

**Michael J. Brewer, Associate Professor, Field Crops Entomology**

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**Education and Training**

Aug. 1990 Ph.D. Entomology, University of California, Riverside  
Dec. 1986 M. Applied Statistics, Louisiana State University  
Aug. 1985 M.S. Entomology, Louisiana State University  
Dec. 1981 B.S. Entomology, University of California, Davis, California.

**Professional Experience**

2009- Field Crops Entomologist, Assistant/Associate Professor, Texas AM AgriLife Research, Corpus Christi.  
2002-2009 Integrated Pest Management Coordinator/Assoc. Professor, Michigan State University.  
1991- 2002 Assistant/Associate Professor, Extension Specialist, Entomology. University of Wyoming.  
1990-1991 Postdoctoral Research Associate, Entomology. University of California, Riverside.  
1989 Lecturer in Entomology. California Polytechnic State University, San Luis Obispo, California

Affiliations:(Adjunct, service in graduate student committee)

2011- current Department of Agriculture, Agribusiness, and Environmental Sciences, Texas A&M, Kingsville

2016- current Department of Computing and Geospatial Sciences, Texas A&M, Corpus Christi

**Professional Society Membership**

Entomological Society of America, 1983-present  
Society of Southwestern Entomologists, 1993-2000, 2010-present  
South Carolina Entomological Society, 1995-2001  
Central States (Kansas) Entomological Society, 1995-2001  
International Organization of Biological Control, 1996-1999, 2005

**Current Professional Activities**

**Research.** Development of IPM strategies and their incorporation into field crop management systems. Land- and farm-scape effects on pest and natural enemy interactions. Assessing compatibility of insect management strategies, including host plant resistance, biological control, and insecticide control in field crop systems. Special focus on addressing the shifting insect pest complex of south Texas field crops through: 1) Regional pest risk assessment and decision support for managing the insect pest complex using classical and GIS-based approaches, and 2) Understanding the environmental and cropping system context of plant/insect/disease interactions that affects plant health risk as a basis for area-wide management.

**Instruction.** Graduate student education, emphasis on insect pest management and plant/insect interaction. Guest lectures and internship sponsor in undergraduate education.

**Outreach and Extension.** Present findings to grower meetings locally, regionally, and statewide. Entomology liaison to field crop grower groups.

**Service.** Subject editor of the Journal of Economic Entomology.

**Honors and Awards (since 2009)**

Outstanding Mentorship in Research. Entomology Graduate Student Organization. 2017.  
Project of Excellence, team member. Risk management and economic thresholds for sugarcane aphid on sorghum. USDA NIFA Southern Region Risk Management Education Center, 2017.  
Pulling Together Award, Sugarcane Aphid team member. Southern IPM Center. 2016.  
Superior Service Team Award, Sugarcane aphid. Texas A&M AgriLife Extension. 2015.

**Elected Positions since 2009**

Faculty Advisory Committee, Entomology, Texas A&M, elected, 2012-14; re-elected, 2015-17.  
Council of Principle Investigators, Texas A&M, Texas A&M AgriLife Research rep, 2017-2020.  
Editorial Board Member (chair 2017), Journal of Integrated Pest Management, 2014-2017.

**Publications**

Refereed journal articles: 84; Book chapters: 7  
Abstracts and proceedings: 65  
Outreach (extension) publications: 47

**Presentations**

Seminars: 32; Symposia presentations: 32  
Research papers and posters: 202; Extension papers and posters: 215

**Student education and mentoring**

Graduate Students as Principal Advisor: 10 M.S., 5 Ph.D.  
Graduate Students Committee Assignments: 33  
Host for student interns and scholars: 14 undergraduates during last four years

**Grantsmanship**

**Overview of Competitive grants and awards:** Career total: 109 funded, 57 as PI and 52 as co-I.  
Career cumulative across awards, \$ 3,299,050 directed to my program effort, as part of multi investigator awards totally \$ 11,914,050.  
Since 2009: 46 funded, 26 as PI and 20 as a co-I. Cumulative of \$ 1,114,954 directed to my program, as part of a multi-investigator awards totally \$ 3,500,207.

**Overview of non-competitive funding:** Career total: 74 agreements, 65 as PI and 9 as co-I.  
Career cumulative across awards, \$ 2,700,741 directed to my program effort, as part of multi-investigator awards totally \$ 3,326,773.  
Since 2009: 30 funded, 29 as PI and 2 as a co-I. Cumulative of \$ 572,467 directed to my program, as part of a multi-investigator awards totally \$ 688,287.

### Publication List (last four years)

The following superscripts are used to identify my contribution in the following subsections: <sup>1</sup> led investigation and writing, <sup>2</sup> provided guidance for lead graduate student, <sup>3</sup> conducted a component experiment, <sup>4</sup> data collection, organization, and/or analyses, <sup>5</sup> consulted on project, input on design, data management and/or analyses, <sup>6</sup> guidance for lead post-doc, <sup>7</sup> guidance for lead undergraduate student, <sup>8</sup> shared writing. + indicates student, post-doc, and research staff in my program

#### Journal articles

- Armstrong, J.S., **M.J. Brewer**<sup>3</sup>, R.D. Parker, and J.J. Adamczyk, Jr.. 2013. Verde plant bug (Hemiptera: Miridae) feeding injury to cotton bolls characterized by boll age, size, and damage ratings. *J. Econ. Entomol.* 106: 189-195.
- Brewer, M.J.**<sup>1</sup>, J.S. Armstrong and R.D. Parker. 2013. Single and multiple in-season measurements as indicators of at-harvest cotton boll damage caused by verde plant bug (Hemiptera: Miridae). *J. Econ. Entomol.* 106: 1310-1316.
- Brewer, M.J.**<sup>1</sup>, D.J. Anderson<sup>+</sup>, and J.S. Armstrong. 2013. Plant growth stage-specific injury and economic injury level for verde plant bug, *Creontiades signatus* (Hemiptera: Miridae), on cotton: effect of bloom period of infestation. *J. Econ. Entomol.* 106: 2077-2083.
- Elliott, N., **M.J. Brewer**<sup>3</sup>, K.L. Giles, et al. 2014. Sequential sampling for panicle worms (Lepidoptera: Noctuidae) in grain sorghum. *J. Econ. Entomol.* 107: 846-853.
- Brewer, M.J.**<sup>1</sup>, G.N. Odvody, D.J. Anderson, and J.C. Remmers. 2014. A comparison of Bt transgene, hybrid background, water stress, and insect stress effects on corn leaf and ear injury and subsequent yield. *Environ. Entomol.* 43: 828-839.
- Farias, C.A. <sup>+</sup>, **M.J. Brewer**<sup>2</sup>, D.J. Anderson<sup>+</sup>, et al.. 2014. Native corn resistance to corn earworm, *Helicoverpa zea*, and fall armyworm, *Spodoptera frugiperda*. *Southwest. Entomol.* 39: 411-425.
- Backoulou, G.F., N.C. Elliott, T.A. Royer, et al., and **M.J. Brewer**<sup>5</sup>. 2014. Web-based decision support system for managing panicle caterpillars in sorghum. *Crop Management* 13:1-6.
- Reisig, D.D., D.S. Akin, R.T. Bessin, **M.J. Brewer**<sup>3</sup>, et al. 2015. Lepidoptera (Crambidae, Noctuidae, and Pyralidae) injury to corn containing single and pyramided Bt traits, and blended or refuge, in the southern United States. *J. Econ. Entomol.* 108: 157-165.
- Armstrong, J.S., W.L. Rooney, G.C. Peterson, R.T. Villanueva, **M.J. Brewer**<sup>3</sup>, et al.. 2015. Sugarcane aphid (Hemiptera: Aphididae): host range and sorghum resistance including cross-resistance from greenbug sources. *J. Econ. Entomol.* 108: 576-582.
- Elliott, N.C., G.F. Backoulou, **M.J. Brewer**<sup>5</sup>, and K.L. Giles. 2015. NDVI to detect sugarcane aphid injury to grain sorghum. *J. Econ. Entomol.* 108: 1452–1455; DOI: 10.1093/jee/tov080.
- McCloud, L.A., S. Hague, A. Knutson, C. W. Smith, and **M. Brewer**<sup>5</sup>. 2016. Cotton square morphology offers new insights into host plant resistance to cotton fleahopper (Hemiptera: Miridae) in upland cotton. *J. Econ. Entomol.* 109: 392-398.
- Brewer, M.J.**<sup>1</sup>, D.J. Anderson<sup>+</sup>, and M.N. Parajulee. 2016. Cotton water-deficit stress, age, and cultivars as moderating factors of cotton fleahopper abundance and yield loss. *Crop Protect.* 86: 56-61.
- Reay-Jones, F.P.F., R.T. Bessin, **M.J. Brewer**<sup>3</sup>, et al. 2016. Impact of Lepidoptera (Crambidae, Noctuidae, and Pyralidae) pests on corn containing pyramided Bt traits and a blended refuge in the southern United States. *J. Econ. Entomol.* 109: 1859-1871.
- Bowling, R., **M.J. Brewer**<sup>5</sup>, D.L. Kerns, et al.. 2016. Sugarcane aphid (Homoptera: Aphididae): a new pest on sorghum in North America. *J. Integr. Pest Manage.* 7: 12; doi.org/10.1093/jipm/pmw011.
- Elliott, N., **M. Brewer**<sup>3</sup>, N. Seiter, et al. 2017. Sugarcane aphid spatial distribution in grain sorghum fields. *Southwestern Entomologist* 42: 27-35.
- Stanton, C. <sup>+</sup>, M. J. Starek, N. Elliott, **M. Brewer**<sup>2</sup>, et al. 2017. Unmanned aircraft system-derived crop height and normalized difference vegetation index metrics for sorghum yield and aphid stress assessment. *J. Applied Remote Sensing* 11: 026035, doi:10.1117/1.JRS.11.026035.

- Weaver, M.A., H.K. Abbas, **M.J. Brewer**<sup>3</sup>, L.S. Pruter<sup>+</sup>, et al. 2017. Integration of biological control and transgenic insect protection for mitigation of aflatoxin in corn. *Crop Protect.* 98:108-115.
- Harris-Shultz, K., X. Ni, P.A. Wadl, et al., **M.J. Brewer**<sup>3</sup>, and X. Yang. 2017. Microsatellite markers reveal; a predominant sugarcane aphid (Homoptera: Aphididae) clone is found on sorghum in seven states and one territory of the USA and one territory of the USA. *Crop Sci.* 57: 2064-2072.
- Deleon, L.<sup>+</sup>, **M. J. Brewer**<sup>7</sup>, I. L. Esquivel<sup>+</sup>, and J. Halcomb. 2017. Use of a geographic information system to produce pest monitoring maps for south Texas cotton and sorghum land managers. *Crop Protection* 101: 50-57.
- Brewer, M.J.**<sup>1</sup>, J.W. Gordy<sup>+</sup>, D.L. Kerns et al. 2017. Sugarcane aphid population growth, plant injury, and natural enemies on selected grain sorghum hybrids in Texas and Louisiana. *J. Econ. Entomol.* 110: 2109-2118.
- Chu, T., M. J. Starek, **M. J. Brewer**<sup>3</sup>, S.C. Murray, and L.S. Pruter<sup>+</sup>. 2017. Assessing crop lodging over an experimental maize (*Zea mays* L.) field using UAS images. *Remote Sensing* 9: 923; doi:10.3390/rs9090923.
- Thomas, J.L.<sup>+</sup>, R. Bowling, and **M.J. Brewer**<sup>2</sup>. 2018. Learning experiences in IPM through concise demonstrational training videos. *J. Integrated Pest Manage.* 9(1): 2; 1–6; doi: 10.1093/jipm/pmx030.
- Pugh, N.A., D.W. Horne, S.C. Murray, et al., **M.J. Brewer**<sup>3</sup>, and W.L. Rooney. 2018. Temporal estimates of crop growth in sorghum and maize breeding enabled by unmanned aerial systems. *Plant Phenome J.* 1:170006; doi:10.2135/tppj2017.08.0006.
- Elliott, N.C., **M.J. Brewer**<sup>5</sup>, and K.L. Giles. 2018. Landscape context affects aphid parasitism by *Lysiphlebus testaceipes* in wheat fields. *Environ. Entomol.* <https://doi.org/10.1093/ee/nvy035>.
- Backoulou, G.F., N.C. Elliott, L.L. Giles, T.M. Alves<sup>+</sup>, **M.J. Brewer**<sup>4</sup>, and M. Starek. 2018. Using multispectral imagery to map spatially variable sugarcane aphid infestations in sorghum. *Southwest. Entomol.* 43: 37-44.
- Chu, T., M. J. Starek, **M. J. Brewer**<sup>3</sup>, S.C. Murray, and L. S. Pruter<sup>+</sup>. 2018. Characterizing canopy height with UAS structure-from-motion photogrammetry—results analysis over multiple factors in a maize field trial. *Remote Sensing Letters* 9: 753-762.
- Peterson, G.C., J.S. Armstrong, B.B. Pendleton, M. Stelter, and **M.J. Brewer**<sup>4</sup>. 2018. Registration of Tx3410 through Tx3428 sorghum germplasm resistant to sugarcane aphid [*Melanaphis sacchari* (Zehntner)]. *J. Plant Registrations* (in press).
- Anderson, D.J.<sup>+</sup>, **M.J. Brewer**<sup>2</sup>, R.D. Bowling<sup>a</sup>, and J.A. Landivar<sup>a</sup>. 2018. Recording within-cotton distribution of plant bug injury using plant mapping computer-based tools. *Crop Protection* 112: 220-226.
- Karp, D.S., et al. (including **M. Brewer**<sup>4</sup> among multiple authors). 2018. Crop pests and predators exhibit inconsistent responses to surrounding landscape composition. *Proc. Nat. Acad. Sci.* 201800042; DOI: 10.1073/pnas.1800042115..
- Brewer, M.J., F.B. Peairs and N.C. Elliott 2019. Sugarcane aphid and other invasive cereal aphids of North America: ecology and pest management. *Ann. Rev. Entomology* (in press).

### Chapters in Books

- Luttrell, R. G., T. G. Teague, and **M. J. Brewer**<sup>8</sup>. 2015. Cotton insect pest management, pp. 509-546. In D. D. Fang and R. G. Percy (Eds.) *Cotton*, 2nd Edition, Monograph 57. Madison, WI.