

GLEN R. NEEDHAM

Professional Preparation

Oklahoma State University Entomology M.S. 1975
Oklahoma State University Entomology Ph. D. 1978



Appointments

1984-present: Associate Professor, Dept. of Entomology, OSU, Columbus
1978-1984: Assistant Professor, Department of Entomology, OSU, Columbus
1974-1978: Graduate Research Assistant, Oklahoma State University, Stillwater, OK

Top Honors and Awards

Distinguished Alumnus, Department of Entomology, Oklahoma State University
President, Acarological Society of America, 1994

Program capsules

Research: Understand arthropod-host/patient-disease interactions at molecular through ecological levels using ticks and dust mites as primary research organisms.

Teaching: Co-organizing and teaching acarology as a service to local, national and international participants since 1978; teaching basic entomology and biology to undergraduate majors and non-majors in small and large classrooms.

Extension/Outreach: Acarology workshops annually; Science fair advocate and judge at local, state, national and international levels; Insects taken to elementary schools individually and through the Wonders of our World program at OSU.

Three Most Important Scholarly Accomplishments, Last Five Years

- Co-Organization and Lecturer in Acarology Summer Program with more than 100 participants in the past five years.
- Conducting and publishing research on the biology and management of mites that damage the beekeeping industries on a global basis.
- Conducting research on allergen-producing dust mites that impact more than 18 million Americans using principles of integrated pest management.

Five Selected Publications (70 total)

Needham, G.R. and P.D. Teel. 1991. Off-host physiological ecology of ixodid ticks. *Annu. Rev. Entomol.* 36: 659-81.

Burks, C.S., R.L. Stewart, Jr., G.R. Needham and R.E. Lee, Jr. 1996. Spontaneous freezing, direct chilling injury and inoculative freezing in *Amblyomma americanum*, *Dermacentor variabilis*, and *Ixodes scapularis*. *Physiol. Ent.* 21: 44-50.

Needham, G.R., R.D. Mitchell, D.J. Horn and W.C. Welbourn. 1999. *Acarology IX: Symposia of the Intl. Congress*, Ohio Biological Survey, Columbus, OH, 507 pp.

Sammataro, D., U. Gerson and G.R. Needham. 2000. Parasitic mites of honey bees: life history, implications and impact. *Annu. Rev. Entomol.* 45: 517-546.

Glass, Emmett and Glen Needham. 2004. Eliminating *Dermatophagoides farinae* spp. (Acari: Pyroglyphidae) and their allergens through high temperature treatment of textiles. *J. Med. Entomol.* 41: 529-532.

Five Selected Grants (\$768,321 as 1st PI)

NIH-NIAID, Tropical Medicine & Parasitology, “*Calreticulin is a Secreted Product of Ixodid Tick Saliva*”, G. Needham & M.T. Muller (Co-PI), \$530,434 (Directs) (May 1, 1994-Sept, ‘99)

US-ISRAEL Binational Agriculture Research & Development (BARD), “*IPM of the Tracheal & Varroa Mites, Major Pest of Honey Bees*”, \$103,887 for 4 years (July, 1995-Aug., 1999).
NSF, “Physiological Ecology of Ixodid Ticks: Water Balance and Behavior”, G. Needham (PI), \$12,000, September 1, 1998-Dec., 2000.
OSU/Cleveland Clinic-Florida/Industry Consortium Grant, “*Integrated Management of Indoor Aeroallergens*”, \$134,000, D. McNeil, Co-PI (OSU Int. Med.), Sept 1, 2000-March 1, 2001.

Professional Service Highlights, Last 5 Years

Experimental and Applied Acarology (*Editorial Board, 1997-*)

International Journal of Acarology (*Editorial Board, 1998-*)

Assist in formation of the Ohio Asthma Coalition (2003)

Key Collaborations

South African tick diapause, ecology and behavior studies with colleagues at the University of the Orange Free State, Bloemfontein, RSA.

Examining the impact of pathogens (*Beauvaria*) on tick physiology and behavior with colleagues at Truman College in Missouri.

Tick-host-disease interaction studies in collaboration with colleagues in Veterinary Preventive Medicine, OSU College of Veterinary Medicine using molecular probes.

Integrated pest management of allergen producing house dust mites in collaboration with the OSU College of Medicine, Department of Internal Medicine.

Evaluation of novel acaricides for prevention of dust mites infestation in mattresses, upholstered furniture and carpet in homes of asthmatics in collaboration with industry.

Research on the impact of dust mites on atopic dermatitis in susceptible canine breeds in collaboration with veterinary clinicians at OSU.

Additional Synergistic Activities

K-12 outreach through NSF (Pending) and Wonders of Our World (OSU); Ohio Department of Education, Science Curriculum Advisory Committee (2002-2003); Ohio Asthma Coalition (Charter Member, Environmental Committee member); Central Ohio Asthma Association (Environmental Committee); Central Ohio Breathing Association; Buckeye Lions Club (Charter Member of student organization, 2003-).