

## GWYN A. BEATTIE

**ROBERT EARLE BUCHANAN DISTINGUISHED PROFESSOR OF BACTERIOLOGY**  
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### EDUCATION

1991 **PhD** in Molecular and Cellular Biology, University of Wisconsin-Madison  
1985 **BA** in Chemistry, Carleton College, Northfield, MN

### PROFESSIONAL EXPERIENCE

2010-present Professor, Iowa State University, Department of Plant Pathology & Microbiology  
2020-2021 Interim Chair, Department of Plant Pathology & Microbiology  
2003-2010 Associate Professor, Department of Plant Pathology  
2003-2006 Chair, Interdepartmental Microbiology Graduate Program  
2002-2003 Assistant Professor, Department of Plant Pathology  
1995-2002 Assistant Professor, Department of Microbiology (originally named Microbiology, Immunology and Preventive Medicine)  
1991-1995 Post-doctoral Associate with Dr. Steven Lindow, University of California-Berkeley

### AWARDS AND HONORS

2020 American Phytopathological Society Fellow  
2018 Regents Award for Faculty Excellence  
2006-present - Robert Earle Buchanan Distinguished Professor of Bacteriology for Research and Nomenclature (Endowed Chair), Iowa State University  
2010 College of Agriculture and Life Sciences Outstanding Achievement in Teaching Award  
2005 Wakonse Fellow

### CURRENT UNIVERSITY AFFILIATIONS

Interdepartmental Graduate Program in Microbiology  
Interdepartmental Graduate Program in Genetics & Genomics  
Interdepartmental Graduate Program in Molecular, Cellular and Developmental Biology

### RESEARCH AREA

Phytobacteriology, with an emphasis on the genomics and ecology of phyllosphere bacteria and the virulence mechanisms of foliar and xylem bacterial pathogens; Ecophysiology, with an emphasis on bacterial responses to light and water stress; and Agricultural microbiomes, with a focus on root microbiomes associated with water use efficiency.

### PROFESSIONAL SERVICE

#### Editorial Positions:

Senior Editor, *Molecular Plant-Microbe Interactions* (2010-2015)  
Editorial Board, *Applied and Environmental Microbiology* (2003-2014)  
Co-Editor of a *Molecular Plant-Microbe Interactions* Focus Issue (2014-2015)

#### Federal Grant & Program Review Panels:

Member, DOE-BER Focus Area Triennial Review Team (2016)  
 Member, DOE-BER Focus Area Triennial Review Team (2015)  
 Panel, NSF-IOS Symbiosis, Defense and Self-Recognition (2013)  
 Panel, NSF-BREAD (2012)  
 Panel Manager, USDA-NRI Microbial Associations with Plants (2008)  
 Panelist, USDA-NRI Biology of Plant-Microbe Associations (2007)  
 Panelist, NSF-USDA Joint Program in Microbial Genome Sequencing (2005)  
 Panelist, USDA-NRI Biology of Plant-Microbe Associations (2000, 2003)

#### **Advisory Panels & Councils:**

Prokaryotic Super Program Advisory Board for the Joint Genome Institute (2019-2021)  
 Agricultural Microbiomes Research Coordination Network Scientific Steering Committee (NSF-funded) (August 2017-present)  
 Pacific Northwest National Laboratory Scientific Advisory Committee for the Predicting Ecosystem Resilience through multiscale and integrative science (PREMIS) project (2016-2018)  
 California Dept of Food and Agriculture Pierce's Disease Research Scientific Advisory Panel (2015-2018)  
 Foundation for Food and Agricultural Research (FFAR) Plant Efficiency Advisory Council (2016)

#### **Alliances**

Member, Committee to establish a National Microbiome Data Collaborative (2017-present)  
 Member, Board of Directors, International Alliance for Phytobiomes Research (2016-present)

#### **Service to Professional Societies:**

Chair, American Phytopathological Society Public Policy Board (2016-present)  
 Member, American Phytopathological Society Public Policy Board (2014-2016)  
 Invited participant, APS Thought Leaders Meeting (2013)  
 Panel member, APS competition for "The Schroth Faces of the Future Symposium" (2012)  
 Chair, American Phytopathological Society (APS) Phyllosphere Committee (2008-2009)  
 Chair, APS Bacteriology Committee (2003-2004)  
 Member, APS Bacteriology Committee (1999-2001, 2007-2008); APS Phyllosphere Committee (1996-1999, 2007-2008); APS Bacteriology Subcommittee on Genomics (2004-2006)  
 Secretary, North Central American Society for Microbiology (2004-2005)

#### **Federal Program Activities:**

Invited speaker and participant, American Society for Microbiology (ASM) Microbiome Stakeholder Workshop, May 29, 2019.  
 Invited participant, NSF Microbiome Workshop: Deciphering the microbiome - Empowering theory, cross-system analyses, and innovative analytics to propel advances in microbiome science, Dec 8-10, 2019, Alexandria, VA.  
 Invited participant, APS Emerging Pathogens Initiative Workshop, Aug 2, 2019, Cleveland, OH.  
 Invited participant, Alternatives to Antibiotics, Research Gap Analysis Workshop, April 5-7, 2016, National Animal Disease Center, Ames, IA.  
 Invited participant, Office of Science Technology & Policy Microbiome Event, Announcement of Microbiome Initiative, May 13, 2016, White House, Washington, D.C.  
 Invited participant, American Academy of Microbiology Colloquium on "How microbes can help feed the world", Washington, D.C. (2012)  
 Invited participant, forum to create an interagency (NSF-USDA) Agricultural Microbial Observatories Program (2004)

Invited participant, forum on *Application of Plant Gene Discovery – Host/Pathogen Interaction*, USDA NRICRP and National Plant Genome Initiative (2003)

#### **Service at Professional Conferences:**

- Scientific Committee, *11<sup>th</sup> International Symposium on Phyllosphere Microbiology*, 2020 → moved to 2021, Davis, California
- Co-organizer, *International Phytobiomes Conference*, December 4-5, 2018, Montpellier, France
- Co-organizer, Agricultural Microbiomes Workshop: Building a global research community to stimulate collaboration, leverage data and research platforms, and optimize science, July 28, 2018, Boston, MA
- Co-organizer, *Keystone Symposium on Phytobiomes: From microbes to plant ecosystems*, November 8-12, 2016 in Santa Fe, NM
- Session Co-organizer on “Applications of phytobiomes in plant disease management”, APS meeting, July 30-August 3, 2016, Tampa, FL.
- Co-organizer, *Phytobiomes Roadmap Writing Workshop*, November 10-12, 2015, The Samuel Roberts Noble Foundation, Ardmore, OK
- Scientific Committee, *10<sup>th</sup> International Symposium on Phyllosphere Microbiology*, July 19-23, 2015, Ascona, Switzerland
- Co-organizer, *Phytobiomes 2015: Designing a New Paradigm for Crop Improvement*, June 30-July 2, 2015, Washington, D.C.
- Session Co-organizer on “Understanding Phytobiomes to Improve Agricultural Productivity”, APS meeting, Minneapolis, MN, August 9-13, 2014.
- Session Organizer, *14<sup>th</sup> Meeting of the International Society of Microbial Ecology*, Copenhagen, Denmark, August 19-24, 2012.
- Judge for the Graduate Student Oral Presentation Competition, North Central American Society for Microbiology Meeting, Des Moines, IA (2011)
- Organizing Committee, *9<sup>th</sup> Intl Symposium on Phyllosphere Microbiology* (2010)
- Judge for the Graduate Student Oral Presentation Competition, North Central American Phytopathological Society Meeting, Ames, IA (2009)
- Invited participant, APS 101: Early Career Professionals Informational Social, American Phytopathological Society Conference, San Diego, CA (2007)
- Organizing Committee and Session Moderator, North Central American Society for Microbiology Conference, Ames, IA (2005)
- Session Organizer and Co-moderator, Functional Genomics meets Bacterial Diseases, American Phytopathological Society Conference, Anaheim, CA (2004)
- Session Moderator and Discussion Leader, *7<sup>th</sup> International Symposium on the Microbiology of Aerial Plant Surfaces*, Berkeley, CA (2000)
- Discussion Leader, *6<sup>th</sup> International Symposium on the Microbiology of Aerial Plant Surfaces*, Bandol, France (1995)

#### **Service to Other Universities:**

Member, Nominating committee for the Ethel K. Allen Memorial Chair in Phytobacteriology, University of Wisconsin-Madison (2014, 2019)

#### **Society Memberships:**

American Society for Microbiology, National and North Central Branch  
 American Phytopathological Society, National and North Central Branch  
 International Society for Molecular Plant-Microbe Interactions  
 American Association for the Advancement of Science

#### **Reviewer for Promotion & Tenure Dossiers: 18**

## PUBLICATIONS

### Refereed Journal Articles (46)

- Fu, B., O. Olawole and **G. A. Beattie**. 2021. Biological control and microbial ecology draft genome sequence data of *Glutamicibacter* sp. FBE-19, a bacterium antagonistic to the plant pathogen *Erwinia tracheiphila*. *Phytopathology* (in press) [doi.org/10.1094/PHYTO-09-20-0380-A](https://doi.org/10.1094/PHYTO-09-20-0380-A)
- Dundore-Arias, J.P., E.A. Eloë-Fadrosch, L.M. Schriml, **G.A. Beattie**, F.P. Brennan, P.E. Busby, R.B. Calderon, S.C. Castle, J.B. Emerson, S.E. Everhart, K. Eversole, K.E. Frost, J.R. Herr, A.I. Huerta, A. S. Iyer-Pascuzzi, A.K. Kalil, J.E. Leach, J. Leonard, J.E. Maul, B. Prithiviraj, M. Potrykus, N.R. Redekar, J.A. Rojas, K.A.T. Silverstein, D.J. Tomso, S.G. Tringe, B.A. Vinatzer, and L.L. Kinkel. 2020. Community-driven Metadata Standards for Agricultural Microbiome Research. *Phytobiomes Journal* [doi.org/10.1094/PBIOMES-09-19-0051-P](https://doi.org/10.1094/PBIOMES-09-19-0051-P)
- Bell, T., K.L. Hockett, R.I. Alcalá-Briseño, M. Barbercheck, **G.A. Beattie**, M.A. Bruns, J.E. Carlson, T. Chung, A. Collins, B. Emmett, P. Esker, K.A. Garrett, L. Glenna, B.K. Gugino, M. del Mar Jiménez-Gasco, L. Kinkel, J. Kovac, K.P. Kowalski, G. Kuldau, J.H.J. Leveau, M.J. Michalska-Smith, J. Myrick, K. Peter, M. Fernanda Vivanco Salazar, A. Shade, N. Stopnisek, X. Tan, A.T. Welty, K. Wickings and E. Yergeau. 2019. Manipulating wild and tamed phytobiomes: Challenges and opportunities. *Phytobiomes Journal* 3:3-21. [doi.org/10.1094/PBIOMES-01-19-0006-W](https://doi.org/10.1094/PBIOMES-01-19-0006-W).
- Leandro, L.F.A., S. Eggenberger, C. Chen, J. Williams, **G.A. Beattie** and M. Liebman. 2018. Cropping system diversification reduces severity and incidence of soybean sudden death syndrome caused by *Fusarium virguliforme*. *Plant Disease* 102:1748-1758. [doi: 10.1094/PDIS-11-16-1660-RE](https://doi.org/10.1094/PDIS-11-16-1660-RE)
- Beattie, G.A.**, B.M. Hatfield, H. Dong and R.S. McGrane. 2018. Seeing the light: The roles of red- and blue-light sensing in plant microbes. *Annual Review of Phytopathology* 56:41-66. [doi: 10.1146/annurev-phyto-080417-045931](https://doi.org/10.1146/annurev-phyto-080417-045931)
- Liu, Q., **G.A. Beattie**, E. Saalau Rojas and M.L. Gleason. 2018. Bacterial wilt symptoms are impacted by host age and involve net downward movement of *Erwinia tracheiphila* in muskmelon. *European Journal of Plant Pathology* 151:803-810. [doi: 10.1007/s10658-018-1418-7](https://doi.org/10.1007/s10658-018-1418-7)
- McGrane, R. and **G.A. Beattie**. 2017. *Pseudomonas syringae* pv. *syringae* B728a regulates multiple stages of plant colonization via the bacteriophytochrome BphP1. *mBio* 8:301178-17. [doi: 10.1128/mBio.01178-17](https://doi.org/10.1128/mBio.01178-17)
- Michelmore, R.W., G. Coaker, R. Bart, **G.A. Beattie**, A. Bent, T. Bruce, D. Cameron, J. Dangl, S. Dinesh-Kumar, R. Edwards, S. Eves-van den Akker, W. Gassmann, J. Greenberg, R. Harrison, P. He, L. Hanley-Bowdoin, J. Harvey, A. Huffaker, S. Hulbert, R. Innes, J.D. Jones, I. Kaloshian, S. Kamoun, F. Katagiri, J.E. Leach, W. Ma, J.M. McDowell, J. Medford, B. Meyers, R. Nelson, R.P. Oliver, Y. Qi, D. Saunders, M. Shaw, C. Smart, P. Subudhi, L. Torrance, B.M. Tyler, V. Valent and J. Walsh. 2017. Foundational and translational research opportunities to improve plant health. *Molecular Plant-Microbe Interactions* 30:515-516. [doi: 10.1094/MPMI-01-17-0010-CR](https://doi.org/10.1094/MPMI-01-17-0010-CR)
- Shapiro, L.R., E.D. Scully, T.J. Straub, J. Park, A.G. Stephenson, **G. Beattie**, M. Gleason, R. Kolter, M. C. Coelho, C.M de Moraes, M.C. Mescher, and O. Zhaxybayeva. 2016. Horizontal gene acquisitions, mobile element proliferation, and genome decay in the host-restricted plant pathogen *Erwinia tracheiphila*. *Genome Biology and Evolution* 8:649-664 [doi: 10.1093/gbe/evw016](https://doi.org/10.1093/gbe/evw016)

- Shapiro, L.R., E.D. Scully, D. Roberts, T.J. Straub, S.M. Geib, J. Park, A.G. Stephenson, E. Salau Rojas, Q. Liu, **G. Beattie**, M. Gleason, C.M de Moraes, M.C. Mescher, S.G. Fleischer, R. Kolter, N. Pierce and O. Zhaxybayeva. 2015. Draft genome sequence of *Erwinia tracheiphila*, an economically important bacterial pathogen of cucurbits. *Genome Announcements-Prokaryotes* 3:e00482-15. doi: [10.1128/genomeA.00482-15](https://doi.org/10.1128/genomeA.00482-15)
- Saalau Rojas, E., J. C. Batzer, **G. A. Beattie**, S. J. Fleischer, L. R. Shapiro, M. A. Williams, R. Bessin, B. D. Bruton, T. J. Boucher, L. C. H. Jesse and M. L. Gleason. 2015. Bacterial wilt of cucurbits: Resurrecting a classic pathosystem. *Plant Disease* 99:564-574. doi: [10.1094/PDIS-10-14-1068-FE](https://doi.org/10.1094/PDIS-10-14-1068-FE)
- Yu, X., S. P. Lund, J. W. Greenwald, A. H. Records, R. A. Scott, D. Nettleton, S. E. Lindow, D. C. Gross and **G. A. Beattie**. 2014. Transcriptional analysis of the global regulatory networks active in *Pseudomonas syringae* during leaf colonization. *mBio* 5:e01683-14. doi: [10.1128/mBio01683-14](https://doi.org/10.1128/mBio01683-14)
- Freeman, B. C., C. Chen, X. Yu, L. Nielsen, K. Peterson and **G. A. Beattie**. 2013. Physiological and transcriptional responses to osmotic stress of two *Pseudomonas syringae* strains that differ in epiphytic fitness and osmotolerance. *Journal of Bacteriology* 195:4742-4752. doi: [10.1128/JB.00787-13](https://doi.org/10.1128/JB.00787-13)
- Chen, C., S. Li, D. R. McKeever and **G. A. Beattie**. 2013. The widespread plant-colonizing bacterial species *Pseudomonas syringae* detects and exploits an extracellular pool of choline in hosts. *The Plant Journal*. 75:891-901. doi: [10.1111/tpj.1226](https://doi.org/10.1111/tpj.1226) (This is a Faculty of 1000 Prime Recommended Read) (cover illustration)
- Wu, L, R. S. McGrane and **G. A. Beattie**. 2013. Light regulation of swarming motility in *Pseudomonas syringae* integrates signaling pathways mediated by a bacteriophytochrome and a LOV protein. *mBio* 3:e00334-13. doi: [10.1128/mBio.00334-13](https://doi.org/10.1128/mBio.00334-13) (cover illustration)
- Li, S., X. Yu, G. A. Beattie. 2013. Glycine betaine catabolism contributes to *Pseudomonas syringae* tolerance to hyperosmotic stress by relieving betaine-mediated suppression of compatible solute synthesis. *Journal of Bacteriology* 10:2415-2423. doi: [10.1128/JB.00094-13](https://doi.org/10.1128/JB.00094-13)
- Yu, X., S. P. Lund, R. A. Scott, J. W. Greenwald, A. H. Records, D. Nettleton, S. E. Lindow, D. C. Gross, and **G. A. Beattie**. 2013. Transcriptional responses of *Pseudomonas syringae* to growth in epiphytic versus apoplastic leaf sites. *Proc. Natl. Acad. Sci. U.S.A.*, 110:E425-E434. doi: [10.1073/pnas.1221892110](https://doi.org/10.1073/pnas.1221892110)
- Beattie, G. A.** 2011. Water relations in the interaction of foliar bacterial pathogens with plants. *Annual Review of Phytopathology*. 49:533-555. doi: [10.1146/annurev-phyto-073009-114436](https://doi.org/10.1146/annurev-phyto-073009-114436)
- Malek, A. A., C. Chen, M. J. Wargo, **G. A. Beattie**, and D. A. Hogan. 2011. Roles of three transporters, CbcXWV, BetT1 and BetT3, in *Pseudomonas aeruginosa* choline uptake for catabolism. *Journal of Bacteriology*, 193:3033-3041. doi: [10.1128/JB.00160-11](https://doi.org/10.1128/JB.00160-11)
- Freeman, B. F., C. Chen and **G. A. Beattie**. 2010. Identification of the trehalose biosynthetic loci of *Pseudomonas syringae* and their contribution to fitness in the phyllosphere. *Environmental Microbiology*, 12:1486-1497. doi: [10.1111/j.1462-2920.2010.02171.x](https://doi.org/10.1111/j.1462-2920.2010.02171.x) (This paper is a Faculty of 1000 Recommended Read - F1000 Factor 3.0).
- Chen, C., A. A. Malek, M. J. Wargo, D. A. Hogan, and **G. A. Beattie**. 2010. The ATP-binding cassette transporter Cbc (choline/betaine/carnitine) recruits multiple substrate-binding proteins with strong specificity for distinct quaternary ammonium compounds. *Molecular Microbiology* 75:29-45. doi: [10.1111/j.1365-2958.2009.06962.x](https://doi.org/10.1111/j.1365-2958.2009.06962.x) (Highlighted in a MicroCommentary by Gavin H. Thomas, Homes for the orphans: utilization of multiple substrate binding proteins by ABC transporters, *Molecular Microbiology* 75:6-9)

- Freeman, B. C. and G. A. Beattie. 2009. Bacterial growth restriction during host resistance to *Pseudomonas syringae* is associated with leaf water loss and localized cessation of vascular activity in *Arabidopsis thaliana*. *Molecular Plant-Microbe Interactions* 22:857-867. doi: [10.1094/MPMI-22-7-0857](https://doi.org/10.1094/MPMI-22-7-0857)
- Sandhu, A., L. J. Halverson, and G. A. Beattie. 2009. Identification and genetic characterization of phenol-degrading bacteria from leaf microbial communities. *Microbial Ecology* 57:276-285. doi: [10.1007/s00248-008-9473-9](https://doi.org/10.1007/s00248-008-9473-9)
- C. Chen and G. A. Beattie. 2008. *Pseudomonas syringae* BetT is a low affinity choline transporter that is responsible for superior osmoprotection by choline over glycine betaine. *Journal of Bacteriology* 190:2717-2725. doi: [10.1128/JB.01585-07](https://doi.org/10.1128/JB.01585-07)
- Freeman, B. C. and G. A. Beattie. 2008. An overview of plant defenses against pathogens and herbivores. *The Plant Health Instructor*. doi: [10.1094/PHI-I-2008-0226-01](https://doi.org/10.1094/PHI-I-2008-0226-01)
- C. Chen and G. A. Beattie. 2007. Characterization of the osmoprotectant transporter OpuC from *Pseudomonas syringae* and demonstration that cystathionine- $\beta$ -synthase domains are required for its osmoregulatory function. *Journal of Bacteriology*, 189:6901-6912. doi: [10.1128/JB.00763-07](https://doi.org/10.1128/JB.00763-07)
- G. A. Beattie and Seibel, J. S. 2007. Uptake and localization of gaseous phenol and *p*-cresol in plant leaves. *Chemosphere*, 68:528-536. doi: [10.1016/j.chemosphere.2006.12.070](https://doi.org/10.1016/j.chemosphere.2006.12.070)
- Carter, C., R. Healey, N. M. O'Tool, S. S. M. Naqvi, G. Ren, S. Park, G. A. Beattie, H. T. Horner, and R. W. Thornburg. 2007. Tobacco nectaries express a novel NADPH oxidase implicated in the defense of floral reproductive tissues against microorganisms. *Plant Physiology*, 143: 389-399 doi: [10.1104/pp.106.089326](https://doi.org/10.1104/pp.106.089326)
- Sandhu, A., L. J. Halverson and G. A. Beattie. 2007. Bacterial degradation of airborne phenol in the phyllosphere. *Environmental Microbiology*, 9:383-392. doi: [10.1111/j.1462-2920.2006.01149.x](https://doi.org/10.1111/j.1462-2920.2006.01149.x)
- Highlighted in *Nature Reviews in Microbiology* 4:880-881 (Research Highlights: Phenol and the phyllosphere - doi: [10.1038/nrmicro1565](https://doi.org/10.1038/nrmicro1565))
- Wright, C. A. and G. A. Beattie. 2005. Bacterial species specificity in *proU* osmoinducibility and *nptII* and *lacZ* expression. *Journal of Molecular Microbiology and Biotechnology* 8:201-208. doi: [10.1159/000086701](https://doi.org/10.1159/000086701)
- Wright, C. A. and G. A. Beattie. 2004. *Pseudomonas syringae* pv. *tomato* cells encounter inhibitory levels of water stress during the hypersensitive response of *Arabidopsis thaliana*. *Proceedings of the National Academy of Sciences USA* 101:3269-3274. doi: [10.1073/pnas.0400461101](https://doi.org/10.1073/pnas.0400461101) (This paper is a Faculty of 1000 Must Read - F1000 Factor 6.0).
- Casavant, N. C., D. Thompson, G. A. Beattie, G. J. Phillips, and L. J. Halverson. 2003. Use of a site-specific recombination-based biosensor for detecting bioavailable toluene and related compounds on roots. *Environmental Microbiology* 5:238-249. doi: [10.1046/j.1462-2920.2003.00420.x](https://doi.org/10.1046/j.1462-2920.2003.00420.x)
- Sabaratnam, S. and G. A. Beattie. 2003. Differences between *Pseudomonas syringae* pv. *syringae* and *Pantoea agglomerans* in epiphytic versus endophytic colonization of leaves. *Applied and Environmental Microbiology* 69:1220-1228. doi: [10.1128/AEM.69.2.1220-1228.2003](https://doi.org/10.1128/AEM.69.2.1220-1228.2003)
- Marcell, L. M. and G. A. Beattie. 2002. The effect of leaf surface waxes on leaf colonization by *Pantoea agglomerans* and *Clavibacter michiganensis*. *Molecular Plant-Microbe Interactions* 15:1236-1244. doi: [10.1094/MPMI.2002.15.12.1236](https://doi.org/10.1094/MPMI.2002.15.12.1236)
- Axtell, C. A. and G. A. Beattie. 2002. Construction and characterization of a *proU-gfp* transcriptional fusion that measures water availability in a microbial habitat. *Applied and Environmental Microbiology* 68:4604-4612. doi: [10.1128/AEM.68.9.4604-4612.2002](https://doi.org/10.1128/AEM.68.9.4604-4612.2002)

- Beattie, G. A.** and L. M. Marcell. 2002. Comparative dynamics of adherent and non-adherent bacterial populations on maize leaves. *Phytopathology* 92:1015-1023. doi: [10.1094/PHYTO.2002.92.9.1015](https://doi.org/10.1094/PHYTO.2002.92.9.1015)
- Casavant, N. C., **G. A. Beattie**, G. Phillips, and L. J. Halverson. 2002. Site-specific recombination-based genetic system for reporting transient or low-level gene expression. *Applied and Environmental Microbiology* 68:3588-3596. doi: [10.1128/AEM.68.7.3588-3596.2002](https://doi.org/10.1128/AEM.68.7.3588-3596.2002)
- Beattie, G. A.** and L. M. Marcell. 2002. Effect of alterations in cuticular wax biosynthesis on the physicochemical properties and topography of maize leaf surfaces. *Plant Cell and Environment* 25:1-16. doi: [10.1046/j.0016-8025.2001.00804.x](https://doi.org/10.1046/j.0016-8025.2001.00804.x)
- Beattie, G. A.** and S. E. Lindow. 1999. Bacterial colonization of leaves: a spectrum of strategies. *Phytopathology* 89:353-359. doi: [10.1146/annurev.py.33.090195.001045](https://doi.org/10.1146/annurev.py.33.090195.001045)
- Andersen, G. L., **G. A. Beattie** and S. E. Lindow. 1998. Molecular characterization and sequence of a methionine biosynthetic locus from *Pseudomonas syringae*. *Journal of Bacteriology* 180:4497-4507.
- Beattie, G. A.** and S. E. Lindow. 1995. The secret life of foliar bacterial pathogens on leaves. *Annual Review of Phytopathology* 33:145-172. doi: [10.1146/annurev.py.33.090195.001045](https://doi.org/10.1146/annurev.py.33.090195.001045)
- Beattie, G. A.** and S. E. Lindow. 1994. Survival, growth and localization of epiphytic fitness mutants of *Pseudomonas syringae* on leaves. *Applied and Environmental Microbiology* 60:3790-3798.
- Beattie, G. A.** and S. E. Lindow. 1994. Comparison of the behavior of epiphytic fitness mutants of *Pseudomonas syringae* under controlled and field conditions. *Applied and Environmental Microbiology* 60:3799-3808.
- Lindow, S. E., G. Andersen and **G. A. Beattie**. 1993. Characteristics of insertional mutants of *Pseudomonas syringae* with reduced epiphytic fitness. *Applied and Environmental Microbiology* 59:1593-1601.
- Beattie, G. A.** and J. Handelsman. 1993. Evaluation of a strategy for identifying nodulation competitiveness genes in *Rhizobium leguminosarum* biovar *phaseoli*. *Journal of General Microbiology* 139:529-538. doi: [10.1099/00221287-139-3-529](https://doi.org/10.1099/00221287-139-3-529)
- Beattie, G. A.** and J. Handelsman. 1989. Quantitative comparison of the laboratory and field competitiveness of *Rhizobium leguminosarum* biovar *phaseoli*. *Applied and Environmental Microbiology* 55:2755-2761.
- Beattie, G. A.** and J. Handelsman. 1989. A rapid method for the isolation and identification of *Rhizobium* from root nodules. *Journal of Microbiological Methods* 9:29-33. doi: [10.1016/0167-7012\(89\)90027-4](https://doi.org/10.1016/0167-7012(89)90027-4)

### **Book Chapters (6)**

- Etesami, H. and **G. A. Beattie**. 2017. Plant-microbe interactions in adaptation of agricultural crops to abiotic stress conditions, pp. 163-200. In: V. Kumar, M. Kumar, S. Sharma and R. Prasad (eds). *Probiotics and Plant Health*, Springer Nature Singapore Pte Ltd, Singapore. doi: [10.1007/978-981-10-3473-2\\_7](https://doi.org/10.1007/978-981-10-3473-2_7)
- Beattie, G. A.**, C. Chen, L. Nielsen and B. C. Freeman. 2016. Interstrain variation in the physiological and transcriptional responses of *Pseudomonas syringae* to osmotic stress, pp. 649-656. In: F. de Bruin (ed), *Stress and Environmental Regulation of Gene Expression and Adaptation in Bacteria*, Wiley-Blackwell Publishers.
- Beattie, G. A.** 2006. Plant-associated bacteria: Survey, molecular phylogeny, genomics and recent advances, pp. 1-56. In S. S. Gananamanickan (ed), *Plant-Associated Bacteria*. Springer, The Netherlands.

- Beattie, G. A.** and C. A. Axtell. 2002. The use of a *proU-gfp* transcriptional fusion to quantify water stress on the leaf surface, pp. 235-240. *In: S. A. Leong, C. Allen, and E. W. Triplett (eds.), Biology of Plant-Microbe Interactions*, vol. 3. International Society for Plant-Microbe Interactions, St. Paul, MN.
- Beattie, G. A.** 2002. Leaf surface waxes and the process of leaf colonization by microorganisms, pp. 3-26. *In: S. E. Lindow, E. I. Hecht-Poinar and V. J. Elliott (eds.), Phyllosphere Microbiology*. American Phytopathological Society Press, MN.
- Beattie, G. A.** and S. E. Lindow. 1994. Epiphytic fitness of phytopathogenic bacteria: physiological adaptations for growth and survival, pp. 1-27. *In: J. L. Dangl (ed.), Bacterial Pathogenesis of Plants and Animals: Molecular and Cellular Mechanisms*. Springer-Verlag, NY.

### Non-referred articles (11):

- Beattie, G.A.** 2018. Microbiomes: Metabolic coupling on roots. *Nature Microbiology* 3:396-397. doi: [10.1038/s41564-018-1039-1](https://doi.org/10.1038/s41564-018-1039-1)
- Etesami, H. and **G.A. Beattie**. 2018. Mining halophytes for plant growth-promoting halotolerant bacteria to enhance the salinity tolerance of non-halophytic crops. *Frontiers in Microbiology* 9:Article No. 148 doi: [10.3389/fmicb.2018.00148](https://doi.org/10.3389/fmicb.2018.00148)
- Beattie, G.A.** 2016. Plant Science: A war over water when bacteria invade leaves. *Nature* 539:506-507. doi: [10.1038/nature16319](https://doi.org/10.1038/nature16319)
- Phytobiomes: A Roadmap for Research and Translation*. 2016. American Phytopathological Society, St. Paul, MN. (Co-author and leader of the writing team)
- Beattie, G.A.** 2015. Microbiomes: Curating communities from plants. *Nature* 528:340-341. doi: [10.1038/539506a](https://doi.org/10.1038/539506a)
- Beattie, G.A., D. Desveaux and S. Kang.** 2015. Focus on the good, the bad and the unknown: Genomics-enabled discovery of plant-associated microbial processes and diversity. *Mol. Plant-Microb. Interact.* 28:211 doi: [10.1094/MPMI-28-03-0211](https://doi.org/10.1094/MPMI-28-03-0211)
- Beattie, G. A.** 2003. Leaf cuticle, pp. 635-637. *In: R. M. Goodman (ed.), Encyclopedia of Plant and Crop Science*. Marcel Dekker, Inc., NY.
- Beattie, G. A.** 2003. Bacterial pathogens: Early interactions with host plants, pp. 89-91. *In: R. M. Goodman (ed.), Encyclopedia of Plant and Crop Science*. Marcel Dekker, Inc., NY.
- Kinkel, L. L. and **G. A. Beattie**. 2001. Epiphyte, pp. 417-419. *In: O. C. Maloy and T. D. Murray (eds.), Encyclopedia of Plant Pathology*. John Wiley & Sons, Inc., NY.
- Kinkel, L. L. and **G. A. Beattie**. 2001. Epiphytic bacteria, pp. 419-421. *In: O. C. Maloy and T. D. Murray (eds.), Encyclopedia of Plant Pathology*. John Wiley & Sons, Inc., NY.
- Halverson, L. J. and **G. A. Beattie**. 1995. Microbial diversity in terrestrial ecosystems: A technical report for the United States Environmental Protection Agency, 103 pp.

### Extension and outreach publications (5):

- McCluskey, K., K. Boundy-Mills and **G.A. Beattie**. 2018. Complying with the Nagoya Protocol to the convention on biological diversity. *SIMB (Society for Industrial Microbiology) News* 68(1):8
- McCluskey, K. and **G.A. Beattie**. 2018. What you should know about obtaining and using organisms from other countries. *Phytopathology News* 52(2):22
- Beattie, G.A.** 2017. PPB Queries APS membership on advocacy targets. *Phytopathology News* 51(1):12
- Dundore-Arias, J.P. and **G.A. Beattie**. Phytobiomes in the classroom. *Phytopathology News* 49(4):47.
- Robertson, A. and **G. Beattie**. Survival of the Goss's Wilt Bacterium and Management Implications. *Integrated Crop Management News*. Pub 8-22-2011. [www.extension.iastate.edu/CropNews/2011/0822robertson.htm](http://www.extension.iastate.edu/CropNews/2011/0822robertson.htm)



## INVITED PRESENTATIONS (LAST 5 YEARS)

- 2020 Canadian Phytopathological Society (cancelled due to COVID)
- 2019 American Society for Microbiology Microbiome Stakeholder Meeting, Washington, D.C.
- 2019 Auburn University
- 2019 University of Wisconsin-Madison.
- 2018 Gordon Research Conference on Photosensory receptors and signal transduction, Lucca, Italy
- 2018 International Conference on Plant Pathology, Boston, MA
- 2018 21<sup>st</sup> Penn State Plant Biology Symposium: Wild and Tamed Phytobiomes, University Park, PA
- 2018 Oregon State University, Corvallis, OR
- 2018 SOY2018: The 17<sup>th</sup> Biennial Conference on the Molecular and Cellular Biology of the Soybean, Athens, GA
- 2018 Bayer Crop Sciences (teleconference)
- 2018 Iowa Soybean Research Council Industry Advisory Board, Ankeny, IA
- 2018 Practical Farmers of Iowa Workshop on Soils: Cultivating a deeper understanding. Ames, IA
- 2018 Iowa Soybean Association Board of Directors Meeting, Ames, IA
- 2017 Indigo Ag, Boston, MA
- 2017 AFRI/NIFA Plant-associated microbes and Plant-microbe interactions Awardee Meeting, Washington DC
- 2017 2nd Partnerships in Biocontrol, Biostimulants & Microbiome – Global Engage, Philadelphia, PA
- 2017 Seoul National University, Seoul, South Korea
- 2017 National Institute for Crop Science, Rural Development Association of South Korea, Suwon, South Korea
- 2017 Huazhong Agriculture University, Wuhan, China
- 2017 Hubei University, Wuhan, China
- 2017 Central China Normal University, Wuhan, China
- 2017 American Phytopathological Society Annual Conference, San Antonio, TX
- 2017 BASF, Durham, NC
- 2017 Iowa Soybean Association Annual Conference
- 2017 Michigan State University
- 2016 Stewards of the Future Conference – Microbiome: Unseen Opportunities for Agriculture and Health, North Carolina State University
- 2016 North Central American Phytopathological Society
- 2016 Iowa Soybean Association Research Conference, Des Moines, IA
- 2016 SOY2016 Molecular and Cellular Biology of the Soybean 16<sup>th</sup> Biennial Conference
- 2015 9<sup>th</sup> Symposium Mexico/USA on Biology and Plant Biotechnology, Queretaro, Mexico.
- 2015 11<sup>th</sup> US-Japan Seminar on Plant-Pathogen Interactions
- 2015 10<sup>th</sup> International Symposium on Phyllosphere Microbiology, Ascona, Switzerland
- 2015 SXSW Eco, Austin, TX

## TEACHING

Courses taught:

- Ecology of Microorganisms (Micro 556), 1 cred, offered annually since 2005
- Bacterial-Plant Interactions (Micro 477/577 and Pl Path 477/577), 3 cred, offered even years since 1998
- Biology of Microorganisms (Micro 302), 3 cred, offered even years since 1996
- Responsible Conduct of Research for Faculty, Postdocs and Staff, no cred, 2014

Responsible Conduct of Research for Postdocs, no cred, offered 2010, 2012