

Dr. Jennifer Randall

Professor

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EDUCATION

Ph.D., 2005 Molecular Biology, New Mexico State University

M.S., 1997 Molecular Biology, Minor: Toxicology, New Mexico State University

B.S., 1992 Biochemistry, New Mexico State University.

PROFESSIONAL EXPERIENCE

2021 - Professor, New Mexico State University
Director of Molecular Biology and Interdisciplinary Life Sciences
Graduate Program

2019 – 2021 Research Professor, New Mexico State University
Director of Molecular Biology Graduate Program

2012 – 2019 Research Associate Professor, New Mexico State University

2005 – 2012 Agriculture Research Scientist and Graduate Faculty Professor,
EPPWS and Molecular Biology, NMSU

2002 - 2005 Graduate Research Assistant III (Ph.D. student), NMSU

1998 - 2002 Specialist I (Technician), NMSU

1995 - 1997 Graduate Research Assistant I (MS student), NMSU

PROFESSIONAL ACTIVITIES

1997- Present American Society of Plant Biologists

2006- Present American Phytopathology Society

2017- Present American Society of Horticultural Science

2013- Present International Society of Horticultural Science

2015 - Present Carya Germplasm Committee, USDA national germplasm system

2016- Present American Society of Microbiology

2013- Present Gamma-Sigma-Delta Agriculture Honor Society (NM President)

2017 Present ISHS Representative for Walnut, Pecan, and Cashew meeting

2021 Member, Undergraduate Student Committee, American Society of
Horticulture Science

2019 Present International Cooperation of Pecan Organizing Committee

2013 Present Serves on a regular basis as *ad hoc* reviewer:
Plant Disease, Plant Pathology, Applied and Environmental
Microbiology, Journal of Crop protection, Journal of Plant
Science, Phytopathology, New Biotechnology, Physiological and
Molecular Plant Pathology, and G3: Genes, Genomes, and
Genetics

HONORS AND AWARDS

2013	Research Excellence Award—New Mexico State University
2015	Research Excellence Award—New Mexico State University
2017	Research Discovery Award—New Mexico State University
2017	Plant Health Response Team Award
2019	Inducted into Aztec Hall of Honor
2020	Outstanding Alumni Award (ACES), New Mexico State University

SELECTED RECENT GRANTS.

1. USDA-NIFA CAP 2022-51181-38332. 2022-2026 “Trees for the future: Coordinated development of genetic resources and tools to accelerate breeding of geographic and climate adapted pecan trees. Project considered a ‘Center of Excellence’. Serves as Project Director.
2. USDA NIFA SCRI 2016-51181-25408; 2016-2022 ‘Coordinated development of genetic tools for pecans’ 4,404,284. Served as Project Director.
3. USDA SPCBG-NMDA: 2020-2023 ‘Pollination and fertilization of pecans’; Project Director.
4. USDA SPCBG-NMDA: 2021-2023 ‘Shaping the New Mexico pecan root-soil microbiome to improve orchard health and productivity. Co-PI.
5. NSF MRI: 2021-2024 ‘Acquisition of a Bio-AFM for soft matter and life science research and research training in New Mexico’; Co-PI.

RESEARCH PUBLICATIONS (Peer-Reviewed—4 years)

Cervantes, K. Velasco-Cruz, C., Grauke, L.J., Wang, X., Conner, P., Wells, L., Bock, C.H., Pisani, C., Randall, J.J., 2023. Influence of Geographical Orchard Location on the Microbiome from the Progeny of a Pecan Controlled Cross. *Plants*. 12(2):360.doi: 10.3390/plants12020360.

Pisani, C., Randall, J.J., and Bock, C. 2022. “Visual Rating and the Use of Image Analysis for Assessing Canopy Foliage Density in a Pecan Provenance Collection During Leaf Fall”, *Journal of Forestry Research*, accepted.

Clermont, K., Graham, C.J., Lloyd, S.W., Grimm, C.C., Randall, J.J., Mattison C.P., 2022. Proteomic analysis of pecan (*Carya illinoensis*) nut development, *Journal of Agricultural and Food Chemistry*, Submitted.

Shadgou Rhein, H., Sreedasyam, A., Cooke, P., Velasco-Cruz, C., Grimwood, J., Schmutz, J., Jenkins, J., Kumar, S., Song, M., Heerema, R.J., Grauke, L.J., **Randall, J.J.** 2022. Comparative transcriptome analyses reveal insights into catkin bloom patterns in pecan protogynous and protandrous cultivars, *PLOS Biology*.

Cervantes, K., Heerema, R.J., **Randall, J.J.**, 2022. The core microbiome of *Carya illinoensis* (pecan) seedlings of different maternal pecan cultivars from the same orchard, *Frontiers in Microbiomes*,
<https://doi.org/10.3389/frmbi.2022.1003112>

- Bock, C.H., Frusso, E., Zoppolo, R., Ortiz, E.R., Shiller, J., Charlton, N.D., Young, C.A., and **Randall, J.J.** 2022. Population genetic characteristics and mating type frequency of *Venturia effusa* from pecan in South America. *Phytopathology* XX: xx. <https://doi.org/10.1094/PHYTO-01-22-0031-R>
- Cervantes, K., Hilton, A.E., Stamler, R.A., Heerema, R.J., Bock, C., Wang, X., Young-Ki, J., Grauke, L.J., **Randall, J.J.** 2022. “Evidence for seed transmission of *Xylella fastidiosa* in pecan (*Carya illinoensis*)”, *Front. Plant Sci.*, <https://doi.org/10.3389/fpls.2022.780335>.
- Bock, C., Charlton, N.D., Shiller, J., **Randall, J.J.**, Young, C.A. 2022. “Population genetic diversity and structure of pecan scab pathogen, *Venturia effusa*, on cv. Desirable and native seedlings, and the impact of marker number”, *Plant Pathology*, <https://doi.org/10.1111/ppa.13551>.
- Lovell, J.T., Bentley, N.B., Bhattarai, G., Jenkins, J.W., Sreedasyam, A., Alarcon, Y., Bock, C., Boston, L., Carlson, J., Cervantes, K., Clermont, K., Krom, N., Kubenka, K., Mamidi, S., Mattison, C., Monteros, M.J., Pisani, C., Plott, C., Rajasekar, S., Shadgou Rhein, H., Rohla, C., Song, M., St. Hilaire, R., Shu, S., Wells, L., Webber, J., Heerema, R.J., Klein, P.E., Wang, X., Grauke, L.J., Grimwood, J., Schmutz, J., and **Randall, J.J.** 2021. “A chromosome-scale pan genome to accelerate breeding in the outbred and diverse tree nut crop, pecan.”, *Nature Communications*, 12, 4125 (2021). <https://doi.org/10.1038/s41467-021-24328-w>.
- Yamagata, H., Noda, K., **Randall, J.J.**, Kamiya, H., Oki, K. 2021. A consecutive monitoring method for pecan orchards and a discovery of a mysterious circle in a pecan orchard using UAV, *Optical Review* 28, pages 738–744 (2021).
- Randall, J.J.**, Cervantes, K., Ray, D.K., Sanchez, A., Mason, K., Fisk, J.N., Soneji, J.R., Sanchez, L., Grauke, L.J., Wang, X., 2021. “Insights into the impact of geography and genetics on the microbiome of *Carya illinoensis*”. *Acta Horticulturae*. 10.17660/ActaHortic.2021.1318.34.
- Ishimori, M., Takanashi, H., Fukami, K., Cervantes, K., Nagano, A.J., Kajiya-Kanegae, H., Grauke, L.J., Tsutsumi, N., **Randall, J.J.**, Iwata, H. 2021. “Genome wide RAD-Seq analysis revealed subpopulation structures of the pecan (*Carya illinoensis*) germplasm collection and their relationship to geographical distribution patterns”, *Acta Horticulturae*. 10.17660/ActaHortic.2021.1318.26.
- Thompson, M., **Randall, J.J.**, Heerema, R.J., 2021. “Differential Expression of Key Floral Initiation Genes in Response to Plant Growth Regulator Application and Alternate Bearing in Pecan” *Journal of the American Society for Horticultural Science*. (Online publish ahead of issue; <https://doi.org/10.21273/JASHS04954-20>).

- Bock, C.H., Alarcon, Y. Conner, P.J., Young, C.A., **Randall, J.J.**, Pisani, C., Grauke, L.J., Wang, X., and Monteros, M.J. 2020. Foliage and fruit susceptibility of a pecan provenance collection to scab, caused by *Venturia effusa*. CABI Agriculture and BioScience 1:19.
<https://cabiagbio.biomedcentral.com/articles/10.1186/s43170-020-00020-9>
- Vereecke, D., Fichtner, E., Lambert, P., Cooke, P., Kilcrease, J., Stamler, R.A., Zhang, Y., Francis, I., **Randall, J.J.**, 2020. “Colonization and survival capacities underlying the multi- faceted life of *Rhodococcus* sp. PBTS1 and PBTS2” Plant Pathology 70:3 pg. 567-583 (<https://doi.org/10.1111/ppa.13307>).
- Hilton, A., Wang, X., Zhang, M., Cervantes, K., French, J., **Randall, J.J.**, Bock, C., Grauke, L.J., Jo, Y.K. 2020. “Improved methods for detecting *Xylella fastidiosa* in pecan and related *Carya* species.” European Plant Pathology,. 157:899–918 (<https://doi.org/10.1007/s10658-020-02050-5>).
- Wang, X., Shadgou Rhein, H., Jenkins, J., Schmutz, J., Grimwood, J., Grauke, L.J., **Randall, J.J.**, 2020. “Chloroplast genome sequences of *Carya illinoensis* from two distinct geographic populations.” Trees and Genomes, 16:48.
(<https://doi.org/10.1007/s11295-020-01436-0>)
- Vereecke, D., Zhang, Y. Francis, I., Lambert, P., Venneman, J., Stamler, R.A., Kilcrease, J., and Randall, J.J. 2020. “Functional genomics insights into the pathogenicity, habitat fitness, and mechanisms modifying plant development in *Rhodococcus* sp. PBTS 1 and PBTS 2. Frontiers of Microbiology.
<https://doi.org/10.3389/fmicb.2020.00014>
- Lujan, P., Dungan, B., Holguin, O., Sanogo, S., Puppala, N., **Randall, J.J.**, 2019. “The role of carbon sources in relation to pathogenicity of *Sclerotinia sclerotiorum* on Valencia peanut”. Canadian Journal of Plant Science.
<https://doi.org/10.1139/CJPS-2018-0203>.
- Thompson, M.Y., **Randall, J.J.**, Heerema, R.J., VanLeeuwen, D., 2019. “Exogenous Plant Growth Regulators Show Promise for Management of Alternate Bearing in Pecans”. HortScience 54(7) pgs. 1204-1207.
- Huang, Y., Xiao, L., Zhang, R., Wang, Z., Zhang, Z., Huang, C., Huang, R., Luan, Y., Fan, T., Wang, J., Shen, C., Zhang, S., Wang, X., **Randall, J.J.**, Zheng, B., Wu, J., Zhang, Q., Xia, G., Xu, C., Chen, M., Zhang, L., Jiang, W., Gao, L., Chen, Z., Leslie, C.A., Grauke, L.J., Huang, J., 2019. “The genomes of pecan and Chinese hickory provide insights into *Carya* evolution and nut nutrition”, GigaScience. May 1, 8(5).
- Tuskan, G.A., Groover, A.T., Schmutz, J. DiFazio, S.P., Myburg, A., Grattapaglia, D., Smart, L., Yin, T., Aury, J.M., Kremer, A., Leroy, T., LeProvost, G., Plomion, C., Carlson, J.E., **Randall, J.J.**, Westbrook, J., Grimwood, J., Muchero, W.,

Jacobson, D., Michener, J.K. 2018. Hardwood tree genomics: Unlocking woody plant biology. *Frontiers in Plant Science*.
www.frontiersin.org/article/10.3389/fpls.2018.01799, 2018.

Bock, C.H., Oliver, J.E., Chen, C., Hotchkiss, M.E., Stevenson, K.L., Wang, X., Grauke, L.J., Hilton, A.E., Jo, Y.K., and **Randall, J.J.**, 2018. "Pecan bacterial leaf scorch, caused by *Xylella fastidiosa*, is endemic in Georgia pecan (*Carya illinoensis*) orchards". *Plant Health Progress*, 19(4), 284-287. doi.org/10.1094/PHP-08-18-0045-S.

Randall, J.J., Stamler, R.A., Kallsen, C.E., Fichtner, E.J., Heerema, R.J., Cooke, P., Francis, I., 2018. "Comment on Evolutionary transitions between beneficial and phytopathogenic *Rhodococcus* challenge disease management". *eLife* 2018;7:e35272DOI:10.7554/eLife.35272

Invited Talks (selected)

- a. Invited to present 'Pecan Seed to Seedling transmission of *Xylella fastidiosa*', Tri-state Pecan Growers Association, Louisiana, June 17, 2022.
- b. Invited to present 'Advances in Pecan Genetics', Georgia Pecan Growers Association, March 2022.
- c. Invited to present 'Advancements in genetic tools for the industry', Arizona Pecan Growers Association, Tuscon, AZ, August 27, 2021.
- d. Invited to present 'Shaping the future of the pecan industry through genetics', Texas Pecan Growers Association, San Marcos, TX July 2021.
- e. Invited to present 'Pecan Genetics-Shaping the future of pecans'. Oklahoma Pecan Growers Association, On-line June 2020.
- f. Invited to present the paper "Alternate bearing and flowering gene networks in *Carya illinoensis* (pecans)" at the Plant and Animal Genome Conference, San Diego, CA, 2020.
- g. Invited to present the paper "Pecan genetic improvement" at the Western Pecan Growers Conference, Las Cruces, NM, 2020.
- h. Invited to present the paper "Pecan genetic tools emerging" at the Arizona Pecan Growers Association Conference, Tuscon, AZ, 2020. (Virtual)
- i. Invited to present the paper "Genetic tools for pecans" at the XXI Simposio Internacional de Nogal Pecanero Meeting, Hermosillo, Mexico, 2020. (Virtual)
- j. Invited to present the paper "The National Pecan Germplasm Repository: Linking the past, present, and future through databases" at the American Society of Horticultural Science Meeting, Washington, D.C., 2018.
- k. Invited to present the paper "Pecan genetics and the future!" at the Georgia Pecan Growers Association Annual Meeting, Tifton, GA, 2017.
- l. Invited to present the paper "The impact of genetics, environment, and biotechnology on future pecan (*Carya illinoensis*) nut production" at the University of Tokyo, Japan, 2017.
- m. Invited to present the paper "Pecan genetics and clonal pecan rootstock" at the XVIII Simposio Internacional de Nogal Pecanero, Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias Meeting, Hermosillo, Mexico, 2017.

- n. Invited to present the paper “Development of genetic tools for pecan” at the American Society of Horticultural Science, USDA-NIFA PI Workshop, Waikoloa, HI, 2017.
- o. Invited to present the research update “PBTS *Rhodococcus spp.* effects on pistachio flowering, fruit development, and nut abortion” to the California Pistachio Research Board, Visalia, CA, 2016.
- p. Invited to present the seminar “Pistachio Bushy Top Syndrome research updates, microscopy, genomes, and control measures” at the California Pistachio Day, Visalia, CA, 2016.
- q. Invited to present the paper “Pecan rootstock cloning, a new chapter” at the Texas Pecan Growers Association Conference, San Marcos, TX, 2016.
- r. Invited to present the paper “Pecan cloning breakthrough” at the Arizona Pecan Growers Association Conference, Tucson, AZ, 2016.
- s. Invited to present the seminar “The future of pecan genetics” at the Western Pecan Production Short Course, Las Cruces, NM, 2016.
- t. Invited to present the paper “Pecan genetic research and the future of the pecan industry” at the New Mexico Pecan Growers Association Annual Meeting, Las Cruces, NM, 2016.
- u. Invited to present the seminar “Pistachio Bushy Top Syndrome” at the California Pistachio Day, Visalia, CA, 2015.
- v. Invited to present the research update “*Rhodococcus fascians* and the pistachio industry” to the California Pistachio Research Board, Kearney, CA, 2015.
- w. Invited to present the paper “Pistachio Bushy Top Syndrome. Disease etiology and diagnosis procedures” at the Pistachio Bushy Top Workshop, Kearney Agricultural Research Center, Parlier, CA, 2015.
- x. Invited to present the paper “Initiation of flowering and alternate bearing in pecan” at the Programa del XVI Simposio Internacional de Nogal Pecanero Meeting, Hermosillo, Mexico, 2015.
- y. Invited to present the paper “Pistachio Bushy Top Syndrome and *Rhodococcus*: What we know and on-going research” at the Pistachio Bushy Top Workshop, Bakersfield, CA, 2015.