of queens and drones.

KENDAL APIARIES. WHITE SULFUR SPRINGS, MT. July 1977 October 1977  
**Beekeeper,**

Management of colonies for honey production.

WENNER HONEY FARM. GLENN, CA January 1977-June 1977  
**Beekeeper,** Commercial production of honey bee queens.

## EDUCATION

UNIVERSITY OF DELAWARE, Newark, DE  
**Bachelor of Science in Entomology,** 1976

OREGON STATE UNIVERSITY, Corvallis, OR.  
**Student Exchange Program Entomology,** 1975

## FELLOWSHIPS AND AWARDS

- International Apimondia Congress. Gold Metal for DVD Production Instrumental Insemination of Honey Bee Queens, 2007.
- Distinguished Staff Award, College Of Biological Science, Ohio State University, 2005
- International Apimondia Congress. Honorable Mention for Video Production Instrumental Insemination of Honey bee Queens, 1998.
- Ohio Leadership, Education, and Development Program Fellowship, Delegation IV, 1991 – 1993
- California State Beekeepers Association. Young Beekeeper Of The Year 1986

## GRANTS

- Cobey, S. Pollard, J., Plante, C. Spivak, M., Sheppard, W., Chen, J. Honey Bee Stock Improvement Program. California Almond Board. \$38,500. 2008-2009.
- Cobey, S., Pollard, J., Plante, C. Development of Reproductive Technologies to Facilitate the Safe International Exchange of Genetics in the Honey Bee. National Honey Board. \$21,700. 2008-2009.
- Mussen, E., Cobey, S. Stock Improvement Pilot Program In Cooperation with Dr. Spivak, U. of MN. California State Beekeepers Assoc. \$10,000. 2008.
- Cobey, S. Honey Bee Stock Improvement Program. California State Beekeepers Assoc. \$35,300. 2008-2009.
- Cobey, S. OSU Critical Difference for Women, Professional Development Grant. \$600. 2004
- Cobey, S. New Hampshire Beekeepers Assoc. Selection For Tracheal Mite Resistance NWC Program. \$500. 1998
- Cobey, S. Spivak, M., Smith, B.H. California Apiary Board & California Almond Board. University of Minnesota. Breeding Honey Bees for Resistance to Mite Infestations Project. \$25,000. 1995-1996
- Sammataro, D., S. Cobey, B.H. Smith. California Department of Food and Agriculture. Integrated Pest Management Approach to the Control of Honey Bee Tracheal Mites. \$29,000. 1993-1995
- Sammataro, D., S. Cobey, B.H. Smith. California Department of Food and Agriculture. Control of Honey Bee Tracheal Mites With Natural Products: Testing of Vegetable Oil Formulations. \$6,000. 1992 – 1993

## PUBLICATIONS

### **Publications (Peer-reviewed):**

- Cobey, S., 2007. Comparison of instrumental inseminated and naturally mated honey bee queens and factors affecting their performance. A Review. *Apidology* 38: 390-410.
- Ferguson, J. Cobey, S., Smith, B.H. 2001. Sensitivity to a change in reward is heritable in the honey bee, *Apis mellifera*. *Animal Behavior* (61) 527-534.
- Winston, M.L., Marceau, J., Higo, H. and Cobey, S. 1998. Honey Bee Pheromones Do Not Improve Re-queening Success. *Amer. Bee Jour.* Vol. 138:12 pp900-903.
- Benatar, S.T., S. Cobey, B.H. Smith. 1995. Selection on a haploid genotype for discrimination learning performance: Correlation between drone honey bees (*Apis mellifera*) and their worker progeny (Hymenoptera: Apidae). *Jour. of Insect Behav.* Vol. 8. pp. 637-652.
- Sammataro, D., S. Cobey, B.H. Smith, G. R. Needham. 1994. Controlling Tracheal Mites (Acari: Tarsonemidae) in Honey Bees (Hymenoptera: Apidae) with Vegetable Oil. *J. Econ. Ent.* Vol. 87. No. 4 pp. 910-916
- Smith, B.H. and Cobey, S. 1994. Olfactory memory in the honey bee. II Blocking between odorants in binary mixtures. *J. Exo. Biol.* 195 pp. 91-108.
- Bhagavan, S. Benatar, S. Cobey, S. Smith, B.H. 1994. Effect of genotype but not age or caste on olfactory learning performance in the honey bee. *Anim. Behav.* 48, No 6 pp. 1357-1369.
- Cobey, S., Fondrk, K., Laidlaw, H.H. 1986. Instrumental Insemination: Adapting The Mackensen Plastic Tip For Use With The Glass Tip. *Bee World.* Vol. 67. No. 1 pp. 9-11.

**Publications (Proceedings):**

- Cobey, S. 2008. El Futuro Del Mejoramiento Del Stock De La Abeja Melifera. Symposium Mundial de Cridores De Abejas Reinas E Inseminacion Proceedings. Apimondia Congress. Nuevo Vallarta, Nayarit, Mexico p. 130-131.
- Cobey, S. 2007. Symposia: Bee Breeding In the 21<sup>st</sup> Century. Comparison Studies of IIQ and NMQs. Melbourne, Australia Proceedings. Apimondia 40th Congress.
- Cobey, S., 2003. Innovations In Instrumental Insemination And the Super-Organism Concept. VXII Proceeding; Seminario Americano De Apicultura Aguascalientes, Mexico, Aug. 7-9, 2003 pp-95
- Cobey, S., 2003. Honey Bee Mating Behavior & Field Dissection Of The Spermatheca. Proceedings VXII Seminario Americano De Apicultura, Aguascalientes, Mexico, Aug. 7-9, 2003 pp 96-99
- Cobey, S., 2001. The Varroa Species Complex, Proceedings XV Seminario Americano de Apicultura Tepic, Nayarit, Mexico, Aug. 15 – 18, 2001.
- Cobey, S., 2001. Limitations of Chemical Treatment And Selection For Traits That Confer Resistance. Proceedings XV Seminario Americano de Apicultura Tepic, Nayarit, Mexico, Aug. 15 – 18, 2001
- Cobey, S. 1999. Symposia: Selective Breeding And Stock Maintenance. The New World Carniolan Breeding Project. . Proceedings. Apimondia XXXVI Congress.
- Cobey, S., 1998. A Comparison Of Colony Performance Of Instrumentally Inseminated and Naturally Mated Honey Bee Queens. Proceedings. American Bee Research Conference., Colorado Springs, CO. Amer. Bee Journal 138:4 :292.
- Cobey, S., 1998. Field Colony Performance of Instrumentally Inseminated And Naturally Mated Honey Bee Queens. Proceedings. VI Congreso Ibero-Latinoamericano de Apicultura Merida Yucatan Aug. 1998.
- Cobey, S., 1996. Techniques of Instrumental Insemination. Poster. International Tropical Bee Conference, International Bee Research Assoc.. San Jose Costa Rica. Aug. 1996.
- Cobey, S., 1995. Unique Obstacles and Strategies of Bee Breeding. Proceedings. IX Seminario Americano De Apicultura, Colima, Mexico Sept.1-3., 1995.
- Cobey, S., 1993. Practical field selection and evaluation methods for a large number of colonies. Proceedings. VI Seminario Americano De Apicultura, Tepic, Mexico, Sept.3-5., 1993.
- Cobey, S., 1992. Bee breeding systems and their practical application. VI Seminario Americano De Apicultura, Oaxtepec, Mexico, Sept.4-6., 1992. pp48-50.
- Cobey, S., 1992. Instrumental Insemination of honey bee queens. Proceedings. VII Seminario Americano De Apicultura, Oaxtepec, Mexico, Sept.4-6., 1992. pp38-40.

**Publications (Trade Journals):**

- Cobey, S. 2009. Genetic Diversity & Changes in the US Honey Bee Populaton. Bee Cult. 136:1
- Cobey, S. 2008. “AJs Beetle Eater” A Simple, Non-Chemical, In Hive, Small Beetle Trap. Amer. Bee Jour. 148:1:43-44.
- Cobey, S. 2005. Jewels For The Queen: The new ruby jewel sting hook for instrumental insemination of queen bees. The Beekeepers Quarterly. No. 82. p43-44.
- Cobey, S, Lawrence, T. 2005. Bee Beards & Bee Bikinis. The Beekeepers Quarterly. 81: 16-19.

- 
- 
- Cobey, S, Lawrence, T. 2005. Bee Beards & Bee Bikinis. *Pasieka* No. 5 pg 44-47. (In Polish)
- Cobey, S. 2005. A versatile queen rearing and banking system. *Amer. Bee Jour.* 145:4:308-311 and 145:5:385-386.
- Cobey, S. 2005. Double Grafting. *Bee Culture* 133: 5: 27-28.
- Cobey, S.2005. Marking & Clipping Queens. *Bee Culture* 133:6: 48-49.
- Cobey, S 2004. New Zealand Bee Breeder David Yanke. *Amer. Bee Jour.* 144:4 pp296-299.
- Cobey, S 2004. Who Is Siring Your Queens? *Bee Cult.* 132:5, 27-28.
- Cobey, S. 2004. How Well Mated Are Your Queens? Use This Simple Field Test To Verify. *Bee Cult.* 132:4.
- Cobey, S 2003. The Extraordinary Honey bee Mating Strategy. Three part series. *Amer. Bee Jour.*143:1 p. 67-69 ., 143:2 p.130-133., . 143:3 p. 217-220.
- Cobey, S and Schley, P. 2002. Innovations In Instrumental Insemination. *Amer. Bee Jour.* 142: 433-435. Cobey, S 2002. A Preference For *Carnica* In Chile. *Amer. Bee Jour.* 142: 343-346.
- Cobey, S. 2001. Beekeeping On The Only Mite Free Continent-Australia. *Amer. Bee Jour.* Vol. 141 (7) pp.495-499.
- Cobey, S. 2001. The Quest For Quality Queens. *Bee Culture* Vol. 129 (6) pp.18-19.
- Cobey, S. 2001. The *Varroa* Species Complex: Identifying *Varroa destructor* and New Strategies Of Control. *Amer. Bee Jour.* Vol. 194-196.
- Cobey, S. 1998. A Comparison Of Colony Performance Of Instrumentally Inseminated and Naturally Mated Honey Bee Queens. *Amer. Bee Journal* 138:4 :292.
- Cobey, S. 1998. The Threatened African Bee. *Bee Biz.* No. 8. pp.7-10.
- Cobey, S. , Latshaw,J.1998.The Latshaw Instrument, A Made In the US, Instrumental Insemination Apparatus. *Amer. Bee Jour.* Vol. 138:5. pp382-384.
- Cobey, S. 1997. Honey Bee Tracheal Mite Resistance: Are resistant stocks developing and can they be maintained? *Amer. Bee Jour.* 137:738-740.
- Cobey, S. 1995.Instrumental Insemination Equipment: Sophistication and Simplification in Designs. *Amer. Bee Jour.* Vol. 135. No. 10 pp.697-701.
- Cobey, S. 1995. A Course on the technique of Instrumental Insemination of Honey Bee Queens *Amer. Bee Jour.* Vol. 135. No. 3 pp. 189-192
- Cobey, S. 1995.The California Mini Queen cage. *Amer. Bee Jour.* Vol. 135. No. 1 pp.44-45.
- Cobey, S. 1994. The Use Of Vegetable Oil To Control Tracheal Mites. *Amer. Bee Jour.* Vol. 132 No. 4 p.257-258.
- Estrada, E. and S. Cobey. 1993. Maintaining Gentle Bees In Mexico. *Amer. Bee Jour.* Vol. 133. No. 12. Pp.837-842.
- Cobey, S. 1992. Cooperative Stock Maintenance Program Established by the CBBA Utilizing The New World *Carniolan* Closed Population Breeding Program. *Amer. Bee Jour.* Vol. 132. No. 1. p. 44.
- Cobey, S. 1992. The *Carniolans*. A.m. *Carnica*. *Amer. Bee Jour.* Vol. 132. No. 4 pp. 246-248.
- Lawrence, T. and S. Cobey. 1992. Honey Bee Stock Center Survey. *Amer. Bee Jour* 132(1) p. 45-46.
- Lawrence, T. and S. Cobey. 1992. Honey Bee Stock Center Survey. *Bee Science.* Vol.2 pp.62-63

- 
- Cobey, S. and Lawrence, T. 1991-1992. "The Queen And You" a column in Glean. In Bee Culture: Communication Confusion. 1992. Vol. 120.(4 ) A Close Look At Oviposition. Vol.119 (8) Queen Rearing Requirements. Vol.119 (5) Installing Queens Correctly. Vol.119 (4) Finding The Queen. Vol.119 (3) Choosing The Best Queen Breeder. Vol.119 (2) The Importance of the Queen. Vol.119 (1)
- Cobey, S. 1992. Altersvarianz bei der Sekretion der Tergittaschendruse. Mitteilungen uber Bienenbesamug. (In German) Vol. 4. No. 2. p. 16-17.
- Cobey, S. 1992. Altersvarianz bei der Sekretion der Tergittaschendruse. Mitteilungen uber Bienenbesamug. (In German) Vol. 4. No. 2. p. 16-17.
- Smith, B.H. and Cobey, S. 1992. Book Review, The African Honey Bee. Jour. Of Insect Behavior. Vol. 5. No. 3. p. 411-413.
- Cobey, S. 1991. Der Einsatz von konservierten Koniginnen und Ersatzsperma zur Demonstration und Ubung der instrumentellen Besamung. Mitteilungen uber Bienenbesamug. (In German) Vol. 2. No. 2. p. 19-21.
- Cobey, S. 1991. The Instrumental Insemination Of Queen Honey Bees Institut Fur Den Wissenschaftlichen Film, A Review. Amer. Bee Jour 131(8) p.513-516
- Cobey, S. and Lawrence, T. 1990. Mechanisches Mischen von Sperma. (Mechanical Mixing Of Honey Bee Semen. ) Mitteilungen uber Bienenbesamug. (In German) Vol. 2. No. 1 p.3-4.
- Cobey, S. 1989. Jamaica Looks To Upgrade Their Beekeeping Industry With An Eye On The International Market. Amer. Bee Jour.
- Cobey, S. and Lawrence, T. 1989. Red and Purple Bees: The Cordovans. Glean. In Bee Cult.
- Cobey, S. 1989. The Mackensen instrumental insemination instrument is once again available. In: Amer. Bee Jour. 129 (7), S. 474-475
- Cobey, S. and Lawrence, T. 1988. Commercial Application and Practical Use Of the Page-Laidlaw Closed Population Breeding Program. Amer. Bee Jour. 128. No. 5. PP. 341-344.
- Cobey, S. and Lawrence, T. 1988. Varroa Mite: Potential Methods of Control. Amer. Bee Jour. Vol. 128. No 2.pp. 112-117.
- Lawrence, T. and Cobey, S. 1987. All Abuzz., Beekeepers Gear Up For The African Bee Invasion. California Farmer. Vol. 267 No 9. p.65E.
- Cobey, S. 1987. The African Bee: As Beekeepers, How Will We Deal With It In The United States? Amer. Bee Jour. Vol. 127. No. 2. pp. 133-137.
- Cobey, S. 1986. Apimondia Symposium: Scientific And Commercial Insemination Of Queen Bees Honors Pioneers In Toulouse, France. Amer. Bee Jour. Vol. 126. No. 11. pp. 746-754.
- Cobey, S and Lawrence, T. 1986. Dr. Hall; Beekeeper and Scientist, Uses DNA To Identify African Bees. Amer. Bee Jour. Vol. 126 No. 10. pp. 675-679.
- Cobey, S. and Locke, S. 1986. The Africanized Bee: A Tour Of Central America. Amer. Bee Jour. Vol. 126. No. 6. pp. 434-440.
- Cobey, S. and Lawrence, T. 1986. More Tracheal Mites Found in California. Amer. Bee Jour. 126 No. 2. pp.87-90.
- Lawrence, T. and Cobey, S. 1985. Honey Bee Pollination of Kiwi Flowers. Amer. Bee Jour. 125 No. 12. pp. 815-817.
- Lawrence, T. and Cobey, S. 1985. Status of Africanized Bee Find in California. Part 1 Amer. Bee Jour. Vol. 125 No 9. pp 607-611.
- Cobey, S. and Lawrence, T. 1985. Status of Africanized Bee Find in California. Part II. Amer. Bee Jour. Vol. 125 No 10. pp 672-675.

- Lawrence, T. and Cobey, S. 1985. Another Look at the Page-Laidlaw Closed Population Breeding Program. Amer. Bee Jour. 125 No. 10 pp. 687-690.
- Cobey, S. and Lawrence, T. 1985. Mexican Beekeepers Sponsor American Seminar. Amer. Bee Jour. 125 No. 1. pp. 24-28
- Cobey, S. and Lawrence, T. 1983-1985. "The Domesticated Bee" , a column in The Speedy Bee. Environmental Influences On Mating 1/85  
Environmental Influences 10/84 p.13.  
The Neglected Drone 3/84, p.11.  
Breeding Systems 7/84 p 24.  
The Selection Index 2/84 p 18.  
Sex Determination 12/83 p 20.  
Bee Breeding, Where Has It Come From And Where Is It Going? 11/83 p.7.  
The Domesticated Bee 9/83, p. 7.
- Cobey, S. 1983. Instrumental Insemination: The Possibility Of Semen Storage. Amer. Bee Jour. Vol. 123. No. 5. pp. 389-395.
- Cobey, S. 1983. Drone Rearing For Instrumental Insemination. Amer. Bee Jour. 123.No.4. pp. 284-289.
- Cobey, S. 1983. Instrumental Insemination: Current Developments And Its Application Today. Amer. Bee Jour. Vol. 123 No. 3. pp.182-186.
- Cobey, S. 1983. The Development Of Instrumental Insemination. Amer. Bee Jour. 123: 2.108-111.
- Cobey, S. 1979. A New Zealander's Unique System Of Queen Rearing. Amer. Bee Jour. Vol. 119.No.6.p.421.
- Cobey, S. 1978. To Australia With Apimondia. Glean. Bee Cult. Vol. 106. No. 6. pp. 269-270.

## WORKSHOPS & PROJECTS

### **International:**

- Instrumental Insemination Workshop. Symposium Mundial de Cridores De Abejas Reinas E Inseminacion Apimondia Congress. Nuevo Vallarta, Nayarit, Mexico 2008
- Instrumental Insemination Workshop. Middle East Technical University, Department of Ankara, Turkey. 2008
- Summer Course, Gormanston. Federation Of Irish Beekeepers Assoc, Ireland. 2008.
- Symposium Organizer-Apimondia International Beekeeping Congress. Instrumental Insemination And Bee Breeding. Melbourne, Australia Sept. 2007
- Instrumental Insemination Workshop. And Honey Bee Stock Improvement Project. Tandil, Argentina. Sponsor, Instituto Nacional de Tecno. Agropecuaria & Fondo Tecnológico Argentina -2005.
- Instrumental Insemination Workshop. Beaverlodge Bee Research Lab. Alberta, Canada. Sponsor-Agriculture & Agri-Food Canada -2004.
- Review of *Am. carnica* breeding programs, Bieneninstitut Kirchhain, Kirchhain, Germany and Univ. Doz, Institut fur Bienenkunde, Lunz Am See, Austria -2004.
- Instrumental Insemination Workshop. Perth, Australia. Sponsor, Western Australia Beekeepers Assoc. & Western Australia Farmers' Federation -2003.

---

---

Instrumental Insemination Workshop Veracruz, Mexico. Sponsored by the La Asociacion de Apicultures de Cosautlan, Veracruz -2003

Instrumental Insemination Workshop. Tandil, Argentina. Sponsor, Instituto Nacional de Tecnologia Agropecuaria & Fondo Tecnologia Argentina -2003.

Instrumental Insemination Workshop. San Rafael, Argentina. Sponsored by PROAPI, Argentina-2003.

Closed Population Honey Bee Breeding Project. Sponsor, Colmenares Santa Ines SA, and Proyecto de Innovacion Tecnologica, Gobierno de Chile Chiloe Island, Vallenar, Valaparasio, Curico, and Ensenada, Chile -2001 to 2003.

Queen Rearing Workshop. Jamaica. Sponsor, Ministry Of Agriculture -2002.

Instrumental Insemination Workshops. Sponsor Australian Bee Breeders Association. Tocol Agricultural College, New South Wales and Boonah, Queensland, Australia -2001.

Honey Bee Stock Improvement Project. Buenos Aires, Argentina. Sponsor: Facultad de Cs Veterinarias, Universidad Nacional del Centrote de la Provincia de Buenos Aires and Instituto Nacional de Tecnologia Agropecuaria & Fondo Tecnologia Argentino -1999.

Bee Breeding Project. La Asociacion de Apicultures de Coatepec, Mexico -1997 & 1998.

Instrumental Insemination Workshop. Asociacion Estatal De Criadores De Abejas Reinas & Secretaria De Agricultura De Veracruz, Veracruz, Mexico -1996.

Queen Rearing Techniques. Ontario Beekeepers, Tech. Transfer Course, Guelph, Ont. Canada. 1998

Instrumental Insemination Workshop. Dokki, Egypt. Sponsor, Egyptian Ministry of Agriculture, Plant Protection Res. Inst. -1994.

**National:**

Specialized Beekeeping Short Courses. Taught annually at Ohio State University.

The Art Of Queen Rearing. 1998-2006.

Instrumental Insemination & Honey Bee Breeding. 1991 -2006.

Instrumental Insemination-Advanced Techniques. 1999 – 2006.

Instrumental Insemination Workshop. Kentucky State Univ. Frankfort, Ky. 2003

Queen Rearing Workshop. Purdue University , Ind. 2001

Basic Aspects Of Bee Breeding, Workshop Team taught with Dr. Gard Otis. Eastern Apicultural Society. Cape Cod, MA 2001

**MEDIA PRODUCTION****Video/DVD Production:**

- Executive Producer. DVD Instrumental Insemination of honey bee queens, English & Spanish. 2007.
- Executive Producer. VHS Video Instrumental Insemination of honey bee queens, English & Spanish 1998.

**Insemination Training Manual:**

- A complete guide to Instrumental Insemination of honey bee queens and specialized beekeeping management techniques (In Progress).

**INVITED SEMINARS**

**International:**

- The Future Of Stock Improvement. 2<sup>nd</sup> World Symposium Of Queen Bees and Artificial Insemination. Apimondia Congress. Nuevo Vallarta, Nayarit, Mexico 2008.
- Beekeeping in the 21<sup>st</sup> Century. Apimondia. Melbourne, Australia. Sept. 2007.
- Bee Breeding and Instrumental Insemination. Chilean National Beekeeping Conference. Valdivia, Chile May 2007.
- Queen Rearing Techniques. British Beekeepers Association, Stoneleigh Park, Warwickshire, United Kingdom. April 2006
- Innovations In Instrumental Insemination. British Beekeepers Association, Stoneleigh Park, Warwickshire, United Kingdom. April 2006
- The Varroa Species Complex and Methods of Control. Danish Beekeepers Association, Annual Conference, Nørsgaards Højskole, Denmark March 2006
- Basic Bee Genetics & Methods of Selection. Danish Beekeepers Association, Annual Conference, Nørsgaards Højskole, Denmark March 2006
- Innovations In Instrumental Insemination. Danish Beekeepers Association, Annual Conference, Nørsgaards Højskole, Denmark March 2006
- Instrumental Insemination & Bee Breeding Workshop, Tandil, Argentina 2005
- Honey Bee Stock Improvement Project, Sponsor, Instituto Nacional de Tecnologia Balcarce Argentina 2005
- Bee Breeding & Selection Methods. Innovations In Instrumental Insemination. Manitoba Beekeepers' Assoc. and Canadian Assoc. Of Professional Apiculturists Joint Convention. Winnipeg, Manitoba, Canada -2004.
- Queen & Drone Rearing. Saskatchewan Beekeepers' Assoc. Saskatoon, Saskatchewan Canada -2003.
- Practical Bee Breeding Methods. Alberta Beekeepers Association. Tech. Transfer Workshop. Edmonton, Alberta, Canada -2004.
- The Honey Bee Super-Organism Concept. Honey Bee Mating Behavior & Field Dissection Of The Spermatheca. VXII Seminario Americano, Aguascalientes, Mexico -2003
- Manejo Genetico De Las Abejas. Inseminacion Instrumental. Seminario Apicola Internacional. Rancagua, Chile -2003.
- Varroa Species Complex & Strategies for Sustainable Control. British Columbia Honey Producers Assoc. Convention. Nanaimo, British Columbia -2001.
- The Varroa Species Complex. Limitations of Chemical Treatment And Selection For Traits That Confer Resistance. Seminario Americano de Apicultura. Tepic, Nayarit, Mexico -2001.
- A Sustainable Solution to Current Industry Concerns: Selective Breeding & Non -Chemical Mite Controls. Understanding & Overcoming The Obstacles Unique To Honey Bee Breeding. Alberta Beekeepers Assoc. Convention. Edmonton, Alberta, Canada -2000.
- Honey Bee Breeding Programs In The U.S. Ribeirao Preto, Brazil. Sponsor, University of SaoPaulo, Genetics Department -1999.
- Selective Breeding and Stock Maintenance. Symposium Organizer. International Apimondia Congress Vancouver, Canada -1999.
- Field Performance Of Instrumentally Inseminated & Naturally Mated Honey Bee Queens. Congreso Ibero Latinoamericano de Apicultura. Merida Yucatan -1998.
- Honey Bee Selection Methods For Stock Improvement. Universidad Nacional Autonoma De Mexico. Facultad De Medicina Veterinaria & Zootecnia Mexico City, Mexico -1998.

Instrumental Insemination Techniques. Tropical Bee Conference, International Bee Research Assoc. San Jose Costa Rica -1998.

Bees & Mites, and Potential Breeding Solutions. Nova Scotia Beekeepers Association. Kentville,NS, Canada -1996

Instrumental Insemination & Bee Breeding Methods. Seminario Americano De Apicultura. Colima, Mexico -1996.

The New World Carniolan Breeding Program. Sponsor, French National Queen Breeders Association. France -1995

Practical Selection Methods for Bee Breeding. Seminario Americana De Apicultura. Tuloca,Mexico -1993.

### **Invited Seminars: National**

Rebuilding the UCD Bee Lab. American Beekeeping Federation, 2008

Honey Bee Genetic Diversity & Its Impact. Washington State Beekeepers Assoc. 2008

New Projects at the UCD Bee Lab. Colorado Beekeepers Assoc. 2007

21<sup>st</sup> Century Beekeeping . American Honey Producers Assoc. Phoenix, AZ. 2007

Bee Breeding & Future Possibilities. California State Beekeeper s Assoc. Lake Tahoe, CA. 2006

Instrumental Insemination Techniques & Queen Performance. Oregon State Beekeepers Assoc. Newport, OR. 2006

21<sup>st</sup> Century Beekeeping. Washington State Beekeepers Assoc. Bellingham, WA. 2006

The Honey Bee Genome & Breeding Possibilities. American Beekeeping Federation Convention. Louisville, Ky. 2006

The Honey Bee Genome, Bee Breeding, & Future Possibilities. Bee School. Asheville, NC 2006.

Bee Breeding & Future Possibilities. California Bee Breeders Beekeepers Assoc. Ord Bend, CA -2005

Queen & Drone Rearing . Innovations In Instrumental Insemination & Queen Performance. , Bee Breeding & Selection Methods. Kansas State Beekeepers Assoc. McPherson, KS -2005

Rearing High Quality Queens. New Jersey Beekeepers Assoc. Bordentown, NJ -2005. Bee Genetics & Selection Methods. New Jersey Beekeepers Assoc. Bordentown, NJ -2005.

Mating Biology & Assessing Queen Quality. New World Carniolan Breeding Program. Connecticut Beekeepers Assoc. New Haven, CT -2005.

Improvements In the NWC Breeding Program. Eastern Apicultural Society. Kent, OH -2005.

Rearing Quality Queens and Drones. Innovations In Instrumental Insemination. South Carolina &North Carolina Beekeepers Assoc. Joint Convention. Rock Hill, NC -2005.

A Review of performance studies of instrumentally inseminated and naturally mated queens. Assoc. of Professional Apiculturists Reno, NV -2005

Queen & Drone Rearing and Simple Tests to Determine Their Quality. Georgia State Beekeepers Assoc. Athens, GA -2004.

### **Invited Seminars: National (Continued):**

Honey Bee Breeding: Constraints And Opportunities. North Dakota Beekeepers Association Bismarck, ND -2004.

- 
- 
- Honey Bee Breeding: Selection Methods. Rearing High Quality Queens & Drones. Wisconsin Honey Producers Assoc. Manitowoc, WI -2004.
- Selective Breeding: The Complexities of Breeding. Empire State Honey Producers Association. Owego, NY -2004.
- A Versatile Multi-Purpose Queen Rearing System. Iowa Honey Producer's Association Marshalltown, IA -2003.
- Principles Of Bee Genetics & Selection Methods -Panel Discussion: Breeding For Varroa Control Eastern Apicultural Society. Cornell Univ. Ithaca, NY -2002.
- The Carniolan Advantage. Queen Production and Bee Breeding. PA. State Beekeepers Association. Lewisburg, PA -2001.
- Selecting Bees for Hygienic Behavior and Resistance to Tracheal Mites. Va. State Beekeepers Assoc. Lynchburg, VA -2001.
- Establishing A Breeding Program. Indiana Beekeepers Association Lafayette, IN -2001
- The Complexities of Bee Breeding. Calif. State Beekeepers Assoc. Annual Convention. Sacramento, CA -2001
- Michigan Bee School: Queen Rearing, Selection & Stock Maintenance. Livonia, MI -2000.
- Chemical Overuse and Bee Breeding Alternatives. Ohio Bee Inspectors Annual Meeting Columbus, OH -2000.
- International Conference on Africanized Bees and Mites. Tucson, AZ -2000.
- Maintaining Superior Stocks. American Honey Producers. Assoc. Convention. Baton Rouge, LA-1999.
- Queens: Problems and Solutions. Discussion Leader -Selecting For Mite Resistance. American Beekeeping Federation Nashville, TN -1999.
- Queen Management. Western Pa. Beekeeping Seminar. Penn State Univ. Beaver, PA -1999.
- Rearing Quality Queens. New Hampshire Beekeepers Assoc. Manchester, NH -1999.
- Queen Rearing. Eastern Apiculture Society. Marysville College. Knoxville, TN -1999.
- Queen Rearing and Stock Selection Ind. Beekeepers Assoc. Ft. Wayne, IN -1999.
- What it takes to raise your Own Queens. Oklahoma State Beekeepers Assoc. Oklahoma City, OK -1999.
- Complexities Of Bee Breeding At The Commercial Level. American Beekeeping Federation Colorado Springs, CO -1998.
- Field Performance of Instrumentally Inseminated and Naturally Mated Queens. American Bee Research Conference. Colorado Springs, CO -1998
- Selection and Stock Maintenance. South Carolina Beekeepers Assoc. Clemson University, SC-1998
- Queen Rearing. Indiana Beekeepers Assoc. Purdue Univ. IN -1998.
- Races Of Bees. New World Carniolan Bee Breeding Program. Arkansas State Beekeepers Assoc. Little Rock AR -1998.
- New World Carniolan Bee Breeding Program. Illinois State Beekeepers Meeting. Springfield, IL 1998. Numerous presentations to local, state and national beekeeping organizations.