Jane Breen Pierce

EDUCATION

May 1990 **Rutgers University, New Brunswick, NJ**
Ph.D. Entomology. Dissertation: Endophyte-enhanced insect resistance in turfgrasses: Variation among endophytes, host species and insect herbivores.

December 1985 **Texas A & M University, College Station, Texas**.
M.S. Entomology. Thesis: Sorghum responses to yellow sugarcane aphid injury.

June 1979 **University of Massachusetts, Amherst, Mass**.
B.S. Entomology

SUMMARY: Three degrees in entomology from land grant institutions. Research background: Field and lab experience in pest management, host plant resistance insect/microbe/plant interactions, biological control, bioinsecticide and synthetic insecticide development, and agricultural biotechnology. Extension experience: Three years in Belize, C.A., (extension agent to project manager). Twenty four years at New Mexico State University. Teaching experience: Guest Lecturer for numerous NMSU EPWS classes and NMSU-C ES110 class. Rutgers University, Agriculture and the Environment, numerous adult education courses.

Grant funding: $1,694,777.

2021-2024	Expanding IPM Extension and Education in NM. US Department of Agriculture/National Institute of Food and Agriculture NIFA (Formerly USDA CSREES). ($480,000) Kersten, M. L., Pierce, J. B., Beck, L. L., Lujan, P.
2021	Impact of Alfalfa on Predation in Adjacent Cotton Fields. Cotton Incorporated. ($6,000)
2019-2021	Evaluating Insect Pest Management Tools for Cotton with Adaptive Insect Populations in a Semi-Arid Environment. Cotton Incorporated. ($57,000)
2019-2021	Changes in Management of Lepidopterous Cotton Pests in New Mexico: Evaluating Plant Resistance in Okra-Leaf Cottons and Heliothine Resistance to Bt Cottons. New Mexico Agricultural Experiment Station Graduate Assistant Funding ($40,000) Pierce, J.B. J Idowu.
2019-2021	Resistance of *Helicoverpa zea* and *Heliothis virescens* resistance in New Mexico. Agricultural Biotechnology Stewardship Consortium. ($39,000)
2020	Comparing potential resistance to seed treatments for thrips in the Mesilla Valley. Cotton Incorporated. ($6000). Pierce, J. B, J. Idowu R. Flynn.
2019	Potassium Fertilization for Optimum Cotton Yield. Cotton Incorporated. ($6,000) Idowu, O.J., J. Pierce, J. Zhang and R. Flynn.
2018-2019	Evaluating Tools for Cotton Insect Pest Management in the Southwest Region. Cotton Incorporated ($84,000) Bowling, R.(PI), C. Allen, C. Vyavhare, S, Kerns, D. Pierce, J.
2013-2018	Impact of crop production practices on pest populations in New Mexico. Cotton Incorporated ($130,700).
2018	Comparing potential resistance to seed treatments for thrips in the Mesilla and Pecos Valleys. Cotton Incorporated ($6000)
2014-2015	Impact of insect pests on glandless cotton in New Mexico. Cotton Incorporated ($9,200.00)
2000-2012	Impact of crop production practices on pest populations in New Mexico. Cotton Incorporated ($235,000).
2011	Pink bollworm migration and distribution in the Pecos Valley. USDA/APHIS ($9,258)
2010	Pink bollworm migration in New Mexico. USDA/APHIS ($9.906)
2010	New Mexico Performance of Prevathon in alfalfa DuPont Corp. ($1,500)

2008-2010	USDA. Biological Control of Alfalfa Weevil in NM ($13,000)
2008-2010	Impact of Pecan Management on Predation of Insect Pests in the Pecos Valley ($6,700)
2008	Monsanto -Variation in Bt cotton Performance in NM. ($3,500)
2008-2009	Dow Elanco-Variation in performance of Bt pima cottons for NM ($3,600)
2006-2007	Impact of management on predation in pecan in the Pecos Valley USDA/NMSU pecan funding ($6,641)
2001-2005	Management Impacts on Crop Microclimate and Arthropod Populations in Arid/Semi-Arid Environments. Cotton Foundation ($40,000).
2001-2005	Influence of Management on sentinel egg hatch and predation in the Pecos Valley. USDA/NMSU Pecan funding ($15,000)
2002	Biological Control in Pecan/Alfalfa Cropping Systems. New Mexico State University/NSF ADVANCE Program. ($11,000).
2001-2002	Biological control of puncturevine in the Pecos Valley. Pecos Valley Farmers Association. ($3,500).
1997-2000	Integrated pest management of boll weevil in New Mexico. New Mexico US Attorney Generals office. ($80,000).
1997-1999	Bt cotton in New Mexico. Cotton Incorporated. ($43,000).
1998	Performance of Bt cotton varieties in New Mexico. Monsanto Corp. ($4,000)
1997	Boll weevil monitoring and research in the Pecos Valley. New Mexico Department of Agriculture. ($7,500).
1997	Expression of resistance in Bt cotton to beet armyworm. Monsanto Corp. ($4,000).
1996-1997	Impact of habitat on boll weevil overwintering success. New Mexico Pecos Valley Farmers Association. ($7,000).
1996	Evaluating the impact of Tracer on beneficial insects in cotton. Dow Elanco Corp. ($4,000).
1997-1998	Evaluating the impact of Confirm on beneficial insects in cotton. Rohm and Haas Corp. ($3,500).
1996-1998	Boll weevil monitoring in the Pecos Valley. Pecos Valley Farmers Association. ($140,000).
1990-1993	Screening extra-chromosomal elements in *Acremonium* spp. US Golf Association/ ($122,000).Co-investigators P. Day and M. Wilson
1990-1992	*Acremonium* endophytes in the 1989 National fine fescue test. National Turfgrass Evaluation Program. ($18,272).
1990	Variation among selected fungal endophytes. NJ Turfgrass Council ($12,000).
1988-1989	Insect resistance in endophyte infected turfgrasses. NJ Turfgrass Council. ($8,000).
1988	Rutgers University Endophyte Seminar Series. NJ Turfgrass Council ($5,000).
1987-1988	Insect /plant interactions in endophyte infected turfgrasses. NJ Turfgrass Council. ($16,000).

PROFESSIONAL EXPERIENCE

Associate Professor, New Mexico State University (7/01-present) Research 51% Extension 49% in insect pest management. Program focuses on insect pest management in alfalfa, cotton and pecan. Specific areas of emphasis include biological control of alfalfa weevil, impact of various management practices on insect pests and beneficials, microclimate effects, yield compensation, variation in insect resistance, alternate host effects on insect pests and beneficials.

Assistant Professor, New Mexico State University (2/96-7/01) Research 51% Extension 49% Program focused on insect pest management in alfalfa, cotton and pecan. Specific areas of emphasis included management and suppression of cotton boll weevil, cultural control of pink bollworm, variation in Bt cotton resistance to insects, microclimate effects on insect pests.

Research Entomologist, FMC Corp (1/91-2/96) Entomologist in team that developed a genetically engineered baculovirus biopesticide. Conducted field translation and lab evaluations of insecticide candidates. Liaison between toxicology and chemistry departments, and between formulations chemistry, and biology departments. Published one refereed paper on baculovirus research and one chapter in Annual Review of Entomology.

Research Fellow, Center for Agricultural Molecular Biology, Rutgers University (3/90-1/91) Used molecular techniques to analyze genetic variation in *Acremonium* endophytes that confer resistance to insect pests.

Research Assistant, Department of Entomology, Rutgers University (1/86-3/90) Conducted research related to dissertation topic: Insect/plant interactions in endophyte infected turfgrasses. Taught undergraduate course, Agriculture and the Environment: Lab assistant, Forest Entomology.

Consultant, International Agriculture & Food Program, Rutgers University (6/86-7/86) As part of interdisciplinary team from Rutgers, investigated promising areas for horticultural development in Panama and developed a research proposal submitted to USAID.

Research Assistant, Texas A & M University (4/83-12/85) Conducted research related to thesis topic: yellow sugarcane aphid injury to seedling sorghum. Teaching assistant for economic entomology course.

Extension Entomologist/Superintendent/Project Manager. **Beekeeping Extension Research Program. Ministry of Agriculture, Belize, Central America and Peace Corps**. (3/80-10/82) Conducted workshops, classes for subsistence level farmers and students as county extension specialist, superintendent National Beekeeping Center, then manager of program. Wrote extension publications, newsletters, reports to NGOs. Set up disease inspection system. As project manager was responsible for directing activities of four specialists working in project.

HONORS AND AWARDS

Plant Pest Response Network Team Award. New Mexico State University, College of Agriculture, Consumer and Environmental Sciences. 2017.

SELECTED PUBLICATIONS

INVITED BOOK CHAPTERS

Allen, C. T., **Pierce, J. B.**, et al. 2021. Cotton in the United States of America and Mexico. *In* G. Matthews (Ed.), Pest Management in Cotton: A Global Perspective. London: CABI.

Pierce, J. Breen, C. Sutherland, A. Miller, L. Dominguez, J. Calvani. 2000. Boll Weevil Establishment and Eradication in New Mexico. *In* The History of Boll Weevil Eradication in the United States. National Cotton Council. Nashville, TN. pp. 359-371.

Breen, J. 1994. *Acremonium* endophyte interactions with enhanced plant resistance to insects. Annual Review of Entomology. 39: 401-423.

Fraser, M. and **J. Breen**. 1994. Role of endophytes in IPM for turf. *In* IPM of Turfgrasses. EPA Mssl. pub. Wash. DC 115-123.

Funk, C.R. White, R.H. and **Breen, J**. 1993. Importance of *Acremonium* endophytes in breeding and management. *In* *Acremonium* /Grass Interactions. Agriculture, Ecosystems and the Environment. Elsevier Pub. North Holland, Amsterdam. 44: 215-232.

SELECTED RESEARCH PUBLICATIONS

Tellez, I., **Pierce, J. B.,** Monk, P. 2021. Effect of Okra-Leaf Cotton on Canopy Microclimate and *Helicoverpa zea* (Boddie) Survival. *In* National Cotton Council of America. Beltwide Cotton Conferences. Carey, NC. pp. 588-596.

Pierce, J.B., P. Monk, I. Tellez and S.Biles. 2020 Variation in Heliothine Injury and Yields in Selected Cotton Cultivars in New Mexico. In National Cotton Council of America. Beltwide Cotton Conferences. New Orleans, LA. pp. 404-407.

Zhang, J, D. Fang. **J. Pierce**. 2020. QTL Analysis of Agronomic, Fiber Quality, and Abiotic Stress Tolerance Traits in a Recombinant Inbred Population of Pima Cotton Gossypium barbadense L. Crop Sci. V60 1823-1843.

Pierce, J.B., P. Monk and S.Biles. (2019). Variation in Plant Injury and Yield by Lepidopterous Pests in Selected Cultivars of Bt Cottons in New Mexico. In National Cotton Council of America. Beltwide Cotton Conferences. New Orleans, LA. pp. 287-291.

Vyavhare. S., M. Parajulee, D. Kerns,B. Reed, J.D. Gonzales, M. Brewer, D. Sekula, T. Mays, T. Doederlein, A. Hakeem, **J.B. Pierce** and A. Kesheimer. (2019). Evaluating Efficacy and Economic Profitability of Preventive Insecticidal Seed Treatments in Cotton. In National Cotton Council of America. Beltwide Cotton Conferences. New Orleans, LA. Pp. 79-81

Rethwisch, Michael, **J.B. Pierce.** (2019) Insecticide Resistance in Alfalfa Weevil and Related Implications for Other Alfalfa Insect Pests. Western Alfalfa and Forage Symposium. Reno, NV Michael Rethwisch, University of California Cooperative Extension, Blythe, CA

Idowu, O. J., Zhang, J., **Pierce, J. B**., Omer, M. and Wedegaertner, T. C. 2018. Impacts of Potassium Fertilization on New Glandless Cotton Cultivars Developed for New Mexico. *In* Proceedings 72nd Beltwide Cotton Conference, National Cotton Council of America, San Antonio, TX. pp. 153-156.

Pierce, J.B., Monk, P. Idowu, O.J. 2017. Predation of Sentinel Eggs in Cotton and Sorghum in New Mexico. *In* Proceedings 71st Beltwide Cotton Conference, National Cotton Council of America, Dallas, TX. pp. 536-541.

Pierce, J. B., Monk, P., Richman, D. B., Idowu, O. J. 2016. Control of Insect Pests in Glandless Cotton: The Role of Biological Control in New Mexico. *In* Proceedings 70th Beltwide Cotton Conference, National Cotton Council of America, New Orleans, LA. pp. 198-201.

Idowu, O. J., Zhang, J., Flynn, R. P., **Pierce, J. B**., Wedegaertner, T. C. 2016. Performance of New Glandless Cotton Lines As a Function of Soil Type and Nitrogen Rates. *In* Proceedings 70th Beltwide Cotton Conference, National Cotton Council of America, New Orleans, LA. pp. 58-61.

Pierce, J.B., P.E. Monk and O.J. Idowu. 2015. Predation of sentinel bollworm eggs in glanded and glandless cotton in New Mexico. *In* Proceedings 69th Beltwide Cotton Conference, National Cotton Council. San Antonio, TX. pp.278-282.

Idowu, O.J., J. Zhang, **J.B.Pierce** and R.P.Flynn. 2015. Impact of deficit irrigation on selected glandless cultivars in New Mexico. *In* Proceedings 69th Beltwide Cotton Conference, National Cotton Council, San Antonio, TX. pp.160-163.

Larson, Z., B. Barrick, A. Abdelraheem, S. Sanogo, **J.B.Pierce**, R.P. Flynn, O.J. Idowu, J. Zhang and T. Wedegaertner. 2015. Evaluation of New Glandless Cotton Lines for Thrips and Verticillium Wilt Resistance. *In* Proceedings 69th Beltwide Cotton Conference, National Cotton Council, San Antonio, TX. pp. 357.

Idowu, O. J., Zhang, J., Flynn, R. P., **Pierce, J. B**., Wedegaertner, T. 2014. Comparative performance of a glandless Acala cultivar and two glanded Acala cultivars in New Mexico. Journal of Cotton Science.Vol. 18, pp. 122-128.

Pierce, J. B., Monk, P. and Garnett, A. 2014. Glandless cotton in New Mexico Beet Armyworm and Cotton Bollworm Development and Field Damage. In 68th Proceedings Beltwide Cotton Conferences. National Cotton Council. New Orleans, LA. pp. 688-692.

Pierce, J. B., Allen, C., Multer, W., Doederlein, T., Anderson, M., Russell, S., et al. 2013. Pink Bollworm (Lepidoptera: Gelechiidae) in the Southern Plains of Texas and New Mexico: Distribution; and Eradication of a Remnant Population. Southwestern Entomologist, 38(3), 369-378.

Garnett, A., **Pierce, J. B**. and Monk, P. E. 2013. Glandless Cotton in New Mexico: Impact of Nitrogen on Gossypol Associated Resistance to Cotton Bollworm and Beet Armyworm. In 67th Proceedings Beltwide Cotton Conferences. National Cotton Council. San Antonio, TX. pp. 432-435.

Idowu, J., Flynn, R., **Pierce, J**., Zang, J., Scheffler, J., Wedegaertner, T. 2013. Evaluation of Three Cultivars of Glandless Cotton in New Mexico. In 67th Proceedings Beltwide Cotton Conferences. National Cotton Council. San Antonio, TX. pp. 87-89.

Idowu, J., Flynn, R., **Pierce, J.,** Zang, J., Scheffler, J., Wedegaertner, T. 2013. Planting Date and Fertilizer Rate Effects on Selected Cotton Cultivars in New Mexico. In 67th Proceedings Beltwide Cotton Conferences. National Cotton Council. San Antonio, TX. pp. 90-93.

Pierce, J. B., Garnett, A., Monk, P. 2012. Glandless Cotton in New Mexico: Weighing the Risk of Insect Losses. In Proceedings 66th Beltwide Cotton Conferences. National Cotton Council. Orlando, FL, pp. 904-908.

Pierce, J. B., Multer, W., Doederlien, T., Anderson, M., Russell, S., Allen, C., Zink, R., Walters, M., Kerns, D., Westbrook, J. 2012. Results of a Two Year Pink Bollworm Survey in the Southern Plains of Texas and New Mexico. In Proceedings 66th Beltwide Cotton Conferences. National Cotton Council. Orlando FL. pp. 935-940.

Idowu, O. J., **Pierce, J. B**., Bundy, C. S., Zhang, J., Flynn, R. P., Carillo, T. 2012. Evaluation of Glandless Cotton Cultivars in New Mexico. In Proceedings 66th Beltwide Cotton Conferences. National Cotton Council. Orlando, FL. pp. 90-94.

Pierce, J. and P. Monk. 2011. Influence of alfalfa and management practices on predation of lepidopteran eggs. 65th Proceedings Beltwide Cotton Conferences, Atlanta, GA (in press)

Multer, W., M. Cattaneo, T. Doederlein, **J. Pierce**, M. Walter, R. Zink. D .Kerns, C. Allen. 2011. Pink bollworm trapping in the southern plains of Texas and New Mexico. 65th Proceedings Beltwide Cotton Conferences, Atlanta, GA (in press)

Pierce, J. and P. Monk. 2010. Environmental stress impacts on egg hatch and larval survival of cotton bollworm. *Helicovera zea* Boddie. Crop Management 10:1094/CM-2010-1221-01-RS.

Pierce, J. and P. Monk. 2010. Impact of Alfalfa on Predation of Cotton Insect Pests in New Mexico. Proceedings Beltwide Cotton Conferences, New Orleans, LA pp 962-965.

Pierce, J. and P. Monk. 2009. Impact of management practices on biological control in New Mexico. Proceedings Beltwide Cotton Conferences, San Antonio, Texas

Carrillo, T, J. Drake, J. Ellington, **J. Pierce.** 2008. Abundance of Predaceous Arthropods and *Lygus* spp (Hemiptera: Miridae) in response to differenct nitrogen fertilizer rates in Acala 1517-99 cotton. Crop Management. December/plantmanagementnetwork.org

Pierce, J. and P. Monk. 2008. Yield compensation for simulated bollworm injury in New Mexcio. Lubbock World Cotton Research Conference-4. Refereed Proceedings: Omnipress, Madison , WI p1826.

Pierce, J. and P. Monk 2008. Influence of mangement on corp microclimate and control of cotton bollworm *Helicoverpa zea* Boddie. Lubbock World Cotton Research Conference-4. Refereed Proceedings: Omnipress Madison, WI p 2072.

Pierce, J. Breen, P.E. Yates, N. Foster, L.A. Wood. 2002. Field residual activity of selected formulations of malathion against *Catolaccus grandis* (Hymenoptera: Pteromalidae) Southwestern Entomologist 27: 59-64

Pierce, **J.** Breen, J. Joseph Ellington, C. Ellers-Kirk, T. Carillo. 2001. Influence of plant population, early planting and varietal selection on early squaring and trap crop development of Bt cotton for control of pink bollworm *Pectinophora gossypiella* Saunders. Journal of Entomological Science 37: 219-226 .

Pierce, **J.** Breen, R. Flynn, C. Ellers-Kirk and C. French. 2001. Variation in plant resistance to cotton bollworm *Helicoverpa zea* in selected Bt cotton varieties. Southwestern Entomologist. 26: 353-363.

Pierce, J. Breen and P.E. Yates. 2001. Crop management and microclimate effects on immature boll weevil mortality in Chihuahuan desert cotton fields. Southwestern Entomologist. 26: 87-93.

Pierce, J. Breen and C. Ellers-Kirk. 1999. Influence of overwintering habitat on boll weevil trap captures. Southwestern Entomologist. 24: 123-131.

Pierce, **J**. Breen, C. Ellers-Kirk. 1999. Variation in beet armyworm susceptibility and expression of resistance in selected Bt varieties. Southwestern Entomologist 24: 183-92

Hughes, P.R., A. Wood and **J**. **Breen**. 1997. Enhanced bioactivity of recombinant baculoviruses expressing insect specific spider toxins in Lepidopteran crop pests. Journal of Invertebrate Pathology. 69:112-118.

Breen, **J**. 1993. Enhanced resistance to 3 species of aphids in *Acremonium* endophyte infected turfgrasses. Journal of Economic Entomology. 86: 1279-1286.

Breen, J. 1993. Endophyte enhanced resistance to fall armyworm in *Acremonium* endophyte infected turfgrasses. Journal of Economic Entomology. 86: 621-629.

White J. and **J**. **Breen**. 1991. Substrate utilization in selected *Acremonium*, *Atkinsonella*, and *Balansia*, spp. Mycologia. 83: 601-610.

Breen, J. 1992. Temperature and seasonal effects on the expression of *Acremonium* endophyte enhanced resistance to greenbug. (Homoptera: Aphididae) Environmental Entomology. 21: 68-74

Kindler D.K., **J**. **Breen** and T. Springer. 1991. Reproduction and damage by Russian wheat aphid (Homptera Aphididae) as influenced by fungal endophytes and cool season turfgrasses. Journal of Economic Entomology. 84: 685-692.

Breen, **J**. and G.L. Teetes 1989. Economic Injury levels for yellow sugar cane aphid on seedling sorghum. Journal of Economic Entomology. 83: 1008-1014.

Breen, **J**. and G.L. Teetes 1986. Effects of duration of yellow sugarcane aphid (Homoptera Aphididae) infestation on seedling sorghum. Journal of Economic Entomology. 79: 1603-5.

Breen, **J**. and G.L. Teetes 1986. Relationship of yellow sugarcane aphid (Homoptera: Aphididae) density to sorghum damage. Journal of Economic Entomology. 79: 1106-1110.