

David H. Gent

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Professional Experience

2004 to Present, Research Plant Pathologist, USDA-ARS, Forage Seed and Cereal Research Unit, Corvallis, Oregon

2004 to Present, Courtesy Assistant Professor, Department of Botany and Plant Pathology, Oregon State University, Corvallis, Oregon

2008 to Present, Honorary Faculty, University of Tasmania, Tasmania, Australia

Educational Experience

Ph.D., Plant Pathology, 2004. "Biology, Epidemiology, and Management of Xanthomonas Leaf Blight of Onion," Colorado State University.

M.S., Plant Pathology, 2002, "Adaptation of Potato Disease Forecast Models and Improved Pesticide Efficacy for Colorado," Colorado State University.

B.S., Crop and Soil Science (Biology Minor), 1999, Oregon State University.

Research Interests and Activities

Spatial and temporal dynamics of powdery mildew and downy mildew diseases, design and implementation of integrated pest management systems, and systems optimization for multiple production goals

Awards and Honors

2009 ARS Pacific West Area Early Career Scientist, USDA-ARS

2009 Outstanding Performance Award, USDA-ARS

2008 Outstanding Performance Award, USDA-ARS

2008 Early Career Award, American Phytopathological Society Pacific Division

2007 Visiting Scientist, Tasmanian Institute of Agricultural Research, University of Tasmania, Burnie, Tasmania Australia

2007 Organisation for Economic and Cooperative Development Fellowship

2007 Outstanding Performance Award, USDA-ARS

2006 Outstanding Performance Award, USDA-ARS

2003 Bert Bohmont Award for Excellence in Extension Education, Department of Bioagricultural Sciences and Pest Management, Colorado State University

2002 R. Ralph Baker Award for Research Excellence, Department of Bioagricultural Sciences and Pest Management, Colorado State University

2002 University Graduate Fellowship, Colorado State University

1995-1999 Ford Family Foundation Ford Scholars Scholarship

Professional Societies, Activities and Service

2009 Organized APS Annual Meeting Symposium 'Perceptions of Risk, Risk Aversion, and Barriers to Adoption of Decision Support Systems and IPM'

2009 Co-organized APS Annual Meeting Symposium 'Cucurbit Downy Mildew: Re-emergence of a Historical Disease'

2009 Co-organized APS Annual Meeting 9th I. E. Melhus Graduate Student Symposium: 'Integrating Pre- and Postharvest Views of Yield and Quality Loss'
2008 to present, chair APS Crop Loss Assessment and Risk Evaluation Committee
2008 to present, member APS Integrated Plant Disease Management Committee
2007 to present, vice-chair APS Crop Loss Assessment and Risk Evaluation Committee
2006 to present, member APS Epidemiology Committee
2001 to present, American Phytopathological Society
1996 to 1999 Soil Science Society of America

Scientific panels

USDA Risk Management Agency grant project review, 2009
International Marketing Program for Agricultural Commodities and Trade Center, Washington State University, 2006
USDA-CSREES CRIS project plan of work, 2006

Editorships

Senior Editor Phytopathology, 2009-2011
Editorial board Asian Journal of Plant Pathology, 2006-2008
Editorial board International Journal of Agricultural Research, 2006-2008

USDA panels and committees

USDA-ARS EEO committee for Corvallis location, 2008-2010
USDA-ARS HCRU selection committee for a Research Plant Pathologist, 2007

Research Grants Funded (as PI or co-PI)

1. Coop, L., Daly, C., Fox, A., Gent, D., Guebler, W., Jepson, P., Johnson, D., Lybbert, T., Mahaffee, W., and Pfender, W. Agriculture and Food Research Initiative, 2010. Automated mesoscale pest risk forecast maps for agricultural production and potential plant biosecurity threats. \$996,112 (3 years)
2. Gent, D. H. Hop Research Council, 2010. Forecasting and managing powdery mildew on cones. \$41,397 (1 year)
3. Hay, F., Pethybride, S. J., and Gent, D. H. Australia Research Council, 2009. Meeting the challenges of Sclerotinia crown rot in a perennial production system-pyrethrum. \$366,000 (3 years)
4. Oregon Hop Commission, and Gent, D.H. Oregon Department of Agriculture, 2009. Marketing IPM and sustainable production: developing and accessing value-added markets for Pacific Northwest hops. \$99,500 (2 years)
5. Walsh, D. B., Barbour, J., Boydston, R., Gent, D. H., Parker, R., Grove, G., Peters, R. T., Ringer, K., Ross, C. F., Gallardo, K., Marsh, T., Sherman, J., O'Neal, S., and Waters, T. CSREES Specialty Crops Research Initiative, 2009. Agronomic, biochemical, social, and economic impacts of biotic and abiotic stress on Pacific Northwest flavor crops. \$1,182,721 (3 years)
6. Gent, D. H. Oregon Hop Commission, 2009. Managing downy mildew and powdery mildew with delayed spring pruning. \$10,000 (1 year)
7. Coop, L. B., Gent, D. H., Grove, G. G., Jepson, P. A. Western Region IPM, 2009. IPM disease risk forecasts and virtual weather for western states. \$179,277 (2 years)

8. Gent, D. H. Hop Research Council, 2009. Pre-harvest detection and quantification of powdery mildew in cones. \$41,701 (1 year)
9. Gent, D. H. Washington State Commission on Pesticide Registration, 2009. Identification of the critical period for management of powdery mildew cone browning. \$16,999 (1 year)
10. George, A., Gent, D. H., Barbour, J. D., Dreves, A. J., James, D. G., Parker, R., and Walsh, D. EPA Pesticide Environmental Stewardship Program, 2008. Pacific Northwest IPM Handbook for Hops: A public-private partnership for IPM education and training. \$50,310 (2 years)
11. Gent, D. H. Agricultural Research Foundation, 2008. Genetic and pathogenic diversity of downy mildew pathogens on hops and cucurbits. \$12,100 (1 year)
12. Gent, D. H. Agricultural Research Foundation, 2008. Managing hop downy mildew and powdery mildew with delayed spring pruning. \$12,482 (1 year)
13. Gent, D. H. Oregon Hop Commission, 2008. Managing downy mildew and powdery mildew with delayed spring pruning. \$6,000 (1 year)
14. Gent, D. H. Washington State Commission on Pesticide Registration, 2008. Predicting and managing cone infection by hop powdery mildew. \$18,000 (1 year)
15. Gent, D. H. Washington State Commission on Pesticide Registration, 2008. IPM tactics to enhance biological control of spider mites on hops. \$11,391 (1 year)
16. Fisher, G. C., Walton, V. M., Dreves, A. J., Gent, D. H., and James, D. G. Western Region IPM, 2007. Integrated management of mite pests and powdery mildew diseases on perennial hosts. \$158,900 (3 years)
17. Gent, D. H. Washington State Commission on Pesticide Registration, 2007. Detection, diagnosis, and management of hop downy mildew. \$14,033 (1 year)
18. Ocamb, C. M., and Gent, D. H. Western Region IPM, 2005. Reduced fungicide use for management of hop downy mildew. \$40,000 (3 years)
19. Gent, D. H. Agricultural Research Foundation, 2005. Molecular detection of the hop downy mildew pathogen. \$10,000 (1 year)
20. Gent, D. H. Washington State Commission on Pesticide Registration, 2005. Integrated management of hop diseases and pests. \$10,000 (1 year)
21. Schwartz, H. F., and Gent, D. H. Western Region IPM, 2003. Seed transmission and ecology of *Xanthomonas campestris* of onion. \$53,176 (2 years)
22. Schwartz, H. F., Ishimaru, C. A., Khosla, R., Franc, G., and Gent, D. H. USDA CAR, 2002. Integrated management of *Xanthomonas* leaf blight of onion by cultural practices, disease forecasting, and biologically-based pesticides. \$440,741 (3 years)
23. Schwartz, H. F., and Gent, D. H. South Platte Farms/Colorado Onion Association, 2002. The effect of irrigation method and crop rotation on bacterial and fungal disease development in onion. \$3,000 (1 year)

Outreach Grants Funded (as PI)

1. Gent, D. H. USDA-ARS Pacific West Area Summer Teacher Research Fellowship Program, 2007. \$2,500 (1 year)
2. Gent, D. H. Oregon Hop Commission, 2007. Apprenticeships in Science and Engineering sponsorship. \$2,700 (1 year)
3. Gent, D. H. USDA-ARS Pacific West Area Summer Student Intern Program, 2005. \$2,500 (1 year)

Peer-Reviewed Publications

1. Gent, D. H., Ocamb, C. M., and Farnsworth, J. L. 2009. Forecasting and management of hop downy mildew. *Plant Dis.* *In press.*
2. Gent, D. H., Nelson, M. E., Farnsworth, J. L., and Grove, G.G. 2009. PCR detection of *Pseudoperonospora humuli* in air samples from hop yards. *Plant Pathol.* 58:1081-1091.
3. Gent, D. H., and Ocamb, C. M. 2009. Predicting infection risk of hop by *Pseudoperonospora humuli*. *Phytopathology* 99:1190-1198.
4. Smith, J. A., Gent, D. H., Henning, J. A., Mahaffee, W. F., Ocamb, C. M., and Hummer, K. E. 2009. Notice of release of powdery mildew resistant *Humulus lupulus* var. *lupulus* germplasm accession 'Kazak 2000'. USDA-ARS Germplasm Release. *In press.*
5. Henning, J. A., Townsend, M. S., Gent, D. H., Kenny, S., and Haunold, A. 2009. Notice of release of aroma hop variety, 'Mt. Rainer', Germplasm Release. USDA-ARS Variety Release Notice. US Government Publication.
6. Schwartz, H. F., Gent, D. H., Fichtner, S. M., Hammon, R., Cranshaw, W. S., Mahaffey, L., Camper, M., Otto, K., and McMillan, M. 2009. Straw mulch and reduced-risk pesticide impacts upon thrips and *Iris yellow spot virus* on western-grown onions. *Southwestern Entomol.* 34:13-29
7. Gent, D. H., James, D. G., Wright, L. C., Barbour, J. D., Dreves, A. J., Fisher, G. C., and Walton, V. M. 2009. Effects of powdery mildew fungicide programs on twospotted spider mite (Acari: Tetranychidae), hop aphid (Homoptera: Aphididae), and their natural enemies in hop yards. *J. Econ. Entomol.* 102:274-286.
8. Pethybridge, S. J., Gent, D. H., Esker, P. D., Turechek, W. W., Hay, F. S., and Nutter, F. W., Jr. 2009. Site-specific risk factors for ray blight in Tasmanian pyrethrum fields. *Plant Dis.* 93:229-237.
9. Peetz, A. B., Mahaffee, W. F., and Gent, D. H. 2009. Effect of temperature on sporulation and infectivity of *Podosphaera macularis* on *Humulus lupulus*. *Plant Dis.* 93:281-286.
10. Gent, D. H., Turechek, W. W., and Mahaffee, W. F. 2008. Spatial and temporal stability of the parameters of the binary power law. *Phytopathology* 98:1107-1117.
11. Pethybridge, S. J., Hay, F. S., Esker, P. D., Gent, D. H., Wilson, C. R., and Nutter, F. W., Jr. 2008. Diseases of pyrethrum in Tasmania: Challenges and prospects for management. *Plant Dis.* 92:1260-1272.
12. Gent, D. H., Nelson, M. E., George, A. E., Grove, G. G., Mahaffee, W. F., Ocamb, C. M., Barbour, J. D., Peetz, A., and Turechek, W. W. 2008. A decade of hop powdery mildew in the pacific northwest. Online. *Plant Health Progress* doi:10.1094/PHP-2008-0314-01-RV.
13. Gent, D. H., Nelson, M. E., and Grove, G. G. 2008. Persistence of phenylamide insensitivity in *Pseudoperonospora humuli*. *Plant Dis.* 92:463-468.
14. Henning, J. A., Haunold, A., Townsend, M. S., Gent, D. H., and Parker, T. P. 2008. Registration of 'Teamaker' hop. *J. Plant Registrations* 2:13-14.
15. Walton, V. M., Dreves, A. J., Gent, D. H., James, D. G., Martin, R. R., Chambers, U., and Skinkis, P. A. 2007. Relationship between rust mites *Calepitrimerus vitis* (Nalepa), bud mites *Colomerus vitis* (Pagenstecher) (Acari: Eriophyidae) and short shoot syndrome in Oregon vineyards. *Internat. J. Acarol.* 33:307-318.
16. Gent, D. H., Turechek, W. W., and Mahaffee, W. F. 2007. Sequential sampling for estimation and classification of the incidence of hop powdery mildew I: Leaf sampling. *Plant Dis.* 91:1002-1012.

17. Gent, D. H., Turechek, W. W., and Mahaffee, W. F. 2007. Sequential sampling for estimation and classification of the incidence of hop powdery mildew II: Cone sampling. *Plant Dis.* 91:1013-1020.
18. Lang, J. M., Gent, D. H., and Schwartz, H. F. 2007. Management of *Xanthomonas* leaf blight of onion with h-mutant bacteriophages and a plant activator. *Plant Dis.* 91:871-878
19. Gent, D. H., Martin, R. R., and Ocamb, C. M. 2007. First report of *Iris yellow spot virus* on onion and leek crops in western Oregon. *Plant Dis.* 91:468.
20. Gent, D. H., du Toit, L. J., Fichtner, S. F., Mohan, S. K., Pappu, H. R., and Schwartz, H. F. 2006. *Iris yellow spot virus*: An emerging threat to onion bulb and seed production. *Plant Dis.* 90:1469-1480.
21. Gent, D. H., Mahaffee, W. F., and Turechek, W. W. 2006. Spatial heterogeneity of the incidence of powdery mildew in hop cones. *Plant Dis.* 90:1433-1440.
22. Gent, D. H., and Schwartz, H. F. 2005. Effect of nitrogen fertilization and seed contamination on epiphytic populations of *Xanthomonas axonopodis* pv. *allii* and development of *Xanthomonas* leaf blight of onion. Online. *Plant Health Progress* doi:10.1094/PHP-2005-0331-01-RS.
23. Gent, D. H., and Schwartz, H. F. 2005. Management of *Xanthomonas* leaf blight of onion with a plant activator, biological control agents, and copper bactericides. *Plant Disease* 89:631-639.
24. Gent, D. H., Lang, J. M., and Schwartz, H. F., 2005. Epiphytic survival of *Xanthomonas axonopodis* pv. *allii* and *X. axonopodis* pv. *phaseoli* on onion and dry bean. *Plant Disease* 98: 558-564.
25. Gent, D. H., Lang, J. M., Bartolo, M. E., and Schwartz, H. F. 2005. Inoculum sources of *Xanthomonas axonopodis* pv. *allii* in Colorado. *Plant Disease* 89:507-514.
26. Gent, D. H., Al-Saadi, A., Gabriel, D. W., Louws, F. J., Ishimaru, C. A., and Schwartz, H. F. 2005. Pathogenic and genetic relatedness among *Xanthomonas axonopodis* pv. *allii* and other pathovars of *X. axonopodis*. *Phytopathology* 95:918-925.
27. Gent, D. H., Schwartz, H. F., and Khosla, R. 2004. Distribution and incidence of *Iris yellow spot virus* in Colorado and its relation to onion plant population and yield. *Plant Disease* 88: 446-452.
28. Gent, D. H., Schwartz, H. F., Ishimaru, C. A., Louws, F. J., Cramer, R. A., and Lawrence, C. B. 2004. Polyphasic characterization *Xanthomonas* strains from onion. *Phytopathology* 94:184-195.
29. Gent, D. H., Schwartz, H. F., and Nissen, S. J. 2003. Effect of commercial adjuvants on vegetable crop fungicide coverage, absorption, and efficacy. *Plant Disease* 87:591-597.
30. Schwartz, H. F., Otto, K. J., and Gent, D. H. 2003. Relation of temperature and rainfall to development of *Xanthomonas* and *Pantoea* leaf blights of onion in Colorado. *Plant Disease* 87:11-14.
31. Gent, D. H. and Schwartz, H. F. 2003. Validation of potato early blight disease forecast models for Colorado using various sources of meteorological data. *Plant Disease* 87:78-84.
32. Schwartz, H. F., Brown, W. M., Blunt, T., and Gent, D. H. 2002. *Iris yellow spot virus* on onion in Colorado. *Plant Disease* 85:838.

Extension Publications, Technical Reports and Popular Press

1. Gent, D. H., Barbour, J. D., Dreves, A. J., James, D. G., Parker, R., and Walsh, D. B. (eds) 2009. Field Guide for Integrated Pest Management in Hops: Pocket Version. Core Communications, Corvallis, OR. *In press*.

2. Gent, D. H., Barbour, J. D., Dreves, A. J., James, D. G., Parker, R., and Walsh, D. B. (eds) 2009. Field Guide for Integrated Pest Management in Hops. Washington State University Extension Bulletin. Washington State University, Pullman, WA.
3. Schwartz, H. F. and Gent, D. H. 2005. High Plains Integrated Pest Management Guide for Colorado-Western Nebraska-Wyoming-Montana. Online at <http://highplainsipm.org/>.
4. Gent, D.H., McMillian, M. S., and Schwartz, H. F. 2005. Evaluation of potato early blight control using various forecasting systems operated with regional weather data, 2002 and 2003. Fungicide and Nematicide Tests 60:V062
5. Schwartz, H., Gent, D., and Fichtner, S. 2005. More on Iris Yellow Spot. Onion World, December:6-9. (invited).
6. Schwartz, H., and Gent, D. 2005. An Update on Xanthomonas Leaf Blight. Onion World, December:26-28.
7. Schwartz, H., and Gent, D. 2005. Xanthomonas Leaf Blight. Colorado State University Cooperative Extension Publication no. 2.951, Fort Collins, CO.
8. Lang, J. M., Gent, D. H., and Schwartz, H. F. 2004. Differential response of onion cultivars to onion Xanthomonas leaf blight. Allium Improvement Newsletter 14:15-17.
9. Vegetable Pathology Results, 2004. Colorado State University Cooperative Extension Publication, Fort Collins, CO.
10. Schwartz, H. F. and Gent, D. H. 2004. Disease forecast modeling of *Uromyces appendiculatus* in the High Plains bean production region. Annual Report of the Bean Improvement Cooperative 47:109-110.
11. Vegetable Pathology Results, 2003. Colorado State University Cooperative Extension Publication, Fort Collins, CO.
12. Gent, D. H. and Schwartz, H. F. 2002. Effect of adjuvants on coverage, absorption, and efficacy of bean fungicides. Annual Report of the Bean Improvement Cooperative 45:92.
13. Gent, D. H., Fitchner, S., and Schwartz, H. F. 2002. Evaluation of fungicide spray intervals for management of early blight of potato in northeastern Colorado, 2001. Fungicide and Nematicide Tests 57:V138.
14. Gent, D. H., Fitchner, S., and Schwartz, H. F. 2002. Evaluation of fungicides for dry bean rust, 2001. Fungicide and Nematicide Test 57:FC02.
15. Otto, K., Schwartz, H. F., Wickliff, E. R., and Gent, D. H. 2002. Development of an inoculum production method for *Sclerotinia sclerotiorum*. Annual Report of the Bean Improvement Cooperative 45:66
16. Gent, D. H., Fitchner, S., and Schwartz, H. F. 2002. Evaluation of AgBio 222 in managing major foliar diseases of potato in northeastern Colorado, 2001. Fungicide and Nematicide Tests 57:V137.
17. Schwartz, H. F., Brown, W. M., Blunt, T., and Gent, D. H. 2001. *Iris yellow spot virus* attacks western onions in 2001. Onion World, December:14.
18. McMillan, M.S., Gent, D.H., and Schwartz, H.F. 2000. Fungicide screening for early blight control in potato, 2000. Fungicide and Nematicide Tests 56:V46.
19. Vegetable Pathology Results, 2002. Colorado State University Cooperative Extension Publication, Fort Collins, CO.
20. Vegetable Pathology Results, 2001. Colorado State University Cooperative Extension Publication, Fort Collins, CO.
21. Vegetable Pathology Results, 2000. Colorado State University Cooperative Extension Publication, Fort Collins, CO.

Invited Books and Book Chapters

1. Mahaffee, W. F., Pethybridge, S. J., and Gent, D. H. (eds.) 2009. Compendium of Hop Diseases and Pests, APS Press, St. Paul, MN.
2. Gent, D. H., and Bull, C. T. 2009 Diseases Caused by Bacteria. In: Mahaffee, W. M., Pethybridge, S. J., and Gent, D. H. (eds.), Compendium of Hop Diseases and Pests, APS Press, St. Paul, MN.
3. Gent, D. H. 2009. Diseases Caused by Fungi (selected sections). In: Mahaffee, W. M., Pethybridge, S. J., and Gent, D. H. (eds.), Compendium of Hop Diseases and Pests, APS Press, St. Paul, MN.
4. Gent, D. H., and Schwartz, H. F. 2008. Diseases Caused by Bacteria and a Yeast. In Schwartz, H. F. and Mohan, S. K., (eds.), Compendium of Onion Diseases, APS Press, St. Paul, MN.
5. Gent, D. H., and Schwartz, H. F. 2008. *Iris yellow spot virus*. In Schwartz, H. F. and Mohan, S. K., (eds.), Compendium of Onion Diseases, APS Press, St. Paul, MN.
6. Gent, D. H., and Ocamb, C. M. 2006. Hop Diseases. In: Pscheidt, J. W., and C. M. Ocamb (eds), Pacific Northwest Plant Disease Management Handbook. Oregon State Extension Service. 593 pp.
7. Gent, D. H., and Ocamb, C. M. 2006. Bean Diseases (selected diseases). In: Pscheidt, J. W., and C. M. Ocamb (eds), Pacific Northwest Plant Disease Management Handbook. Oregon State Extension Service. 593 pp.
8. Gent, D. H., and Ocamb, C. M. 2006. Onion Diseases. In: Pscheidt, J. W., and C. M. Ocamb (eds), Pacific Northwest Plant Disease Management Handbook. Oregon State Extension Service. 593 pp.
9. Gent, D. H., and Ocamb, C. M. 2006. Tomato Diseases (selected diseases). In: Pscheidt, J. W., and C. M. Ocamb (eds), Pacific Northwest Plant Disease Management Handbook. Oregon State Extension Service. 593 pp.

Conferences (Abstracts and Proceedings)

1. Coop, L., Fox, A., Mahaffee, W., Gent, D., Pfender, W., Thomas, C., and Jepson, P. 2009. Forecast and virtual weather driven plant disease risk modeling system. *Phytopathology* 99:S24
2. Farnsworth, J. L., Nelson, M. E., Grove, G. G., and Gent, D. H. 2009. PCR detection of *Pseudoperonospora humuli* in air samples from hop yards. *Phytopathology* 99:S33
3. Gent, D. H., Farnsworth, J. L., and Ocamb, C. M. 2009. Forecasting and management of hop downy mildew. *Phytopathology* 99:S42
4. Liu, Q., Harbertson, E., Nelson, M. E., Grove, G. G., Chilvers, M. I., and Gent, D. H. 2009. Development of quantitative PCR assays for *Podosphaera macularis* and *Podosphaera clandestina*, the causal agents of hop and cherry powdery mildew. *Phytopathology* 99:S75
5. Pfender, W. F., Gent, D. H., Thomas, C., Mahaffee, W. F., Coop, L. B., and Fox, A. 2009. The challenge of assessing uncertainty and risk in weather-based decision support tools. *Phytopathology* 99:S174
6. Pethybridge, S., Hay, F., Gent, D., Esker, P., Nutter, F., Jr., Wilson, C., and Groom, T. 2009. Development of management strategies for ray blight of pyrethrum: A case study of successful diffusion. *Phytopathology* 99:S174

7. Gent, D. H., Nelson, M. E., Farnsworth, J. L., Ocamb, C. M., and Grove, G. G. 2009. Systems approaches to management of hop downy mildew. Proc. Scientific Commission of the International Hop Growers Convention. June 21-25 2009, Leon, Spain,
8. Hummer, K, Gent, D., Henning J., Mahaffee, W., and Ocamb, C. 2009. Powdery mildew resistant hop germplasm release: 'Kazak 2000'. Abstract Book of the 2nd ISHS International Humulus Symposium. Abst P-01. p. 59.
9. Schwartz, H. F., Gent, D. H., Fichtner, S. M., Cranshaw, W. S., Mahaffey, L., Camper, M., Otto, K., and McMillan, M. 2008. Management of onion thrips and IYSV with straw mulch and biopesticides. Proc. 2008 National Allium Res. Conf., Savannah, Georgia, Dec. 10-13, 2008.
10. Schwartz, H. F., Fichtner, S. M., Gent, D. H., Khosla, R., Inman, D. J., Cranshaw, W. S., Camper, M. A., and Mahaffey, L. A. 2008. Spatial and temporal distribution of thrips and IYSV of onion in Colorado. Proc. 2008 National Allium Res. Conf., Savannah, Georgia, Dec. 10-13, 2008.
11. James, D., Gent, D., and Prischmann, D. 2008. The impact of sulfur on spider mite and predatory mite populations on grapes and hops in the Pacific Northwest of the United States. XXIII International Congress of Entomology, July 7-July 12, 2008, Durban, South Africa.
12. Gent, D. H., Nelson, M. E., and Grove, G. G. 2007. Persistence of metalaxyl insensitivity in *Pseudoperonospora humuli*. Phytopathology 97:S40
13. Pfender, W., Mahaffee, W., Coop, L., Fox, A., Daly, C., Thomas, C., Gubler, W., Grove, G., Gent, D., Stran, J., Taylor, G., Jepson, P., and Graw, R. 2007. Western Weather Systems Workgroup: A collaborative effort to improve weather information for IPM. Phytopathology 97:S92
14. Pethybridge, S. J., Mahaffe, W., and Gent, D. 2007. The compendium of hop diseases, arthropod pests and other disorders. Proc. Int. Hop Growers Sci. Comm. Meeting, Tettngang, Germany, 24 - 28 June 2007. ISSN 1814-2192, Page 116.
15. Gent, D. G., Mahaffee, W. F., and Turechek, W. W. 2006. Spatial heterogeneity and sampling of hop powdery mildew in cones. Phytopathology 96:S39.
16. Gent, D. H., du Toit, L. J., Mohan, S. K., Pappu, H. R., and Schwartz, H. F. 2006. Emergence of *Iris yellow spot virus* in the western U.S. Phytopathology. *In press*.
17. Peetz, A., Mahaffee, W. F., Turechek, W. W., Thomas, C. S., Nelson, M., Ocamb, C. M., Gent, D. H., and Grove, G. G. 2006. Hop powdery mildew in the Pacific Northwest. Phytopathology. *In press*.
18. Fichtner, S. M., Gent, D. H., Schwartz, H. F., Cranshaw, W. S., Mahaffey, L., and Khosla, R. 2004. Geospatial relationships of *Iris yellow spot virus* and thrips to onion production in Colorado. Proc. 2004 National Allium Res. Conf., Grand Junction, Colorado, Dec. 8-10, 2004. pp. 149-151.
19. Gent, D. H., Schwartz, H. F., Lang, J. M., and Ishimaru, C. A. 2004. Xanthomonas leaf blight of onion: biology, epidemiology, and management. Proc. 2004 National Allium Res. Conf., Grand Junction, Colorado, Dec. 8-10, 2004. pp. 153-162.
20. Schwartz, H. F., Gent, D. H., Fichtner, Hammon, R. W., and Khosla. 2004. Integrated management of *Iris yellow spot virus* in onion. Proc. 2004 National Allium Res. Conf., Grand Junction, Colorado, Dec. 8-10, 2004. pp. 207-212.
21. Oman, C., Gent, D. H., Fichtner, S.M, and Schwartz, H. F. 2004. Distribution of *Iris yellow spot virus* in weeds and onion transplants in Colorado. Proc. 2004 National Allium Res. Conf., Grand Junction, Colorado, Dec. 8-10, 2004.

22. Gent, D. H., and Schwartz, H. F. 2004. Inoculum sources of *Xanthomonas axonopodis* pv. *allii* in Colorado. *Phytopathology* 94:S33.
23. Gent, D. H., and Schwartz, H. F. 2004. Managing *Iris yellow spot virus* of onion with cultural practices, host genotype, and novel chemical treatments. *Phytopathology* 94:S34.
24. Gent, D. H., and Schwartz, H. F. 2004. Managing *Xanthomonas* leaf blight of onion with copper bactericides and acibenzolar. *Phytopathology* 94:S34.
25. Lang, J. M., Gent, D. H., and Schwartz, H. F. 2004. Alternative strategies for onion *Xanthomonas* leaf blight management. *Phytopathology* 94:S57.
26. Lang, J. M., Schwartz, H. F., and Gent, D. H. 2004. Alternative strategies for managing onion *Xanthomonas* leaf blight. Proc. 2004 National Allium Res. Conf., Grand Junction, Colorado, Dec. 8-10, 2004.
27. Gent, D. H., Schwartz, H. F., and Ishimaru, C. A. 2003. Population dynamics of *Xanthomonas campestris* pv. *allii* on leaves of pulse crops and weeds. *Phytopathology* 93:S29.
28. Gent, D. H. and Schwartz, H. F. 2003. Screening of onion germplasm for resistance to *Xanthomonas* leaf blight. *Phytopathology* 93:S29.
29. Gent, D. H. and Schwartz, H. F. 2002. Epidemiology of *Xanthomonas* leaf blight in relation to the critical period for bactericide applications Proc. of the 2002 National *Allium* Research Conference, Dec. 11- 14, 2002, Pasco, WA.
30. Gent, D. H., Schwartz, H. F., Ishimaru, C. A., Cramer, R. A., and Lawrence, C. B. 2002. Polyphasic characterization of *Xanthomonas campestris* from onion. Proc. of the 2002 National *Allium* Research Conference, Dec. 11- 14, 2002, Pasco, WA.
31. Gent, D. H., Stushnoff, C., and Schwartz, H. F. 2002. Thermal and UV tolerance of onion seed: Implications for bacterial disease management. Proc. Of the 2002 National *Allium* Research Conference, Dec. 11- 14, 2002, Pasco, WA.
32. Gent, D.H. and Schwartz, H.F. 2001. Effects of adjuvant chemistry on coverage, absorption, and efficacy of fungicides. *Phytopathology* 91:S31.

Invited Presentations

International audiences:

1. Gent, D. H. 2009. Systems Approaches to Management of Hop Downy Mildew. Scientific Commission of the International Hop Growers Convention, Leon, Spain.
2. Gent, D. H. 2007. U.S. Hop Production and Pest Management. Tasmanian Institute of Agricultural Research, University of Tasmania, Burnie, Australia.
3. Gent, D. H. 2007. *Iris yellow spot virus*: Biology and Management, Botanical Resources Australia Pty. Ltd., Ulverstone, Australia.

National audiences:

1. Woods, J. L.*, and Gent, D. H. 2009. Diseases and pests of hop: Identification and Management. Michigan State University Sustainable Hops Production Workshop, October 2, Traverse City, Michigan. (*Graduate student in my program.)
2. Gent, D. H., Mitchell, M. N., and Holmes, G. J. 2009. Genetic and pathogenic relatedness of *Pseudoperonospora cubensis* and *P. humuli*: Implications for detection and management. 2009 APS Annual Meeting, July 31-August 5, Portland, Oregon.
3. Gent, D. H., and Schwartz, H. F. 2004. *Iris yellow spot virus*: Biology, Epidemiology, and Management. 2004 National Onion Association Annual Meeting, July 22, Denver, Colorado.

Regional audiences

*Informal presentations at 18 grower commissions meetings and 10 field days from 2001 to current are not listed.

1. Gent, D. H. 2009. Interactions of fungicide programs and spider mite outbreaks. Oregon Hop Commission, Woodburn, Oregon, February 19.
2. Gent, D. H. 2009. Managing powdery and downy mildew with delayed spring pruning. Oregon Hop Commission, Woodburn, Oregon, January 16.
3. Gent, D. H. and Nelson, M. E. 2009. Powdery mildew cone infection: Risk factors and management. Western Plant Disease Conference, Portland, Oregon, January 15.
4. Gent, D. H. and Nelson, M. E. 2009. Powdery mildew cone infection: Risk factors and management. G.S. Long Annual Grower Meeting, Yakima, Washington, January 14.
5. Gent, D. H. 2008. Next Steps on the Horizon for Weather and Climate-Based Decision Support Systems. APS Pacific Division Meeting, Jackson Hole, Wyoming, June 25.
6. Gent, D. H. 2006. Integrated Management of Hop Disease and Pests. Busch Agricultural Research, Inc. Annual Grower Meeting, Sunnyside, Washington, November 26.
7. Gent, D. H. 2006. Integrated Management of Hop Disease and Pests. Busch Agricultural Research, Inc. Annual Grower Meeting, Salem, Oregon, November 25.
8. Gent, D. H. 2005. Powdery Mildew and Downy Mildew Research Update. Busch Agricultural Research, Inc. Annual Grower Meeting, Sunnyside, Washington, November 3.
9. Gent, D. H. 2005. Powdery Mildew and Downy Mildew Research Update. Busch Agricultural Research, Inc. Annual Grower Meeting, Mt. Angel, Oregon, November 2.
10. Gent, D. H. 2005. Mid-season Management of Powdery Mildew. Yakima Chief Grower Meeting, Washington, July 13, Sunnyside, Washington.
11. Gent, D. H. and Schwartz, H. F. 2005. *Iris yellow spot virus*: Biology, Epidemiology, and Management. 2005 Western Plant Disease Conference, January 4, Portland, Oregon.
12. Gent, D. H., and Schwartz, H. F. 2004. Management of Onion Diseases in Colorado. Empire State Vegetable Conference, February 11-12, Rochester, New York.
13. Gent, D. H., and Schwartz, H. F. 2004. Colorado Onion Production. Empire State Vegetable Conference, February 11-12, Rochester, New York.
14. Gent, D. H., and Schwartz, H. F. 2004. *Iris yellow spot virus*: Biology, Epidemiology, and Management. 2004 Idaho-Eastern Oregon Onion Growers Association Annual Meeting, November 17, Pasco, Washington.
15. Gent, D. H., and Schwartz, H. F. 2004. *Iris yellow spot virus*: Biology, Epidemiology, and Management. 2004 Pacific Northwest Vegetable Growers Association Annual Meeting, January 14, Ontario, Oregon.
16. Schwartz, H. F., and Gent, D. H. 2004. A Thrips-Transmitted Virus Threatens the United States Onion Industry. Colorado State University Infectious Diseases Research Colloquium, April 5-6, Fort Collins, Colorado.

University Departmental Seminars

1. Weather, Climate, and Systems Approaches to Multi-Scale Plant Disease Risk Assessment, Department of Plant Pathology, UC Davis, 26 January 2009.

Other Significant Invitations

1. European Plant Protection Organization Expert Working Group on *Xanthomonas axonopodis* pv. *allii*, Paris, France, 2008.

2. Scientific Committee of the 2nd ISHS International Humulus Symposium, Ghent, Belgium, 2008.
3. Visiting scientist at Tasmanian Institute of Agricultural Research, University of Tasmania, 2007.

Mentoring and Advising

Graduate theses directed:

Joanna Farnsworth-Woods, M. Ag., Oregon State University Department of Crop and Soil Science, 2010 (expected)

Melanie Mitchell, M.S., Oregon State University Department of Botany and Plant Pathology, 2009 (expected)

Thomas O'Malley, PhD, Plant Pathology, University of Tasmania, Tasmanian Institute of Agricultural Research, 2010 (expected). Co-advised with Drs. Sarah Pethybridge and Frank Hay.

Graduate committee member:

Natasha Cerruti, M.S., Oregon State University Department of Botany and Plant Pathology, 2009 (expected)

Undergraduate research directed:

Stefani Gibson, Oregon State University Department of Chemistry, 2006. Molecular detection of *Pseudoperonospora humuli* in asymptomatic plant tissues.

Joanna Farnsworth, Oregon State University Department of Agricultural Education and General Agriculture, 2005. Integrated management of hop diseases and pests.

High school apprenticeship and senior project research directed:

Christine Myers, Harrisburg, Oregon, 2008. Characterization of *Verticillium albo-atrum* isolates from hop. ARS Pacific West Area Summer Research Apprenticeship Program.

Ryan McMinds, South Albany High School, 2007. Hop pathogen identification using genetic techniques. Apprenticeships in Science and Engineering, Faculty Mentor.

Alison Priewe, Philomath High School, 2007. The importance of microbiology in agriculture. Philomath High School Senior Project.

Other research directed:

Paul Breese, Junction City High School science teacher, 2007. ARS Pacific West Area Teacher Research Fellowship Program.

Professional consulting and advising

External PhD reviewer for dissertation of Dr. Nasreen Sultana, Department of Botany, University of Karachi, Pakistan, 2009

European and Mediterranean Plant Protection Organization, Member of expert working group to perform Pest Risk Analysis for *Xanthomonas axonopodis* pv. *allii* and *Iris yellow spot virus*, Paris, France, August 25-28, 2008

Provided scientific leadership to the U.S. hop industry during preparation of Pest Management Strategic Plan, and assisted in coordinating meeting and recruiting work group members, 2007-2008.

Responded to greater than 84 requests for information on current and past research to growers, crop consultants, and other scientists since 2005.

University Service

Oregon State University Department of Botany and Plant Pathology

Graduate Studies Committee, 2008-current

Seminar series coordination, Winter 2007

Extended Education and Outreach

Committees

USDA-ARS Corvallis Location Equal Employment Opportunity and Outreach Committee, 2007 to 2009

Community service

Interviewer for Wilson Elementary School 2009 Art and Science Fair, 10 March 2009, Corvallis, Oregon

Interviewer for Wilson Elementary School 2008 Art and Science Fair, 11 March 2008, Corvallis, Oregon

Presentations

Breakout session presentations on agricultural biotechnology and environmental research, Confederated Tribes of the Grand Ronde College and Career Fair, 6 May 2009, Grand Ronde, Oregon.

“Biotechnology in Agriculture: A Case Study with a Plant Pathogen.” Oregon State University Science Education PartnershipS (SEPS) Molecular Biology Workshop for high school teachers, 23 June 2008, Corvallis, Oregon

“Careers with USDA-ARS,” Confederated Tribes of the Grande Ronde College and Career Fair, 30 April 2008, Grande Ronde, Oregon.

“USDA-ARS Teacher Research Fellowships,” Junction City School District 69 School Board Meeting, 28 April 2008, Junction City, Oregon.

“PCR and Biotechnology,” Junction City-Harrisburg area homeschooled children, 18 April 2008, Junction City, Oregon.

Breakout session presentations on agricultural biotechnology and environmental research, Confederated Tribes of the Grand Ronde College and Career Fair, 9 April 2008, Grand Ronde, Oregon.

“Genes, Forensics, and Mold: Genetic Diversity and Management of Plant Diseases.” Apprenticeships in Science and Engineering Mid-Summer Conference, Corvallis, Oregon, 12 July, 2007.

“Careers with USDA-ARS,” Confederated Tribes of the Grand Ronde College and Career Fair, 25 April 2007, Grand Ronde, Oregon.

Breakout session presentations on agricultural biotechnology and environmental research, Confederated Tribes of the Grand Ronde College and Career Fair, 25 April 2007, Grand Ronde, Oregon.

“Molecular Detection of Plant Pathogens: Crime Scene Investigation for Plants.” Apprenticeships in Science and Engineering Mid-Summer Conference, Corvallis, Oregon, 21 July, 2006.

“Careers with USDA-ARS,” Confederated Tribes of the Grand Ronde College and Career Fair, April 2006, Grand Ronde, Oregon.