Jean Batzer

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Education

Ph.D. Plant Pathology, Iowa State University at Ames 2005
Thesis: Sooty blotch and flyspeck on apple: Expansion of the fungal complex, post-harvest removal, and heterogeneity of apple canopy wetness and its impact on the outcome of a disease-warning system

M.S. Plant Pathology, University of Tennessee at Knoxville 1997
Thesis: Effects of the tall fescue endophyte on seed germination and resistance to pre-emergence damping-off

B.S. Plant Health Technology, University of Minnesota at St. Paul 1982

Professional Experience

Assistant Scientist I, Iowa State University January 2015 to present

- Manage projects in support of research on diseases of soybean crops for the Mueller laboratory.
- Design, oversee, analyze data, compile reports, and compose manuscripts for experiments in field, laboratory, growth chamber, greenhouse.
- Supervise, train, assist and mentor undergraduate students.
- Co-advise master and doctorate students and visiting scientists.

Assistant Scientist II, Iowa State University 2007-2014

Sooty blotch and flyspeck (SBFS) fungi on apple

- Expanded the known diversity of fungi causing SBFS on apple from 4 to 80 species.
- Characterizing genetic diversity of the SBFS complex in U.S., China, Turkey, Spain, Norway, Germany, Poland, Serbia, and Brazil.
- Described morphology and naming newly discovered species in the SBFS complex.
- Developed method for a rapid identification to genus using specific primers and RFLP banding patterns.
- Described the epidemiology and ecology of fruit infection, colony appearance, and spread in orchards.
- Reconstructied evolutionary origin of SBFS fungi using multi-gene phylogeny.
- Determinined effects of environment (temperature, leaf wetness, and humidity) and nutrients on growth of predominant SBFS species.
- Developed and field tested a new warning system for SBFS in the Upper Midwest.
- Investigatied additional hosts of SBFS that act as inoculum reservoirs.

Bacterial wilt of cucurbits

- Discovered that *Erwinia tracheiphila* strains differ in virulence and genotype depending on the host genus from which they were isolated.
- Demonstrated that insecticidal sprays on muskmelon to control cucumber beetles (the vector of bacterial wilt) can be reduced using perimeter trap cropping.
- Found that delaying removal of row covers suppressed bacterial wilt on muskmelon.

Post-Doctoral Research Associate, Iowa State University 2005-2007

Graduate Research Assistant, Iowa State University 2000-2005

Phytosanitary Disease Inspector, Iowa corn and soybean export IDALS 1998-2011

Research Assistant and Plant Disease Diagnostician, Iowa State University 1998-2000

- Managed Endophyte Testing Service using ELISA-PAS immunoblot to detect. *Neotyphodium coenophialum* in turf and pasture grass.
- Co-instructed Introduction to Plant Pathology and designed curriculum for laboratory.
- Teaching-assistant Plant-Fungal Interactions, graduate level course.

Plant Pathologist, Walt Disney World, EPCOT Center, Florida 1983 - 1990

- Developed suitable methods to control plant diseases including *Erwinia carotovora* stem rot, powdery mildew of cucurbits, *Pythium* root rots, gummy stem blight of cucumber, gray spot of tomato, tomato mosaic virus, cucumber mosaic virus, tomato spotted wilt, root knot nematode.
- Identified cause of bacterial stem rot using physiological screening and fatty acid profile
- Determined host range, temperature and humidity requirements for infection.
- Inspected and managed diseases for 5-acre hydroponic greenhouse showcasing over 70 agricultural crops; managed laboratory support facilities.
- Mentored and supervised undergraduate student interns.
- Presented behind-the-scenes tours of greenhouses for guests, developed teaching curricula for teachers about agricultural issues.

Grants Awarded

Shielding Cucurbit Crops for Resilient Agroecosystems Mark L. Gleason, Cynthia L. Haynes, Gwyn A. Beattie, H. Mark Hanna, Ana Paula Correia, Ajay Nair, Carmen M. Bain, **Jean C. Batzer,** Mathieu Ngouajio, Celeste Welty, James R. Jasinski, Mary M. Gardiner, Sally A. Miller, Shelby J. Fleischer, Elsa S. Sánchez, Timothy Coolong, Mark A. Williams, Mark C. Mescher, Ricardo T. Bessin. Funded by SARE USDA/NIFA for $1,581,000 for 2 years (2012-2014).

Implementing new IPM strategies for the summer disease complex of apples. North Central Regional IPM Competitive Grants Program. Mark L. Gleason, **Jean C. Batzer**, Michael D. Duffy, S. Elwynn Taylor, Janna Beckerman. Funded by North Central Regional Integrated Pest Management (NCR-IPM) for $136,694 for 2 years (2012-2015). I wrote the proposal.

Implementing new strategies for managing pests and safeguarding pollination in partnership with organic cucurbit growers. Mark L. Gleason, Donald R. Lewis, **Jean C. Batzer**, Laura C. Jesse, Forrest W. Nutter, Ana-Paula Correia, Shelby, J. Fleischer, Ronald Hoover, Elsa S.Sánchez, Beth Gugino, Mark A. Williams, Timothy Coolong, Ricardo T. Besssin. Funded by USDA/OREI for $1,050,000 for 3 years (2010-2012).

Optimizing row covers and perimeter trap crops for cucurbit pest management. Mark L.Gleason, **Jean C. Batzer**, Donald R. Lewis, Sally Miller, Celeste Welty. Funded by North Central Region SARE for $175,000 for 2 years (2011-2012).

National effort to implement sustainable management of sooty blotch and flyspeck on apples. Mark L. Gleason, J**ean C. Batzer,** Daniel Cooley, Doug Miller. Funded by Special Research Grants Program - Pest Management Alternatives program (PMAP) for $200,000 for 2 years (2009-2010).

Honors and Awards

- Phi Kappa Phi, Gamma Sigma Delta, Sigma Xi
- The Janelle Stevens Johnk Travel Award, APS 2001
- Central Division Poster Contest, Second Place, APS, 2002
- Award of Excellence for poster, Entomological Society of America, 2007

Referred Research Publications

Ismail SI, **Batzer JC,** Harrington TC, P Crous PW, Lavrov D, Li H, Gleason ML. 2015. Ancestral State Reconstruction Infers Phytopathogenic Origins of Sooty Blotch and Flyspeck Fungi on Apple. Mycologia *submitted*

Ismail SI, **Batzer JC,** Harrington TC, and Gleason ML. 2015. Phenology of infection on apple fruit by sooty blotch and flyspeck species in Iowa apple orchards. Plant Disease s*ubmitted*

Saalau Rojas E, **Batzer JC,** Beattie GA, Fleischer S, Shapiro LR, Williams MA, Bessin R, Bruton BD, Boucher JT, Jesse L, Gleason ML. 2015. Bacterial wilt of cucurbits: Resurrecting a classic pathosystem. Plant Disease *in press*

Zhang, M, Gao, Shang, S, Han, X., Zhang, R., Latinović J, Latinović, N, **Batzer, JC,** Gleason, ML, Sun, G. 2015. New species and record of Zygophiala (Capnodiales, Mycosphaerellaceae) on apple from Montenegro. Phytotaxa 195 (3): 227–235 http://dx.doi.org/10.11646/phytotaxa.195.3.2

Batzer, JC, Stensvand, A, Mayfield, DA, Gleason, ML. 2015 Composition of the sooty blotch and flyspeck complex on apple in Norway is influenced by location and management practices. European Journal of Plant Pathology 141:361-374. DOI 10.1007/s10658-014-0548-9

Gao, L, Zhang, M., Hao, L, Hongcai Chen, H, Zhang, R, Sun G. **Batzer, JC**, Gleason. 2014 Molecular and Morphological Analysis Reveals Five New Species of *Zygophiala* Associated With Flyspeck Signs on Plant Hosts from China. PloS One 9(10),e110717.

Medjedović, A, Frank, J, Schroers H, Oertel B, **Batzer, JC**. 2014. *Peltaster cerophilus* is a new species of the apple sooty blotch complex from Europe. Mycologia 106 (3), 525-536

Batzer, JC, McManus, PS, Gleason, ML. 2013. Fungicide spray volume and pruning impact performance of a warning system for sooty blotch and flyspeck on apple. Online. Plant Health Progress doi:10.1094/PHP-2013-0930-01-RS.

Li, W, Zhang, R, Sun, GY, **Batzer, JC**, and Gleason, ML. 2013. A new species of *Devriesia* causing sooty blotch and flyspeck on rubber tree in China. Mycological Progress: November 2013. DOI:10.1007/s11557-012-0885-z

Mayfield, DA, Karakaya, A, **Batzer, JC**, Blaser, JM, and Gleason, ML. 2013. Diversity of sooty blotch and flyspeck fungi from apples in northeastern Turkey. European Journal of Plant Pathology: 135(4), 805-815.

Batzer, JC, Sisson, AJ, Harrington, TC, Mayfield, DA, and Gleason, ML. 2012. Temporal patterns in appearance of sooty blotch and flyspeck fungi on apples. Microbial Ecology: 64 (4), 928-941. DOI 10.1007/s00248-012-0089-8

Li, HY, Sun, GY, Zhai, XR, **Batzer, JC**, Mayfield, DA, Crous, PW, Groenewald, JZ, and Gleason, ML. 2012. Dissoconiaceae associated with sooty blotch and flyspeck on fruits in China and the United States. Persoonia 28:113-125.

Saalau Rojas, E, Gleason, ML, **Batzer, JC**, and Duffy, MD. 2011. Feasibility of using delayed-removal row covers for suppression of bacterial wilt of muskmelon (Cucumis melo L.). Plant Disease 95:729-734.

Li, HY, Sun, GY, **Batzer, JC**, Crous, PW, Groenewald, JZ, Karakaya, A, and Gleason, ML. 2011. Scleroramularia gen. nov. associated with sooty blotch and flyspeck of apple and pawpaw from the Northern Hemisphere. Fungal Diversity 46:53-66.

Gleason, ML, **Batzer, JC**, Sun, GY, Zhang, R, Díaz Arias, MM, Sutton, TB, Crous, PW, Ivanović, M, McManus, PS, Cooley, DR, Mayr, U, Weber, RWS., Yoder, KS, Del Ponte, ES, Biggs, AR, and Oertel, B. 2011. A new view of sooty blotch and flyspeck. Plant Disease 95:368-383.

Spólti, P, Schneider, L, Sanhueza, RV, **Batzer, JC**, Gleason, ML, and Del Ponte, EM. 2010. Improving sooty blotch and flyspeck severity estimation on apple fruit with the aid of a diagrammatic scale. European Journal of Plant Pathology DOI 10.1007/s10658-010-9636-7.

Yang, HL, Sun, GY, **Batzer, JC**, Crous, PW, Groenewald, JZ, and Gleason, ML. 2010. Novel fungal genera and species associated with the sooty blotch and flyspeck complex on apple in China and the United States. Persoonia 24: 29–37.

Ivanović, MM, Ivanović, MS, **Batzer, JC**, Tatalović, N, Oertel, B, Latinović, J, Latinović N, and Gleason ML. 2010. Fungi of the apple sooty blotch and flyspeck complex from Serbia and Montenegro. Journal of Plant Pathology 92:65-72.

Díaz Arias MM, **Batzer, JC**, Harrington TC, Wong AW, Bost SC, Cooley DR, Ellis MA, Hartman JR, Rosenberger DA, Sundin GW, Sutton TB, Travis JW, Wheeler MJ, Yoder KS, Gleason ML. 2010. Diversity and biogeography of sooty blotch and flyspeck fungi on apple in the eastern and midwestern United States. Phytopathology 100:345-355.

Batzer, JC, Rincon SH, Mueller DS, Petersen BJ, Le Corronc F, McManus PS, Dixon PM, Gleason ML. 2010. Effect of temperature and nutrient concentration on the growth of six species of sooty blotch and flyspeck fungi. Phytopathologia Mediterranea 49:3-10.

Ma, Y, Zhang, R, Sun, GY, Zhu, H, Tang M, **Batzer, JC**, Gleason ML. 2009. A new species of Zygophiala associated with the flyspeck complex on apple from China. Mycological Progress DOI 10.1007/s11557-009-0635-z

Li, H, Zhang, R, Sun GY, **Batzer, JC,** Gleason ML. 2009. New species and record of *Zygophiala* on apple fruit from China. Mycological Progress DOI 10.1007/s11557-009-0633-1

Xu, Z, Harrington, TC, Gleason, ML, and **Batzer, JC**. 2009. Phylogenetic placement of plant pathogenic *Sclerotium* species among teleomorph genera. Mycologia 2009 0:08-189 DOI 10.3852/08-189

Gleason, ML, Duttweiler, KB, **Batzer, JC**, Taylor, SE, Sentelhas, PC, Monteiro, JEBA, and Gillespie, TJ. 2008. Obtaining weather data for input to crop disease-warning systems: leaf wetness duration as a case study. Scientia Agricola 65:76-87. ISSN 0103-9016.

Hemnani, K, O'Malley, PJ, Tanović, B, **Batzer, JC**, and Gleason, ML. 2008. First report of seven sooty blotch and flyspeck fungi on *Asimina triloba*. Plant Disease 92:1366.

Batzer, JC, Díaz Arias, MM, Harrington, TC, Gleason, ML, Groenevald, JC, and Crous, PW. 2008. Four species of *Zygophiala* (Schizothyriaceae, Capnodiales) are associated with the sooty blotch and flyspeck complex on apple. Mycologia 100:246-248.

Duttweiler, KB, Sun, GY, **Batzer, JC**, Harrington, TC, and Gleason, ML. 2008. A RFLP-based technique for identifying fungi in the sooty blotch and flyspeck complex on apples. Plant Disease 92:794-799.

Batzer, JC, Gleason, ML, Taylor, SE, Koehler, KJ, and Monteiro, JEBM. 2008. Spatial heterogeneity of leaf wetness duration in apple trees and its influence on performance of a warning system for sooty blotch and flyspeck. Plant Disease 92:164-170.

Zhai, X, Z, Li, H, Zhang, R, Sun, GY, Tang, M, **Batzer, JC**, and Gleason ML. 2008. *Zygophiala* (hyphomycetes) - a genus newly recorded from China. Mycotaxon 105: 317-322.

Latinović, J, **Batzer, JC**, Duttweiler, KB, Gleason, ML, and Sun, GY. 2007. First report of five sooty blotch and flyspeck fungi on *Prunus americana* in the U.S. Plant Disease 91:1685.

Batzer, JC, Gleason, ML, Harrington, TC, Tiffany, LH. 2005. Expansion of the sooty blotch and flyspeck complex on apples based on analysis of ribosomal DNA gene sequences and morphology. Mycologia 97:1268-1286. DOI 10.1007/s00484-005-0259-1

Sentelhas, PC, Gillespie TJ, **Batzer JC**, Gleason ML, Monteiro, JEBA, Pezzopane, JRM, and Pedro, MJ. 2005. Spatial variability of leaf wetness duration in different crop canopies. International Journal of Biometeorology 49: 363-370.

Tarnowski, TB, **Batzer, JC**, Gleason, ML, Helland, S, and Dixon, PM. 2003. Sensitivity of newly identified clades in the sooty blotch and flyspeck complex on apple to thiophanate-methyl and ziram. Online. Plant Health Progress DOI 10.1094/PHP-2003-12XX-01-RS.

Batzer, JC, Gleason, ML, Weldon, B, Dixon, PM, and Nutter, FW, Jr. 2002. Evaluation of postharvest removal of sooty blotch and flyspeck on apples using sodium hypochlorite, hydrogen peroxide with peroxyacetic acid, and soap. Plant Disease 86:1325-1332.

Sinclair, WA, Gleason, ML, Griffiths, HM, Zriba, N, Charlson DV, **Batzer, JC**, and Whitlow, TH. 2000. Responses of 11 Fraxinus cultivars to ash yellow phytoplasma strains of differing aggressiveness. Plant Disease 84:725-730.

Schuerger, AC, **Batzer, JC**, 1993. Identification and host range of an Erwinia pathogen causing stem rots on hydroponically grown plants. Plant Disease 77:472-477.