




Brandon N. Lyons

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JULY 2021

Doctor of Philosophy in Entomology

Oklahoma State University, Stillwater, OK

Dissertation Title: Lesser mealworm (*Alphitobius diaperinus*) association with *Enterococcus cecorum* and pest management considerations for this pest in broiler houses.

GPA: 3.806

Major Professor: Dr. Justin Talley

MAY 2014

Master of Science in Entomology

Texas A&M University, College Station, TX

Thesis Title: Insecticide resistance of *Alphitobius diaperinus* (Coleoptera: Tenebrionidae) to β -Cyfluthrin in relation to heat tolerance.

GPA: 3.393

Major Professor: Dr. Jeff Tomberlin, Dr. Pete Teel

MAY 2010

Bachelor of Science in Animal Science and Entomology

Texas A&M University, College Station, TX

GPA: 3.277

Work Experience

SEPTEMBER 2021- PRESENT

Assistant Research Scientist

Texas A&M AgriLife Research, College Station, TX

Supervisor: Dr. Phillip Kaufman

- 40 hours/week
- Responsible for all research laboratory operations including hiring and supervision of personnel (post-docs, technicians, and student workers), grant writing, budgeting on existing grants and contracts, animal and safety compliance, and interactions with stakeholders. Responsible for safety compliance for a campus laboratory and a separate insect colony laboratory. Current laboratory research portfolio includes 9 research projects valued at over \$650,000.

AUGUST 2018-JULY 2021

Graduate Teaching Assistant

Oklahoma State University, Stillwater, OK

Supervisor: Dr. Justin Talley

- 20 hours/week

- Instructed laboratory sections of approximately 25 students for Introduction to Entomology course. Mentored new teaching assistants and assisted with laboratory sections. Presented curriculum to complement classroom instruction. Created, proctored, and graded exams and assignments. Maintained colony of lesser mealworm beetles. Provided material support and presented on state television program on the topic of lesser mealworms in Oklahoma poultry facilities.

AUGUST 2014- MAY 2016

Graduate Research Assistant

Oklahoma State University, Stillwater, OK

Supervisor: Dr. Justin Talley

- 20 hours/week
- Graded the examinations and homework assignments for approximately 90 students for Livestock Entomology. Delivered lectures as needed and graded course examinations. Maintained colony of lesser mealworm beetles. Developed extension output on *Enterococcus cecorum* in poultry facilities in collaboration with state poultry waste management extension agent.

MARCH 2009- JUNE 2014

Student Worker I

Texas A&M University, College Station, TX

Supervisor: Dr. John Oswald, Mr. Edward G. Riley

- 15 hours/week
- Entered locality data for insect collection into multiple databases for a bioinformatics project. Trained new employees on database programs and other curatorial tasks for the university insect collection. Deployed various insect traps on Ecolab properties in Texas and retrieved insects several times a year.

Research Highlights

- Conducted Larval Packet Tests (LPT) with Lone star tick (*Amblyomma americanum*) and the Asian longhorned tick (*Haemaphysalis longicornis*).
- Coordinated and implemented a tick predilection study with cattle fever ticks on cattle in Texas.
- Executed a horn fly (*Haematobia irritans*) insecticide feedthrough study and assisted with a house fly (*Musca domestica*) bait study for industry partners.
- Developed and distributed a Knowledge, Attitudes, and Practices (KAP) survey of lesser mealworm, litter, and waste management practices in Oklahoma targeting poultry broiler industry.
- Conducted filter paper insecticide and litter amendment interaction bioassays with multiple formulations (with multiple modes of action) with a combination of two popular litter amendments.
- Maintained colonies of lesser mealworms (*Alphitobius diaperinus*) for USDA-ARS in College Station, TX and at Oklahoma State University in Stillwater, OK.
- Developed PCR protocols for detection of *Enterococcus cecorum*, including primer design.
- Analyzed the heat-shock behavior of lesser mealworm beetles with varying resistance levels aided with Noldus Ethovision XT[®] software to measure individual beetle's movements.

Extension Outputs

Researching pests in the broiler industry. Aired 3/27/21 Sunup TV Oklahoma Agriculture public television programming segment focused on *Alphitobius diaperinus* research conducted at Oklahoma State University.

Lyons, B., Talley, J.L. 2015. What is *Enterococcus cecorum*? Oklahoma Cooperative Extension Service. *Poultry Practices*, Vol 5(2).

Presentations

Lyons, B. Lesser mealworm pest management considerations in broiler houses. Livestock Insect Workers Conference in Dallas, TX: June 7, 2022.

Lyons, B. Talley, J.L., Royer, T., Wayadande, A., Wilson, B. Lethal temperature of the lesser mealworm exposed to commonly used insecticidal compounds. March 15-18, 2020. Southwest Branch Entomological Society of America Conference (Online Meeting).

Lyons, B. Talley, J.L., Royer, T., Wayadande, A., Wilson, B. Litter amendment and insecticide interactions in relation to the lesser mealworm, *Alphitobius diaperinus*. Entomological Society of America conference in St. Louis, MO: Nov. 18, 2019.

Lyons, B., Wayadande, A., Payne, J. Royer, T., Talley, J.L. Mechanical transmission of *Enterococcus cecorum* by the lesser mealworm *Alphitobius diaperinus*. Tyler, TX: February 22, 2016. "Poster"

Lyons, B. Talley, J.L., Royer, T., Wayadande, A., Payne, J. *Enterococcus cecorum* vector competency of *Alphitobius diaperinus* (Panzer). Entomological Society of America conference in Minneapolis, MN: Nov. 16, 2015.

Lyons, B. Tomberlin, J.K., Crippen, T.C., Teel, P. Insecticide resistance of *Alphitobius diaperinus* to β -cyfluthrin and commercial insecticides on various surfaces common in poultry operations. Entomological Society of America conference in Austin, TX: Nov. 11, 2013.

Publications (In Preparation)

Lyons, B.N. Talley, J. Lesser mealworm (Coleoptera: Tenebrionidae): biology and control methods in poultry broiler systems. In Preparation.

Publications

Lyons, B.N., Crippen, T.L., Zheng, L, Teel, P.D., Swiger, S.L., Tomberlin, J.K. 2017. Susceptibility of *Alphitobius diaperinus* in Texas to permethrin and β -Cyfluthrin treated surfaces. *Pest Management Science*, 73: 562-567

Volunteer Experience

2020 Entomology Games Contestant

- Team member of Oklahoma State University Team 1 that placed 3rd in national competition at the Entomology Society of America virtual annual meeting.

2019-2020 Oklahoma State University Entomology and Plant Pathology Graduate Association (EPPGSA) Communications Officer

- Organized meetings between professional speakers and graduate students. Helped organize the annual holiday department party. Delivered communications between EPPGSA to graduate students in the department and documented the annual activities of the EPPGSA.

2016 Entomological Society of America Southwestern Branch Annual Meeting-Feb 21-22, 2016

- Assisted with the Insect Exposition, which engages the public using insect themed activities to encourage interest in the entomological field.

2014 Entoblitz-April 11-13, 2014

- Coordinated the 2014 Entoblitz in Seguin, TX on behalf of Texas A&M University Entomology Department. Annual entomology focused event open to university faculty, students, as well as amateur and professional collectors. Coordinated and oversaw the event to ensure guest safety and satisfaction.

2014 FFA Area Entomology Contest-April 5, 2014

- Proctored and graded entomology knowledge tests for annual event in College Station, TX.

2013 Texas 4-H Roundup-June 12, 2013

- Proctored 4-H Entomology examinations given in College Station, TX.