

V. Publications:

Peer-reviewed

Adesemoye, A. O., H-H. Wei, and Harveson, R. M. 2016. Identification of *Erwinia rhapontici*, as the causal agent of crown and shoot rot and pink seed of pea in Nebraska. *Plant Health Progress* 17:155-157.

Allard-Massicotte R, Tessier L, Lécuyer F, Lakshmanan V, Lucier JF, Garneau D, Caudwell L, Vlamakis H, Bais HP, Beaugregard PB. (2016) *Bacillus subtilis* Early Colonization of *Arabidopsis thaliana* Roots Involves Multiple Chemotaxis Receptors. *MBio*. 2016 Nov 29;7(6). pii: e01664-16. doi: 10.1128/mBio.01664-16.

Alcala, A.C., Paulitz, T.C., Schroeder, K., Porter, L., du Toit, L.J. 2016. *Pythium* species associated with damping-off of pea in certified organic fields in the Columbia Basin of Central Washington. *Plant Disease* 100:916-925.

Becker, J.O. 2015. Cilantro/Parsley: Nematodes. *In*: UC IPM Pest Management Guidelines: Cilantro and Parsley. UC ANR Publication 3476. Pp. 26-27.

Becker, J.O., and B.B. Westerdahl, 2016. Cucurbits: Nematodes. Pp. 74-76. *In*: UC IPM Pest Management Guidelines: Cucurbits, UC ANR Publication 3445, <http://www.ipm.ucdavis.edu/PDF/PMG/pmgcucurbits.pdf> (revision).

Bishnoi U, Polson SW, Sherrier DJ, Bais HP. Draft Genome Sequence of a Natural Root Isolate, *Bacillus subtilis* UD1022, a Potential Plant Growth-Promoting Biocontrol Agent. *Genome Announc*. 2015 Jul 9;3(4). pii: e00696-15. doi: 10.1128/genomeA.00696-15.

Chen, W., Guy, S., McGee, R., Paulitz, T. C., Porter, L., Schroeder, K. and Vandermark, G. J. 2016. Field evaluation of seed treatment fungicides for control of damping-off of chickpea caused by metalaxyl-resistant *Pythium* spp., 2015. *Plant Disease Management Reports* 10:ST017.

Dunn, A. R., Kikkert, J. R., and **Pethybridge, S. J.** 2016. Genotypic characteristics in populations of *Sclerotinia sclerotiorum* from New York State, USA. *Ann. Appl. Biol.* (accepted 26 August 2016; AAB-2016-0086; Proofs returned 3 December 2016).

Erginbas-Orakci, G., Poole, G., Nicol, J., Paulitz, T.C., Dababat, A.A., Garland Campbell, K.A. 2016. Assessment of inoculation methods to identify resistance to Fusarium crown rot in wheat. *Journal of Plant Diseases and Protection* 123:19-27.

Funahashi, F. and Parke, J. L. 2016. Effects of soil solarization and *Trichoderma asperellum* on soilborne inoculum of *Phytophthora ramorum* and *Phytophthora pini* in container nurseries. *Plant Dis.* 100:438-443. <http://apsjournals.apsnet.org/doi/full/10.1094/PDIS-04-15-0453-RE>

Gatch, E.W., Derie, M.L., Holmes, B.J., and du Toit, L.J. 2016. Effect of Proline on Fusarium wilt in a spinach seed crop in western Washington, 2012. *Plant Disease Management Reports* 10:V103.

Gatch, E.W., and du Toit, L.J. 2017. Limestone-mediated suppression of Fusarium wilt in spinach seed crops. *Plant Disease* 101:81-94.

Gebremariam, E.S., Karakaya, A., Erginbas-Orakci, G., Dababat, A.A., Sharma-Poudyal, D., Paulitz, T.C. 2016. First report of *Fusarium hostae* causing crown rot of wheat (*Triticum* spp.) in Turkey. *Plant Disease* 100:216.

Gorny, A. M., Kikkert, J. R., Shivas, R. G., and **Pethybridge, S. J.** 2016. First report of *Didymella americana* on lima bean (*Phaseolus lunatus*). *Can. J. Plant Pathol.* 38:389-394.

Grant, M.R., Tymon, L.S., Helms, G.L., Thomashow, L.S., Keller, C., Harsh, J.B. 2016. Biofilm adaptation to iron availability in the presence of biotite and consequences for chemical weathering. *Geobiology*. DOI:10.1111/gbi.12187.

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Hansen, Z.R., Knaus, B.J., Tabima, J.F., Press, C.M., Judelson, H.S., Grunwald, N.J. and Smart, C.D. (2016) Loop-mediated isothermal amplification (LAMP) for detection of the tomato and potato late blight pathogen, *Phytophthora infestans*. *Applied Microbiology* 120:1010-1020.

Hansen, Z.R., Knaus, B.J., Tabima, J.F., Press, C.M., Judelson, H.S., Grunwald, N.J., and Smart, C.D. (2016) SNP-based differentiation of *Phytophthora infestans* clonal lineages using locked nucleic acid probes and high resolution melt analysis. *Plant Disease* 100:1297-1306. DOI: 10.1094/PDIS-11-15-1247-RE.

Hao, J.J., Zhang, X.Y., Jiang, H.H., Zhang, X.M., and Giggie, E. 2016. Evaluation of A12946B as seed potato treatment for pink rot control, Presque Isle, ME, 2014. *Plant Disease Management Reports* 10:VST011.

Hao, J.J., Zhang, X.M., Jiang, H.H., Marangoni, N., and Giggie, E. 2016. Evaluate the efficacy of fungicides in seed treatment for the control of pink rot in potato, Presque Isle, ME, 2015. *Plant Disease Management Reports* 10:ST009.

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Hao, J. J., Marangoni, N., Jiang, H. H., Zhang, X. M., Giggie, E. 2016. Evaluation of oxathiapiprolin, chlorothalonil and other fungicides for late blight control in Potato, Presque Isle, ME, 2015. *Plant Disease Management Reports* 10:V005.

Hao, J. J., Jiang, H. H., Zhang, X. M., N Marangoni, N., Giggie, 2016. E. Evaluation of oxathiapiprolin and other products for soilborne oomycete control in potato, Presque Isle, ME, 2015. *Plant Disease Management Reports* 10:V005.

- Hao, J.** 2016. Comunidades microbianas en el suelo: causa y soluciones de las enfermedades en plantas. Soil microbial communities: the cause and solutions of plant diseases. Palmas 37(Especial Tomo I), pp. 123-130.
- Hay, F. S., Herdina, Hartley, D., Ophel Keller, K, and **Pethybridge, S. J.** 2016. Prediction of potato tuber damage by root-knot nematodes using soilborne DNA. Plant Dis. 100:592-600.
- Hay, F. S., Strickland, D., Maloney, E., Hoepting, C., and **Pethybridge, S. J.** 2016. Anthracnose of onion caused by *Colletotrichum coccodes* in New York. Plant Dis. 100:2171.
- Hay, F. S., Vaghefi, N., Ivy, A., and **Pethybridge, S. J.** 2016. First report of carrot root rot caused by *Rhexocercosporidium carotae* in the United States. Plant Dis. (accepted; 26 August 2016; PDIS-05-16-0656-PDN.R1 [First Look]. Proofs returned 6 October 2016).
- Hewavitharana, S. S., and Mazzola, M. 2016. Carbon source-dependent effects of anaerobic soil disinfestation on soil microbiome and suppression of *Rhizoctonia solani* AG-5 and *Pratylenchus penetrans*. Phytopathology 106:1015-1028.
- Jaaffar, A.M., Paulitz, T.C., Schroeder, K.L., Thomashow, L.S., Weller, D.M. 2016. Molecular characterization, morphological characteristics, virulence and geographic distribution of *Rhizoctonia* spp. in the Inland Pacific Northwest. Phytopathology 106:459-473.
- Jiang, H.H., **Hao, J.J.**, Johnson, S.B., Brueggeman, R.S., and Secor, G. 2016. First report of *Dickeya dianthicola* causing blackleg and bacterial soft rot on potato in Maine. Plant Disease. DOI: [10.1094/PDIS-12-15-1513-PDN](https://doi.org/10.1094/PDIS-12-15-1513-PDN).
- Jiang, H.H., Marangoni, N.F., Zhang, X.M., Zhang, X.Y., Giggie, E., and **Hao, J.J.** 2016. Evaluation of chemical and non-chemical products in controlling late blight of potato, Presque Isle and Orono, ME, 2014. Plant Disease Management Reports 10:V058.
- Kandel, S. L., Firrincieli, A., Leston, N. D., McGeorge, K. M., Okubara, P., Scarascia-Mugnozza, G., Harfouche, A., Kim, S-H. and Doty, S. L. 2016. In vitro bio-control and plant growth promotion potential of Salicaceae endophytes. Frontiers in Microbiology: *accepted*.
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- Kreis, R.A., Lange, H.W., Reiners, S., and Smart, C.D. (2016) Cauliflower yield and susceptibility to *Alternaria* leaf spot under New York field conditions. *HortTechnology* 26:542-546.
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- Lakshmanan V, Shantharaj D, Li G, Seyfferth AL, Janine Sherrier D, Bais HP. 2015 A natural rice rhizospheric bacterium abates arsenic accumulation in rice (*Oryza sativa* L.). *Planta.* 242(4):1037-50. doi: [10.1007/s00425-015-2340-2](https://doi.org/10.1007/s00425-015-2340-2).

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Lehner, M. S., **Pethybridge, S. J.**, Meyer, M. C., and Del Ponte, E. M. 2016. Meta-analytic modelling of the relationships of white mold incidence with soybean yield and sclerotia production in uniform fungicide trials. *Plant Pathol.* (accepted 17 July 2016; <http://onlinelibrary.wiley.com/doi/10.1111/ppa.12590/epdf> [First Look]). Data provided on open access GitHub: <https://emdelponte.github.io/paper-white-mold-meta-analysis/>

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Pethybridge, S. J., Vaghefi, N., and Kikkert, J. R. 2016. Efficacy of fungicides for the control of *Cercospora* leaf spot in processing table beet, 2015. *Plant Dis. Man. Rep.* 10: V003(<https://www.plantmanagementnetwork.org/pub/trial/pdmr/reports/2016/V003.pdf>).

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Pethybridge, S. J., Gorny, A., Hoogland, T., Jones, L., Hay, F. S., Smart, C. D., and Abawi, G. 2016. Identification and characterization of *Ditylenchus* spp. populations from garlic in New York State, USA. Trop. Plant Pathol. 41:193-197.

Poojari, S., Olfemi, A., Okubara, P.A., Naidu, R.A. 2016. Development of duplex SYBR Green I-based real-time quantitative reverse-transcription PCR for detection and discrimination of grapevine viruses. Journal of Virological Methods. 235(5):112:118.

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Websites maintained

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Books and book chapters

Adesemoye, A. O.; Yuen, G.; and Watts, D. B. 2016. Microbial inoculants for optimized plant nutrients use in integrated pest and input management systems. In: *Probiotics and Plant Health*. Arora N.K, Mehnaz S., and Balestrini R. (Ed.), Springer. (In press)

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Klein, R., Werle, R., Creech C., Bradshaw, J., Wegulo, S., Hein, G. L., Adesemoye, A. O., McMechan, J. (2016). Control Volunteer Winter Wheat and Other Weeds Now to Increase and Protect 2017 Yields, Income. *CropWatch* June 23, 2016.

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Paulitz, T. C. and Schroeder, K. L. 2016. Acid soils - How do they interact with root diseases? WSU Extension Bulletin. FS195E.

Theses

Kelsie M. Musil. 2016. Evaluations of Biological Control Agents for the Management of Soybean Cyst Nematode (*Heterodera glycines*) In Soybean (*Glycine max* L. Merr.). Masters' Thesis. University of Nebraska-Lincoln.

Zhang, X.M. 2016. Chemical and non-chemical control of potato pink rot. 166 pp. University of Maine.

Meeting presentations and proceedings

Adesemoye, A. O., and Wei, H-H. 2016 Effects of *Clonostachys* species on charcoal rot disease caused by *Macrophomina phaseolina* in soybean. American Phytopathological Society Annual Meeting, Florida. August 2016.

Becker, O. 2016. 55th Annual Society of Nematologists Meeting/ONTA Annual Meeting, Montreal, Canada, July 17-19, 2016. "Novel nematicides in processing tomato" (invited Symposium presentation)

Becker, O. 2016. Association of Applied IPM Ecologists Conference, Monterey, CA, Feb 1-2, 2016. "Nematicide revival?" (invited presentation)

Becker, O. 2016. Multistate Research Project meeting, W3147, "Managing Plant Microbe Interactions in Soil to Promote Sustainable Agriculture". Riverside, CA. Dec 2, 2016. "Nematode management in CA: conventional and organic treatments"

Becker, O. 2016. 62nd Conference on Soilborne Plant Pathogens & 48th Statewide CA Nematology Workshop, Kearney Research & Extension Center, March 22-26, 2016 "Nematicides – past and future" (invited presentation).

Becker, O. 2015. Multistate Research Project meeting, W3147, "Managing Plant Microbe Interactions in Soil to Promote Sustainable Agriculture", Mission Inn, Riverside, CA. Dec 6, 2015. "Evaluation of a strain of *Purpureocillium lilacinum*

Benemann, C. and Parke, J. L. 2016. Determining the amount of soilborne inoculum of *Phytophthora ramorum* within an Oregon tanoak forest. Sixth Sudden Oak Death Science Symposium, June 20-23, San Francisco, CA.

Borneman, J. 2016. Foundation for Food and Agriculture Phytobiomes Meeting, May 29, 2016, Tampa Florida, Title: Managing Indigenous Populations of *Dactylella oviparasitica* to Suppress the Sugarbeet Cyst Nematode.

Borneman, J. 2016. A Microbe-Based Strategy to Suppress the Sugarbeet Cyst Nematode. December 2, 2016. W3147 Meeting at MI in Riverside CA.

Carmody, S., and du Toit, L.J. Seedborne inoculum for light leaf spot and white leaf spot of brassicas in the Pacific Northwest: Potential significance and management. Puget Sound Seed Growers' Assoc. Annual Meeting, 29 Jan. 2016, Mount Vernon, WA. (50 people)

Charkowski, A., Ishimaru, C., Johnson, S.B., Frost, K.E. Hao, J., Schroeder, B.K., Rascoe, J. 2016. Title: Soft rot, stem rot, and blackleg caused by Pectobacterium and Dickeya in potato. Potato Expo, Las Vegas, NE. Jan. 12-14.

du Toit, L. J. 2016. Black leg in the Pacific Northwest: Status of the WSDA Crucifer Quarantine. Proceedings of the Pacific Northwest Direct Seed Association Cropping Systems Conference, 12-13 Jan. 2016, Kennewick, WA. 2 pp. <http://www.directseed.org/events/annual-conference/>

du Toit, L.J. Brassica black leg – The hidden dangers of a seedborne pathogen. Invited by American Seed Trade Association because of increasing prevalence of black leg in canola crops in Midwestern states, and concern about infected brassica seed in cover crop seed lots. 6 Nov. 2016, Kansas City, MO. (75 cover crop stakeholders)

du Toit, L.J. Tapping into growers' expertise: Effective engagement in extension. Invited presentation by APS Graduate Student Committee, 'Fieldside Manner' special session, APS Annual Meeting, 30 Jul. – 3 Aug. 2016, Tampa, FL.

du Toit, L.J. Mycorrhizal inoculants in onion production: Possibilities and pitfalls? 65th Muck Vegetable Growers' Conference, 12-13 Apr. 2016, Bradford, Ontario, Canada. (75 growers)

du Toit, L.J. Spinach seed health and production practices. Invited presentation to Spinach Committee, California Seed Association Annual Meeting, 21-23 Mar. 2016, Nampa, CA. (45 people)

du Toit, L.J. Onion internal dry scale and internal bulb rots – The new bane of PNW onions. Invited presentation, 56th Annual Meeting of the Idaho & Malheur County, OR Onion Growers' Associations, 2 Feb. 2012, Ontario, OR. (150 people)

du Toit, L.J., Thornton, T., Simerly, R., and Reitz, S. Pink root panel discussion. 56th Annual Meeting of the Idaho & Malheur County, OR Onion Growers' Associations, 2 Feb. 2012, Ontario, OR. (150 people)

du Toit, L.J. Onion white rot quarantine update. Columbia Basin Vegetable Seed Assoc. Annual Meeting, 22 Jan. 2015, Moses Lake, WA. (60 people)

du Toit, L.J. Update on brassica black leg in the PNW. Columbia Basin Vegetable Seed Assoc. Annual Meeting, 22 Jan. 2015, Moses Lake, WA. (60 people)

du Toit, L.J. Diagnosing plant problems – Not so elementary, dear Watson! Columbia Basin Crop Consultants' Assoc. Short Course, 13-14 Jan. 2016, Moses Lake, WA. (85 people)

du Toit, L.J. Onion internal dry scale and management of culled bulbs. Columbia Basin Crop Consultants' Assoc. Short Course, 13-14 Jan. 2016, Moses Lake, WA. (85 people)

- du Toit, L.J. Brassica black leg update. Pacific Northwest Direct Seed Association Cropping Systems Conference, 12-13 Jan. 2016, Kennewick, WA. 2 pp. <http://www.directseed.org/events/annual-conference/> (40 people)
- du Toit, L.J. 2016. Spinach Fusarium wilt: Management of a tenacious, soilborne pathogen based on Achilles' heel. 2016 International Spinach Conference, 29 Nov.–1 Dec. 2016, San Antonio, TX. (100 people)
- du Toit, L.J., Waters, T.W., Derie, M.L., Henrichs, B.A., and Holmes, B.J. 2016. Assessing the potential value of mycorrhizal inoculants in onion production in the Columbia Basin of Washington, USA. National Onion Association Convention and National Allium Research Conference, 30 Nov. – 3 Dec. 2016, Savannah, GA. (100 people)
- du Toit, L.J. Carrot diseases in the Pacific Northwest. Pacific Northwest Vegetable Association Annual Convention & Trade Show, 16-17 Nov. 2016, Kennewick, WA. (100 people)
- du Toit, L.J. Evaluation of arbuscular mycorrhizae in commercial onion fields. Pacific Northwest Vegetable Association Annual Convention & Trade Show, 16-17 Nov. 2016, Kennewick, WA. (150 people)
- du Toit, L.J. Market opportunities for organic production in the PNW. Represented WSU in a 90 minute panel discussion with representatives from Charlie's Produce, Costco, Oregon Dept. of Agriculture, Oregon Tilth, Walmart, Whole Foods, Washington State Dept. of Agriculture. Pacific Northwest Vegetable Association Annual Convention & Trade Show, 16-17 Nov. 2016, Kennewick, WA. (150 people)
- du Toit, L.J. Bacterial blight of table beet and Swiss chard: Efforts to quantify seedborne inoculum thresholds. Puget Sound Seed Growers' Association Annual Meeting, 29 Jan. 2016, Mount Vernon, WA. (50 people)
- Eberhart, J.E., Funahashi, F., Foster, Z., and Parke, J. L. 2016. Next generation sequencing of oomycete communities in nursery irrigation water. Sixth Sudden Oak Death Science Symposium, June 20-23, San Francisco, CA.
- Funahashi, F. and Parke, J. L. 2016. Development of a predictive model to estimate the effect of soil solarization on survival of soilborne inoculum of *Phytophthora ramorum* and *Phytophthora pini*. Sixth Sudden Oak Death Science Symposium, June 20-23, San Francisco, CA.
- Hao, J. 2016. "From Soil And Back To Soil: Philosophy Of Managing Soilborne Diseases In Potato." Dan Zhou campus of Hainan University, Haikou, China. December 22, 2016.
- Hao, J. 2016. Perspectives in studying soilborne diseases of potato." Yunnan Agricultural University, Kunming, Jun 19, 2016.
- Hao, J.J. Title: "Responses of potato varieties and effects of chemical compounds to *Pectobacterium* spp. and *Dickeya* spp. that cause blackleg of potato." 2016 Northeastern Division American Phytopathological Society Annual Meeting, Ithaca, NY. Nov. 19-21.
- Hao, J.J. Title: "Detection and characterization of *Dickeya* species in the outbreak of blackleg disease of potato in Maine." Northeastern Division of The American Phytopathological Society Annual Meeting. Philadelphia, PA. Jan. 3-7.

Hewavitharana, S., Leisso, R., Rudell, D., and Mazzola, M. Temporal changes in soil metabolome and microbiome during anaerobic soil disinfestation. . Annual Meeting of the Washington State Tree Fruit Association, 5 Dec. 2016, Wenatchee, WA.

Leisso, R., Rudell, D., and Mazzola, M. New insights into apple rootstock and soil interactions: chemistry and microbes. Annual Meeting of the Washington State Tree Fruit Association, 5 Dec. 2016, Wenatchee, WA.

Lujan, P., Puppala, N., Szaloy, J., and Sanogo, S. 2016 (Abstract). Effect of Valencia peanut seed treatments on germination, vigor, and soilborne diseases. Western Society of Crop Science Annual Meeting, Albuquerque, NM, July 12-13, 2016.

Mazzola, M. 2016. Harnessing orchard soil microbiology for replant disease control and system resilience. Ontario Fruit and Vegetable Convention, 7-9 Feb. 2016, Niagara Falls, Ontario (250 people)

Mazzola, M. 2016. Causes and control of apple replant disease. Ontario Replant Working Group, 9 Feb. 2016, Vineland, Ontario.

Mazzola, M. 2016. Manipulation of the soil microbiome for enhanced system resistance to pathogen proliferation. Conference on Soilborne Plant Pathogens, Parlier, CA March 22-24, 2016.

Mazzola, M. 2016. Challenges to reduce reliance on soil fumigation for soil-borne disease control in strawberry. Western Cape Strawberry Growers Association, 20 Sept. 2016, Stellenbosch, South Africa.

Mazzola, M. 2016. Multiplicity of mechanisms govern efficacy of anaerobic soil disinfestation for soil-borne disease control. 26th Annual Meeting of the Soilborne Plant Diseases Interest Group of South Africa, 21-22 Sept. 2016, Stellenbosch, South Africa.

Mazzola, M. 2016. Farming without fumigants: Evaluation of alternative methods for control of orchard replant disease. Apple Replant Disease Mini-Symposium, Stellenbosch, South Africa, 23 Sept., 2016.

Mazzola, M. 2016. Tolerance of apple rootstock genotypes to apple replant disease. Apple Replant Disease Mini-Symposium, 23 Sept. 2016, Stellenbosch, South Africa,.

Mazzola, M. 2016. Understanding soil microbiology to build system resilience and enhance plant productivity. 2016 Tilt Producers Conference, 11 Nov. 2016, Wenatchee, WA.

Ocamb, C.M. and du Toit, L. J. 2016. Managing seedborne pathogens: Black leg in brassica crops in the Pacific Northwest and implications for the organic seed industry. Pp. 90-95 in: Proceedings of the 8th Organic Seed Growers' Conference, 4-6 Feb. 2016, Corvallis, OR.

http://seedalliance.org/events/organic_seed_growers_conference

Okubara, P. A., Mahoney, A., Hulbert, S. and Sanguinet, K. 2016. Root phenotyping for *Rhizoctonia* resistance. American Phytopathological Society, Pacific Division Annual Meeting, La Conner, WA, Jun 28-30.

Oliveira-Hofman, C., Suárez Victor, V., Mollet, K.A., Adesemoye, A.O., Meinke, L.J., and Peterson, J.A. 2016. Potential predators and entomopathogens of western corn rootworm in continuous cornfields in Nebraska. Entomological Society of America North Central Region

Parke, J. L., Funahashi, F., Weidman, C., and Peterson, E. K. 2016. Relative heat sensitivities of certain *Phytophthora* spp. and the potential for soil solarization to disinfect nursery beds in west coast states. Sixth Sudden Oak Death Science Symposium, June 20-23, San Francisco, CA.

Paulitz, T. C. and Schlatter, D. 2016. Does glyphosate (Roundup) have an impact on soil microbial communities in wheat? Conference on Soilborne Plant Pathogens, Parlier, CA March 22-24, 2016.

Peterson, E., Grunwald, N. J., and Parke, J. L. 2016. Soil moisture and temperature conditions affect survival and sporulation capacity of rhododendron leaf disks infested by *Phytophthora ramorum*. Sixth Sudden Oak Death Science Symposium, June 20-23, San Francisco, CA.

Peterson, E., Grunwald, N. J., and Parke, J. L. 2016. Incubation of *Phytophthora ramorum*-infested leaf debris in soil affects survival, sporulation capacity, and subsequent risk of epidemic development within nurseries. Sixth Sudden Oak Death Science Symposium, June 20-23, San Francisco, CA.

Peterson, E., Parke, J. L., and Larson, E. 2016. Management of foliar infection of rhododendron by *Phytophthora ramorum* with film-forming polymers and surfactants. Sixth Sudden Oak Death Science Symposium, June 20-23, San Francisco, CA.

Pollard, A., Okubara, P. A. and Fuerst, E. P. 2016. *Fusarium avenaceum*: a potential tool to combat wild oats in the soil weed seedbank. "Resilience Emerging from Scarcity and Abundance", Annual Meeting of the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Phoenix, AZ. November 6-9, 2016.

Rupp, F., Peterson, E. K., Eberhart, J., and Parke, J. L. 2016. Host range determination and fungicide resistance assessment of *Phytophthora lateralis* isolates from horticultural nurseries in Oregon. Sixth Sudden Oak Death Science Symposium, June 20-23, San Francisco, CA.

Sanogo, S., Lujan, P., Zhu, Yi, Lytle, M., and Bailey, B. 2016 (Abstract). Effect of culture filtrates from four *Trichoderma* species on sporangia and zoospore production, and mycelial growth by *Phytophthora capsici*. Pacific Annual Meeting of the Pacific Division of American Phytopathological Society, La Conner, WA, June 28-30, 2016.

Sanogo, S. Pathogen/Disease Management and Climate Change in New Mexico. The New Mexico Sustainable Agriculture Conference, NMSU-WSARE, Los Lunas, NM, (November 2016).

Sanogo, S. Managing Production Environment to Reduce Soilborne Disease Problems in Vegetable Crops. Departmental Seminar/Horticultural Sciences/Texas AM, Department of Horticultural Sciences/Texas AM, College Station, TX, (October 2016).

Schlatter, D. 2016. Management history, glyphosate, and soil microbial communities in the PNW. Western Wheat Workers meeting, Pullman, WA. July 7, 2016.

Schlatter, D. and Paulitz, T. C. 2016. Effect of glyphosate on soil bacterial communities in long-term no-till and CRP. Direct Seed Conference, Kennewick, WA. Jan. 13-14.

Simon, P., Colley, M., McKenzie, L., Zystro, J., McCluskey, C., Hoagland, L., Roberts, P., Colquhoun, J., du Toit, L., Nunez, J., Silva, E., and Waters, T. The CIOA (Carrot Improvement for Organic Agriculture) Project: New sources of nematode resistance and evidence that location, cropping system, and genetic background influence carrot performance. Pp. 26-31 in: Proceedings of the 8th Organic Seed Growers' Conf., 4-6 Feb. 2016, Corvallis, OR. http://seedalliance.org/events/organic_seed_growers_conference

Thomashow, L. 2016. Control of Cereal Root Pathogens with Root-Associated Bacteria. Korean Society for Plant Pathology meeting, Pyeongchang Campus, Seoul National University, 20 October 2016.

Thomashow, L. 2016. Suppressive soils: back on the radar screen. IOBC-WPRS Working Group, Biocontrol and Microbial Ecology, Berlin, Germany, 14 September 2016.

Wang, L. and Mazzola, M. Developing an integrated management option to control apple replant disease. Annual Meeting of the Washington State Tree Fruit Association, 5 Dec. 2016, Wenatchee, WA.

Weber, J., and du Toit, L.J. Research efforts to enhance management of white mold in sunflower seed crops. Columbia Basin Vegetable Seed Assoc. Annual Meeting, 22 Jan. 2015, Moses Lake, WA. (60 people)

Weller, D. 2016. Biologicals: Past, Present and Future. Symposium talk, meeting of the American Phytopathological Society, Tampa, FL, August 1, 2016.

Weller, D. 2016. Contributions of Biocontrol Agents to Sustainable Agriculture: Do Insights from Microbiome Research and BCA 'Omics' Payoff? XIV Meeting of the IOBC-WPRS Working Group Biological Control of Fungal and Bacterial Plant Pathogens Biocontrol & Microbial Ecology, Berlin, Germany, Sept. 12, 2016

Weller, D. 2016. Control of Soilborne Diseases of Wheat: A Tale of Two Antibiotics. The 2016 KSPP Fall Meeting and International Conference, Pyeongchang, Gangwon, Korea: October 19-21, 2016.

White, J. 2016. University of Nebraska, Lincoln. Biotechnology seminar program: Microbial endophytes of plants: Their roles in promoting plant growth, adapting plants to their environments and engineering ecosystems. November 30, 2016.

Abstracts

Aujla, I. and Paulitz, T. C. 2016. Standardizing water potential of salt-amended growth media at different temperatures for microbial studies. *Phytopathology* 106:S4:30.

Brown, K.C., Reyes, B., **Hao, J.**, Porter, G. 2016. Late blight profiles of late blight resistant potato varieties and clones. Potato Association of America Annual Meeting.

Chen, W., McGee, R., Paulitz, T. C., Porter, L., Vandermark, G. J., Guy, S. and Schroeder, K. 2016. Chickpea damping-off caused by metalaxyl resistant *Pythium* in the Pacific Northwest. International Conference on Legume Genomics and Genetics.

Chen, W., Guy, S., McGee, R., Paulitz, T. C., Porter, L., Schroeder, K. and Vandermark, G. J. 2016. Prevalence of metalaxyl resistance in *Pythium* populations in dryland agriculture in the US Pacific Northwest. *Phytopathology* 106:S4.34.

Derie, M. L., Holmes, B. J., Safni, I, Bull, C. T., and du Toit, L. J. 2016. Seedborne inoculum thresholds of *Pseudomonas syringae* pv. *aptata*, causal agent of bacterial leaf spot, in 'baby leaf' Swiss chard crops. Poster presented at 2016 APS Annual Meeting, 30 Jul.–3 Aug. 2016, Tampa, FL. *Phytopathology* 106:S4.142

du Toit, L. J. 2016. Spinach Fusarium wilt: Management of a tenacious, soilborne pathogen based on Achilles' heel. Paper presented at 2016 International Spinach Conference, 29 Nov.–1 Dec. 2016, San Antonio, TX.

du Toit, L. J. Tapping into growers' expertise: Effective engagement in extension. 2016 APS Annual Meeting, 30 Jul.–3 Aug. 2016, Tampa, FL. Invited paper presented in APS Graduate Student Committee's 'Fieldside Manners' special session. *Phytopathology* 106:S4.177-178.

du Toit, L. J., Waters, T. W., Derie, M. L., Henrichs, B. A., and Holmes, B. J. 2016. Assessing the potential value of mycorrhizal inoculants in onion production in the Columbia Basin of Washington, USA. Paper presented at National Onion Association Convention and National Allium Research Conference, 30 Nov. – 3 Dec. 2016, Savannah, GA.

Hao, J.J., Marangoni, N., Song, Y., Ge, T., *Johnson, and S.B., and Porter, G. 2016. Responses of potato varieties and effects of chemical compounds to *Pectobacterium* spp. and *Dickeya* spp. that cause blackleg of potato. 2016 Northeastern Division American Phytopathological Society Annual Meeting.

Hao, J., Jiang, H. and Johnson, S.B. 2016. Detection and characterization of *Dickeya* species in the outbreak of blackleg disease of potato in Maine. Northeastern Division of The American Phytopathological Society Annual Meeting.

Jiang, H.H., Ge, T.L., **Hao, J.J.**, and Porter, G. 2016. Resistance Screen of Potato variety to Pink Rot caused by *Phytophthora erythroseptica*. American Phytopathological Society Annual Meeting.

Jiang, H., and **Hao, J.** 2016. Ecological impact of signaling chemicals on plant pathogen *Phytophthora erythroseptica*. 2016 American Phytopathological Society Annual Meeting.

Kingsley, K., KP Kowalski, MA Soares, JF White. 2016. Evaluation of the roles of seed-vectored endophytic bacteria in enhancing competitive ability of invasive reed grass (*Phragmites australis*). for 6th ASM Conference on Beneficial Microbes September 9–12, 2016 Seattle, WA

Knerr, A., Wheeler, D. Schlatter, D., Paulitz, T., and du Toit, L. 2016. Arbuscular mycorrhizal fungal communities associated with organic and conventional onion crops in the Columbia Basin of Washington. *Phytopathology* 106:S4.35.

Mahoney, A., Okubara, P., Paulitz, T., See, D. and Hulbert, S. 2016. Genetic analysis and root phenotyping of root rot resistance to *Rhizoctonia* species. 2016 Field Day Abstracts, Dept. of Crop and Soil Sciences, Technical Report 16-1. Pg. 47-48.

Mahoney, A., Yin, C., Okubara, P., Paulitz, T., and Hulbert, S. 2016. Variation in root-associated microbial communities of different wheat varieties. 2016 Field Day Abstracts, Dept. of Crop and Soil Sciences, Technical Report 16-1. Pg. 49-50.

Musil, K. and G. Yuen, 2016. Population dynamics of the biocontrol agent *Lysobacter enzymogenes* in the rhizospheres of soybean and cereal rye. Poster presented at 2016 North Central Division Meeting. Abstract published in *Phytopathology* 106:S4.191.

Okubara, P. A., Mahoney, A., Hulbert, S. and Sanguinet, K. 2016. Phenotyping for root rot resistance 2016 Dryland Field Day Abstracts, Technical Report 16-1, p. 53-54.

Paulitz, T. C., Knerr, A. J., Schlatter, D., Sowers, K., Derie, M. and du Toit, L. 2016. A survey of eastern Washington State for blackleg disease of canola caused by *Leptosphaeria maculans* and *Leptosphaeria biglobosa*. 2016 Field Day Abstracts, Dept. of Crop and Soil Sciences, Technical Report 16-1. Pg. 27-28.

Poudel, R., Jumpponen, A., Schlatter, D., Paulitz, T., McSpadden, G. Kinkel, L. and Garrett, K. 2016. Microbiome networks: A systems framework for identifying candidate microbial assemblages for disease management. *Phytopathology* 106:S4.56.

Ploeg, A. and J.O. Becker 2016. Abamectin as a microbial-derived nematicidal seed coating. European Society of Nematologists Meeting 2016, The University of Minho, Braga, Portugal. Abstract booklet p. 82.

Safni, I., Sepulveda, L. R., Goldman, P. H., Derie, M. L., du Toit, L. J., Koike, S. T., Stockwell, V. O., and Bull, C. T. 2016. Genetic diversity of *Pseudomonas syringae* causing bacterial leaf spot on table beet (*Beta vulgaris*) and Swiss chard (*Beta vulgaris* subsp. *cicla*). Poster presented at 2016 APS Annual Meeting, 30 Jul.–3 Aug. 2016, Tampa, FL. *Phytopathology* 106:S4.143.

Schlatter, D., Yin, C., Hulbert, S., Burke, I. Paulitz, T. C. 2016. Effect of Glyphosate on Soil Bacteria Communities in Long-Term No-Till and CRP. 2016 Field Day Abstracts, Dept. of Crop and Soil Sciences, Technical Report 16-1. Pg. 74.

Schlatter, D., Paulitz, T. C., Schillinger, W., Bary, A. and Sharratt, B. 2016 Impacts of Biosolids and Tillage on Microbes in Soil and Dust. 2016 Field Day Abstracts, Dept. of Crop and Soil Sciences, Technical Report 16-1. Pg. 74.

Weber, J. M., Chen, T., Chen, W., and du Toit, L. J. 2016. Clonality within disease foci and field populations of *Sclerotinia sclerotiorum* causing basal stalk rot in sunflower seed crops in central Washington. Poster presented at APS Pacific Division Meeting, 28-30 Jun. 2016, La Conner, WA. *Phytopathology* 106:S4.207.

Witte, H., J. Yang, J. Borneman, J. Smith Becker, and J.O. Becker 2014. Assessment of soils for the presence of the nematophagous fungus *Dactylella oviparasitica* by a PCR-based strategy. *J. Nematology* 46:257.

Zhang, X.Y., Jiang, H.H., and **Hao, J.J.** 2016. Chemical association of potato susceptibility to *Rhizoctonia solani*. American Phytopathological Society Annual Meeting.

Zhang, X.M., **Hao, J.**, Jiang, H., Marangoni, N.F. and Zhang, X. 2016. Managing potato pink rot using chemical and nonchemical strategies. American Phytopathological Society Annual Meeting.

Zhang, X, Jiang, H., Johnson, S.B., **Hao, J.**, Marangoni, N.F., and and Zhang, X. 2016. Effects of chemical and biological products on pink rot of potato. *Phytopathology* 106:S2.5.

Patent applications

U.S. patent pending No. PCT/US16/43408. (Filed July 21, 2016). "Compositions and Methods Comprising Endophytic Bacterium for Application to Grasses to Increase Plant Growth, Suppress Soil Borne Fungal Diseases, and Reduce Vigor of Weedy Competitors". Inventors: White JF, Kowalski K, Kingsley K.

Extension Talks/Field Days/Workshops/Consultations

Becker, O. 2016. 27th Annual Fall Season Desert Crops Workshop, El Centro, CA, November 15, 2016. "Nematode management in CA carrot production: conventional and organic treatment leads."

Becker, O. 2016. Pitahaya Day, Hansen Agricultural Research and Extension Center, UCCE Ventura County, September 16, 2016, "Nematode Research in Dragon Fruit Production."

Becker, O. 2016. Turf & Landscape Day, AgOps, UC Riverside, September 15, 2016. "Nematicidal protection against the Pacific shoot-gall nematode *Anguina pacificae* in *Poa annua* greens."

Becker, O. 2016. Industry field day; trial results, demonstrations and discussions. UC Riverside, August 24, 2016.

Becker, O. 2016 Pitahaya/Dragon Fruit Production Seminar, San Diego County Farm Bureau, Escondido, CA, August 19, 2016, "Nematode issues for Pitahaya production"

Becker, O. 2016 Industry Field Day, UC South Coast Research & Extension Center, Tustin, CA, July 26, 2016. "Root-knot nematode control in carrots, cucumbers and sweet potatoes".

Becker, O. 2016. Vegetable Field Day, UC South Coast Research & Extension Center, Tustin, CA, July 6 (DuPont), 2016. "Root-knot management in vegetable crops".

Becker, O. 2016. Environmental Horticulture Program Team meeting, UCCE Ventura, April 18-19, 2016. "Nematodes in California turf".

Becker, O. 2016. UC Vegetable Crops Program Team Meeting, ANR Building, Davis, CA, Dec 8-9, 2015. "New crop protection products against plant parasitic nematodes." (invited presentation)

Borneman, J. 2016. Work Group Meeting, February 3 2016, Holtville CA, Title: Improving Sugar Beet Economics, Productivity & Sustainability by Modifying the Cropping Decision Model.

du Toit, L. J. Club root of brassicas. Cloud Mountain Farm Center 2016 Farmer Speaker Series, 20 Oct. 2016. A 2-hour workshop for farmers, including hands-on microscope experience, on club root of brassica crops. Taught with Chris Benedict, WSU Whatcom Co. Extension Specialist. Everson, WA. (12 people)

du Toit, L. J. WSU Extension Onion Field Day, 25 Aug. 2016, Skone & Connorr Farm, Othello, WA. Presented onion downy mildew, mycorrhizae, internal dry scale, bacterial bulb rots, and *Iris yellow spot virus* information and research updates to growers, seed industry, extension personnel, researchers, etc. (90 people).

du Toit, L. J. Washington Pest Control Tour of the Washington State Commission on Pesticide Registration, western WA, 27-29 Jul. 2016. Presented on vegetable seed production and research needs, including pathology research, to federal/state legislators or staff, agricultural industry representatives, WA State Depts. of Agriculture, Ecology, and Labor & Industries; WSU CAHNRS administrators, National Marine Fisheries Service, US Environmental Protection Agency, etc. (~50 people)

du Toit, L. J. Oregon/Idaho Simplot Onion Growers' Meeting, 15 Mar. 2016, Ontario, OR. One of four invited onion specialists, to discuss management of onion internal dry scale, bulb rots, thrips, and *Iris yellow spot virus* because of major losses to these problems in Treasure Valley onion bulb crops in the past several years. 4 hour discussion and presentations. (25 people)

du Toit, L. J. WSU Onion Cultivar Storage Demonstration Trial, Pasco, WA, 10 Feb. 2016. Assisted Extension colleagues and onion stakeholders with evaluating replicated plots of 50 onion cultivars for storage rots/quality, by completing storage rot ratings. Organized by Tim Waters & Carrie Wohleb, WSU Extension Educators. (25 people)

du Toit, L. J. Management of damping-off in organic vegetable crops. Invited by ConAgra/Lamb Weston to discuss management of damping-off in organic processing vegetable crops, particularly organic pea crops. Co-led 2.5 hour discussion with L. Porter, USDA ARS plant pathologist, 10 Feb. 2016, Kennewick, WA. (20 people)

du Toit, L. J. 7th Annual Spinach Fusarium Wilt Soil Bioassay Open House, 18-19 Feb. 2016, WSU Mount Vernon NWREC. Open house for spinach seed growers and seed company personnel to observe spinach parent lines ranging from highly susceptible to partially resistant fare in a bioassay test of soil sampled from growers' fields to assess the relative risk of Fusarium wilt. Soil samples (5 gal/field) were received from 31 fields in Dec. 2015 (\$200/field). Stakeholders viewed their soils to make decisions on which fields to select for planting spinach seed crops in 2016.

du Toit, L. J. Invited to give a 4-hour workshop to onion growers for J.C. Watson Packing Co. Presentation and discussion internal dry scale, Fusarium proliferatum, other bulb rots, and general onion disease management. 14 Jan. 2015, Parma, ID. (25 people)

du Toit, L. J. American Seed Trade Association Vegetable Technical Subcommittee Meetings. Gave updates on WSDA Crucifer Quarantine and black leg, white leaf spot, and light leaf spot situation in the Pacific Northwest; WSDA Allium White Rot Quarantine; and spinach Phomopsis project. 6 Jan., 12 Apr., & 8 Jun. 2016 (via conference call, 25 people); prepared presentation on these topics for ASTA Vegetable & Flower Conference, Monterey, CA given in my absence by Philip Brown, Sakata America, 2 Feb. 2016. (75 people)

du Toit, L. J. WSU Organic Agriculture Seed Treatment Needs Assessment conference call. Organized 1.5 hour conference call for organic agriculture stakeholders to discuss seed treatment needs in organic agriculture in Washington State. (15 people)

du Toit, L. J. Gave tours of WSU Mount Vernon NWREC and/or vegetable seed crops in Washington, and discussed vegetable seed production and seed pathology with various public and private groups including: ~50 Mount Vernon High School students (14 Apr.); Edmonds Community College (12 horticulture students, 28 Apr.); Bejo Zaden (4 people, 16 May); Seattle Garden Club (~25 people, 12 May); Skagitonians to Preserve Farmland 5th grade student agricultural tour (92 5th graders, 13 May); Bejo Zaden (3 people from Netherlands, 16 May); Evergreen State College (35 students, 26 May); Mary Zitschke, Chair of California Leafy Greens Research Board (27 Jun.); Juliana Osorio-Marin, Spinach Breeder, Univ. of California-Davis (18 Jul.); Birte Boelt, Seed Crop Specialist, Aarhus University, Denmark (26 Sep.), Washington Sheep Producers' Assoc. (30 people, 28 Oct.).

Elliott, M.E. and Parke, J. L. 2016. *Phytophthora* diseases in native plant production: why should I care, and what can I do about it? Seventh Native Western Plant Conference, Western Forestry Conservation Association. Dec. 6-8, Vancouver, WA. http://westernforestry.org/wp-content/uploads/2016/10/SeventhNativePlants_Elliott_Parke.pdf

Hao, J.J. 2016. Maine Potato Board Field Day. Aroostook Research Farm, Presque Isle, ME. Aug. 23.

Hao, J.J. 2016. Syngenta Field Day. Aroostook Research Farm, Presque Isle, ME. Aug. 17.

Hao, J.J. 2016. "Multi-facet strategies in controlling soilborne diseases of potato." The 31th Annual Maine Potato Conference and Trade Show. Caribou Inn and Convention, ME, Jan. 20-21.

Mazzola, M. 2016. Efficacy of low fumigation rate integrated treatments for Fusarium wilt control. 8 July 2016. California Strawberry Commission Grower Field Day, Watsonville, CA.

Parke, J. L. 2016. Soil solarization in tree seedling beds for management of weeds and soilborne pathogens. Western Disease Conference, Portland, Oregon. January 14, 2016.

Parke, J. L. 2016. Management of *Nostoc* in container nurseries. Western Disease Conference, Portland, Oregon. January 14, 2016.

Parke, J. 2016. Soil solarization for management of pathogens and weeds. Integrated Pest Management for Nursery, Reforestation, and Restoration Programs. Joint annual meeting of the Western Forestry and Conservation Nursery Association and the Intermountain Container Seedling Growers' Association, Sept. 14-15, 2016. Troutdale, OR.

Paulitz, T. C. 2016. Suppression of *Rhizoctonia* in no-till wheat by soil microbes: It takes a community. March 3, 2016. Seminar, University of Idaho, Moscow.

Paulitz, T. C. 2016. Taught for two weeks at the 5th CIMMYT International Master Course in Soilborne Pathogens of Cereals in Eskisehir, Turkey, July, 2016.

Paulitz, T. C. 2016. Root Diseases at ARS- Pullman, What's New? Spokane Farm Forum, Feb. 3, 2016.

Paulitz, T. C. 2016. Blackleg of canola. Grower field day- Pomeroy, WA. May 19, 2016.

Paulitz, T. C. Diseases in Brassica Oilseed Crops. Biofuels Workshop- Colfax, WA. Jan. 19, 2016.

Paulitz, T. C. Diseases in Brassica Oilseed Crops. Biofuels Workshop- Dayton, WA. Jan. 26, 2016.

Paulitz, T. C. Diseases in Brassica Oilseed Crops. Biofuels Workshop- Odessa, WA. Jan. 21, 2016.

Paulitz, T. C. 2016. Soilborne Diseases of Wheat and Barley- Targets of Seed Treatments. Syngenta Workshop, Walla Walla, WA Jan. 29, 2016.

Peterson, E. and Parke, J. L. 2016. Control of foliar infection of rhododendron by *P. ramorum* using film-forming polymers and surfactants. Western Disease Conference, Portland, Oregon. January 14, 2016.

Sanogo, S. Unusual Weather, Changing Disease Picture, and Disease Control in Chile Pepper. New Mexico Chile Conference, NMSU Chile Pepper Institute, Las Cruces, NM (February 2016).

Sanogo, S., Idowu, O. J. Evaluation of Biorational Approaches for Control of Seedling Pathogens, Phytophthora blight and Verticillium wilt in Chile Pepper. New Mexico Chile Commission Annual Meeting, Las Cruces, NM (February 2016).

Sanogo, S. Mycorrhizae: Ecosystem Service Providers-How Good is The Service? New Mexico Organic Conference, NMDA, Albuquerque, NM (February 2016).

Weller, D. 2016. Take-All Decline: A Model for Disease-Suppressive Soils. Huazhong Agricultural University, Wuhan, P. R. China May 19, 2016

Weller, D. 2016. Research in the Wheat, Health, Genetics and Quality Research Unit. Huazhong Agricultural University, Wuhan, P. R. China May 20, 2016.

Weller, D. 2016. Soilborne Pathogens and Biological Control. Huazhong Agricultural University, Wuhan, P. R. China May 23, 2016.