

Brandon G. Smythe

Contact Information

Program Manager, Ph.D. Candidate
Veterinary Entomology Research
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Education

New Mexico State University, 2014 – Present

Degree: Doctor of Philosophy
Major: Animal Science
Focus: Reproductive Physiology
Advisor: Mark E. Wise
Dissertation: Behavioral and physiological responses of cattle to horn fly infestations

New Mexico State University, 2012 – 2014

Degree: Master of Science
Major: Animal Science
Focus: Reproductive Physiology
Advisor: Mark E. Wise
Thesis: Behavioral responses of cattle under naturally-occurring seasonal populations of horn flies (Diptera: Muscidae) under rangeland conditions

New Mexico State University, 2009 – 2011

Degree: Master of Science
Major: Agricultural Biology
Minor: Applied Statistics
Focus: Plant Pathology
Advisor: Soum Sanogo
Thesis: Screening Valencia peanut for resistance to *Sclerotinia* blight caused by *Sclerotinia sclerotiorum*

New Mexico State University, 2004 – 2009

Degree: Bachelor of Science
Major: Agricultural Biology

Employment History

2014 – Present, Program Manager, New Mexico State University, Veterinary Entomology Research Laboratory

Responsibilities:

- Acquire funding through industry contracts, serving as Principal Investigator/Study Director for studies concerning the development and implementation of insecticidal products used on livestock species
- Oversee and conduct field and laboratory research in support of developing and improving elements of integrated pest management (IPM) programs in the state of New Mexico
- Develop, conduct, and oversee all research in support of the goals and mission of the Veterinary Entomology Research Laboratory
- Manage daily activities of staff and students. Provide adequate training of all research related procedures
- Develop and insure compliance of site-specific Standard Operating Procedures
- Disseminate research findings through presentations at appropriate regional and national conferences/meeting
- Manuscript preparation of research findings for publication in scientific peer-reviewed journals
- Facilitate student enthusiasm and participation in the field of veterinary entomology
- Provide and document multiple training opportunities for employees
- Manage research animal herds ensuring compliance with the New Mexico State University Institutional Animal Care and Use Committee

2011 – 2014, Agricultural Research Assistant, New Mexico State University, Veterinary Entomology Research Laboratory

Responsibilities:

- Conduct field and laboratory research in support of developing and improving elements of IPM programs in the state
- Conduct research investigating various aspects of pteromalid pupal parasitoids as a means towards improving their use as part of an IPM program
- Conduct research regarding the behavioral and physiological responses of cattle in response to various ectoparasite induced stress
- Proficient in various toxicological assays using treated glass, filter paper, and topically-applied technical grade insecticides, as well as industry-formulated standards for experimental purposes
- Conducted master's research concerning horn fly-induced behavioral modifications expressed by cattle in a pastured setting using global positioning systems (GPS)
- Conduct industry contract research involving filth flies of veterinary/medical importance
- Assist in directing undergraduate research and education
- Establishing and rearing laboratory insect colonies including stable flies, house flies, horn flies, mosquitoes, and hymenopteran pupal parasitoids
- Preparation of manuscripts for publication in peer-reviewed journals, and further dissemination of research findings through presentations at local and national meetings

2009 – 2011, Graduate Research Assistant, New Mexico State University, Plant Pathology Laboratory

Responsibilities:

- Preparation of manuscripts for publication in scientific journals
- Field collection and subsequent laboratory colonization and identification of plant pathogenic fungi
- Participated in research concerned with the effectiveness of seasonally applied pesticides on the state's top producing commodities
- Participated and supervised general laboratory and greenhouse maintenance
- Conducted master's research developing a unique method for germplasm evaluation to various pathogenic fungi
- Assisted in and conducted research requiring extensive data collection and analysis
- Participated in research concerned with soilborne fungal pathogens infecting chile and peanuts
- Conducted in depth research investigating the host-pathogen relationships on a number of economically important crop pests.

2004 – 2009, Research Aide, New Mexico State University, Southwest Center for Animal Health, Food Safety, and Bio-Security

Responsibilities:

- Establishment and rearing of economically important insect species including house flies, stable flies, horn flies, and mosquitoes
- Collected data involving industrial insecticide toxicological profiles for horn flies, stable flies, and house flies on cattle and horses in the field and under laboratory conditions.
- Animal husbandry of cattle, horses, and chickens
- Facility and equipment maintenance
- Participated in research concerning the ecology of and West Nile virus prevalence in the mosquito species of Dona Ana County, NM.
- Collection and identification of livestock and medically important arthropods.

Research Interests

- The biology and ecology of livestock and various arthropod pest species of medical and veterinary importance
- To further contribute to the understanding of parasite induced stress in various livestock production facilities and subsequent effects on animal production
- Assessment of parasitic interactions with livestock animals and related reproductive performance effects
- Developing and improving managerial methods for the control of parasites to further facilitate profitable animal performance

Research Support/Grants

2017. Dose Determination of an Experimental Product* Administered as a Feedthrough for Horn Fly Control. Private Sector: **\$53,531.00**

2017. Onset of Efficacy of Larvicides Against Horn Flies. Private Sector: **\$30,393.00**

2016. Efficacy and Safety of an Experimental* Pour-on Formulations Against Horn Flies *Haematobia irritans* (L.). Private Sector: **\$88,824.23**

2016. Efficacy of an Experimental Compound* Against House Flies Developing in Manure from Treated Animals. Private Sector: **\$3,520.00**

2016. Efficacy of an Experimental Compound* Against Stable Flies Developing in Manure from Treated Animals. Private Sector: **\$16,539.00**

2016. A gift to support the continued independent research of Brandon G. Smythe at the New Mexico State University Veterinary Entomology Research Laboratory. Wellmark International: **\$25,000**

2016: Effects of Ultraviolet Radiation (Sunlight) and Simulated Rainfall on the Efficacy of an Experiment Product* Against Horn Flies on Cattle. Private Sector: **\$80,935.00**

2016. Efficacy of Three Experimental* Pour-on Formulations Against Horn Flies *Haematobia irritans* (L.) on Cattle. Private Sector: **\$80,835.70**

2015. Efficacy of Two Doses of Experimental Product* Applied as Pour-ons for Horn Fly (*Haematobia irritans*) Control on Cattle. Private Sector: **\$77,852.50**

2015. A Study to Confirm the Efficacy of an Experimental Product* Administered as a Single Subcutaneous Dose for Treatment and Control of Induced Infestations of the Horn Fly, *Haematobia irritans*, on Cattle. Private Sector: **\$86,163.30**

2015. A Contact Assay to Determine the in-vitro Activity of two Experimental Products*and Diazinon against Stable Flies (*Stomoxys calcitrans*), horn flies (*Haematobia irritans*), and House Flies (*Musca domestica*). Private Sector: **\$3,300.00**

2015. A Study to Confirm the Efficacy of an Experimental Product* Administered as a Single Subcutaneous Dose for Control of the Horn Fly, *Haematobia irritans*, on Cattle Housed Under Environmentally Controlled Conditions. Private Sector: **\$44,509.00**

2015. Efficacy and Safety of Three Experimental* Pour-on Formulations Against Horn Flies (*Haematobia irritans*) on Cattle. Private Sector: **\$88,824.00**

2015. Dose Confirmation Study for an Experimental Compound* Using Pour-on Formulations Against Horn Flies (*Haematobia irritans*) on Cattle. Private Sector: **\$79,960.00**

2015. Efficacy and Safety of Three Experimental* Pour-On Formulations Against Horn Flies (*Haematobia irritans*) on Cattle. Private sector: **\$76,560.00**

2014. A Study to Evaluate the Efficacy of an Experimental Compound* for Control of the Horn Fly (*Haematobia irritans*) on Cattle Housed Under Environmentally Controlled Conditions in New Mexico. Private sector: **\$68,822.00**

2014. Efficacy and Safety of Three Experimental* Pour on Formulations Against Horn Flies (*Haematobia irritans*) and Stable Flies (*Stomoxys calcitrans*) on Cattle. Private sector: **\$82,803.10**

2014. Efficacy and Safety of Experimental* Insecticide Cattle Ear Tags for Control of Gulf Coast Tick *Ablyomma maculatum* on Cattle: Private sector: **\$76,723.40**

2014. Determination of efficacy of Experimental Compound* when administered subcutaneously at a dose of 1 mg/kg body weight against artificially induced *Haematobia irritans* (horn fly) infestations on cattle. Private sector: **\$93,514.20**

2014. Livestock Insect Workers Conference: Bayer Animal Health. Graduate Student Travel Grant: **\$500.00**

2011. American Phytopathological Society (APS): Foundation Student Travel Award: Dow AgroSciences Student Travel Award: **\$500.00**

***Proprietary information withheld**

Presentations at Professional Meetings

Smythe, B. G., W.E. Wise, and A.F. Cibils. Behavioral responses of cattle to horn fly (Diptera: Muscidae) infestations under rangeland conditions. Paper presented at the 60th Annual Livestock Insect Workers Conference, Oklahoma, July 2016.

Zepeda, R., **B.G. Smythe**, and J.B. Pitzer. Evaluating various insecticide baits against multiple house fly (Diptera: Muscidae) populations under laboratory conditions. Paper presented at the 60th Annual Livestock Insect Workers Conference, Oklahoma, July 2016.

Urias, S., D.W. Bailey, and **B.G. Smythe**. Comparing various counting methods to estimate individual horn fly (Diptera: Muscidae) populations on cattle. Poster presented at the Annual Meeting of the Entomology Society of America, Minnesota (November, 2015).

Urias, S., D.W. Bailey, and **B.G. Smythe**. Comparing various counting methods to estimate individual horn fly (Diptera: Muscidae) populations on cattle. Poster presented at the University Research Council, Research and Creative Activities Fair. NMSU (October, 2015).

Smythe, B.G., M.E. Wise, E.J. Scholljegerdes, and M. Fletcher. Performance of Beef-Cattle as influenced by controlled and uncontrolled populations of horn flies (Diptera: Muscidae). Presented at the 2015 AAVP, LIWC, ISEP joint meeting. Boston (July, 2015)

Smythe, B.G., M.E. Wise, and E.J. Scholljegerdes. Performance of Beef-Cattle as influenced by controlled and uncontrolled populations of horn flies (Diptera: Muscidae). Presented at the Western Section, American Society of Animal Science, Ruidoso, NM, (June, 2015).

Nunez, S.C., A. Gerry, and **B.G. Smythe**. Query-Driven Database of Registered Pesticides for Management of Animal Ectoparasites in New Mexico. Poster presented at the University Research Council, Research and Creative Activities Fair. NMSU (October, 2014)

- Smythe, B.G.**, M.E. Wise, J.B. Pitzer, A.F. Cibils, E.J. Scholljegerdes, R. Ashley, R.L. Byford, S. Cox, and M. Fletcher. Behavioral responses of cattle under naturally-occurring seasonal populations of horn flies (Diptera: Muscidae). Presented at the 58th Annual Livestock Insect Workers' Conference, California, June 2014.
- Pitzer, J.B., **B.G. Smythe**, and S. Nunez. Evaluating house fly (Diptera: Muscidae) insecticide resistance to selected nicotinoids using topical application. Paper presented at the 57th Annual Livestock Insect Workers' Conference, Nebraska, June 2013.
- Pitzer, J.B., S. Nunez, and **B.G. Smythe**. Evaluating house fly (Diptera: Muscidae) insecticide resistance to selected nicotinoids using topical application. Paper presented at the Annual Meeting of the Entomology Society of America, Tennessee 2012.
- Smythe, B. G.**, S. Sanogo, N. Puppala, S. Thomas, and R.L. Steiner. Screening Valencia core collection for resistance to *Sclerotinia sclerotiorum*. Paper presented at the Annual Meeting of the American Phytopathological Society, Hawaii, August 2011.

Extension and Outreach

- Smythe, B.G.** Horn fly impacts and control options. Guest speaker at the Tri County Herd Health Symposium. (Stanley, NM, March, 2017)
- Smythe, B.G.**, G. Wilson, and R. Zepeda. Entomology: The diversity and beauty of the bugs around us. Multiple presentations given to the Joint Ungraded Multi-age Primary program of the Las Cruces Independent School District. (2015 – Present)
- Smythe, B.G.**, Wise, M.E., Pitzer, J.B., Cibils, A., Scholljegerdes, E., Ashley, R., Byford, R., Cox, S., and Fletcher, M. Behavioral responses of cattle under naturally-occurring seasonal populations of horn flies (Diptera: Muscidae). Poster presented at the Corona Range and Livestock Research Center's Triennial Field Day (Corona, NM, June, 2014).
- Wilson, G., **Smythe, B.G.**, and Pitzer, J.B. Blood meal storage methods and its effect on horn fly fecundity. Departmental seminar, NMSU EPPWS (April, 2014).
- Smythe, B.G.** The identification and control of insect pests affecting livestock. Guest speaker, Gadsden High School (Anthony, NM, November 2013)
- Smythe, B.G.** Human and Animal Parasites: What's eating you? Guest speaker; Humans Insects and the Environment (EPWS 325G), NMSU (October 2013).
- Smythe, B.G.** The influence of horn flies (Diptera: Muscidae) on cattle production in rangeland settings. Guest speaker, Cornado High School (El Paso, TX; August 2012)
- Smythe, B. G.**, Sanogo, S., Puppala, N. Sclerotinia blight of peanut. New Mexico Peanut Field Day, New Mexico Peanut Growers Association (Portales, NM; July 2011).
- Smythe, B. G.**, Sanogo, S., Puppala, N. Screening Valencia Peanut for resistance to *Sclerotinia sclerotiorum*. New Mexico Peanut Growers Association Research Meeting (Portales, NM; July 2011).

Peer-Reviewed Publications

- Smythe, B.G.**, R. Zepeda, and J.B. Pitzer. 2016. Evaluating various insecticide baits against multiple house fly (Diptera: Muscidae) populations under laboratory conditions. J. Econ. Entomol. **In-prep.**
- Smythe, B.G.**, M.E. Wise, A.F. Cibils, E.J. Scholljegerdes, A. Summers, and D. VanLeeuwen. 2016. Evaluation of behavioral expressions by rangeland cattle infested with natural populations of horn flies (Diptera: Muscidae). J. Econ. Entomol. **In-prep.**
- Smythe, B.G.**, M.E. Wise, E.J. Scholljegerdes, A. Summers, and D. VanLeeuwen. 2016. Growth and reproductive performance of beef-cattle as influenced by controlled and uncontrolled populations of horn flies (Diptera: Muscidae). J. Econ. Entomol. **In-prep.**
- Smythe, B.G.**, S. Urias, M.E. Wise, E.J. Scholljegerdes, A. Summers, and D.W. Bailey. 2016. Comparing visual and digital counting methods to estimate horn fly (Diptera: Muscidae) populations on cattle. J. Econ. Entomol. **In-prep.**
- Smythe, B.G.**, J.B. Pitzer, M.E. Wise, A.F. Cibils, D. VanLeeuwen, and R.L. Byford. 2015. Behavioral responses of cattle to naturally-occurring seasonal populations of horn flies (Diptera: Muscidae) under rangeland conditions. J. Econ. Entomol. 108 (6), 2831 - 2836.
- Ferguson, H.J., A.C. Gerry, J.L. Talley, and **B.G. Smythe**. VetPestX: Finally! An online, searchable, pesticide label database just for pests of animals. Journal of Extension. December, 2014.

Technical Reports

- Pitzer, J. B. and **B. G. Smythe**. August 2013. Bait preference of the house fly, *Musca domestica*, in a Laboratory setting. DP-1113. 28 pp
- Pitzer, J. B. and **B. G. Smythe**. August 2013. Field performance of Experimental* fly bait in New Mexico. DP-1113. 32 pp.
- Pitzer, J. B. and **B. G. Smythe**. November 2013. Efficacy of Experimental* against pest flies developing in manure from treated animals 3. WI-0113. 33 pp.
- Pitzer, J. B. and **B. G. Smythe**. April 2012. Efficacy of Experimental* against pest flies developing in manure from treated animals 1. WI-0812. 32 pp.
- Pitzer, J. B. and **B. G. Smythe**. September 2012. Efficacy of Experimental* against pest flies developing in manure from treated animals 2. WI-1212. 29 pp.

Additionally, technical reports for each grant listed above (Research Support/Grants) were developed and submitted to appropriate funding agencies. To save space, references specific to those reports are not included here.

***Proprietary information withheld**

Teaching History

2015, Guest Lecturer, Parasitology (EPWS/ANSC 467/567, undergraduate and graduate level). Filth flies; Agricultural Impacts and Control Measures. Two day lecture series.

2014, Guest Lecturer, Humans, Insects and the Environment (EPWS 325, undergraduate level). Biology, Ecology, Morphology and Historical Impacts of Select Insect Parasites. Two day lecture series.

2012 – 2014, Teaching Assistant, Parasitology (EPWS/ANSC 467/567, undergraduate and graduate level)

- Lecture assistant (20-25 students a semester)
 - Guest lecturer
 - True bugs, Bed bugs, Assassin/Kissing bugs, and Fleas
 - Nematodes
 - Responsible for grading quizzes and exams
- Lab assistant
 - Preparation and guidance of lab experiments conducted in class
 - Preparation and grading of laboratory practical examinations

2009 – 2011, Teaching Assistant, Humans, Insects, and the Environment (EPWS 325, undergraduate level)

- Lecture assistant (60-80 students a semester)
 - Development of testing materials (weekly quizzes)
 - Responsible for grading quizzes and exams
 - Conducted (by appointment) review sessions for in-depth explanations of troublesome material covered in class

2009 – 2011, Teaching Assistant, Fungal Biology (EPWS/BIOL 373/573, undergraduate and graduate level)

- Lecture assistant (15-20 students a semester)
 - Responsible for grading test and exams
 - Conducted (by appointment) review sessions for in-depth explanations of troublesome material covered in class
- Lab assistant
 - Development of lab guide for students
 - Preparation and guidance of lab experiments conducted in class
 - Grading assignments

Professional References:

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