

IVETTE GUZMÁN, PH.D.

Plant and Environmental Sciences Department
(575) 646-1914; ivguzman@nmsu.edu

New Mexico State University
Las Cruces, New Mexico 88005

Education

Ph.D. 2009, Agronomy and Horticulture, New Mexico State University
“Carotenogenesis of Orange Color in *Capsicum annuum*”

M.S. 2005, Biology, Texas Woman’s University
“Isolation and Characterization of Mulberry Phytoestrogens”

B.S. 2001, Biology, University of Texas at San Antonio

Appointments

Associate Professor of Horticulture (2022 – Present) New Mexico State University, Las Cruces, NM

Assistant Professor of Horticulture (2016 – 2022) New Mexico State University, Las Cruces, NM

Biology Associate Faculty (2016) Richland College, Dallas, TX & Collin College, McKinney, TX

- Undergraduate science course for general education requirements and biology majors

Science Program Educator (2015) Dallas Arboretum and Botanical Society, Dallas, TX

- Developed plant biology outreach programs for K-12 students in the urban Dallas community.

Quality Control Lab Manager (2014) Vitality Works, Albuquerque, NM

Vitality Works is an herbal, nutraceutical, natural product, and dietary supplement manufacturer.

- Supervise a team of QC lab technicians.
- Designing and developing in-house chemical analytical lab
- Assured that maintenance of NSF Good Manufacturing Practices (GMP), Kosher and FDA compliances. Validate all raw materials for use in processing of intermediate and final products.

Assistant Professor of Biology (2013 – 2014) Northern New Mexico College, Española, NM

- Biology and Chemistry Undergraduate curriculum
- Career and degree advisement of undergraduates seeking a Bachelor’s of Science in Biology

Postdoctoral Research Associate (2010 – 2013) North Carolina State University

- Research Objectives: 1) Analyzed phytochemicals within plant populations by correlating metabolic and genetic profiles, in an effort to aid horticultural breeders wanting to increase bioactive compounds in plants, 2) Researched bioactive medicinal nutraceutical compounds in blueberry, cranberry, and mango used in

developing novel formulations with health-enhancing ingredients, funded by Gates Foundation.

Graduate PhD Research Assistantship (2005 – 2009) New Mexico State University

- Research: Discovery of genetically diverse peppers with unique carotenoid biosynthesis.

Graduate MS Research Assistantship (2002 – 2005) Texas Woman's University, Denton, TX

- Isolation and characterization of unique mulberry phytoestrogen bioactive compounds.

Peer-Reviewed Publications *Graduate student **Undergraduate student

1. *Wood, J., Cramer, C., Steiner, R. L., Heerema, R., Schutte, B. J., Guzman, I. (in press). Onions Selected for Reduced Symptom Expression of Iris Yellow Spot Have Higher Photosynthetic Rates. To appear in HortScience., Date Submitted: September 2022, Date Accepted: December 16, 2022.
2. Mozaffari, K., Willette, S., Lucker, B.F., Kovar, S.E., Holguin, F.E., and Guzman, I. (2021) The Effects of Food on Cannabidiol Bioaccessibility. *Molecules*. 26(12), 3573.
3. *Lujan, P., *Dura, S., Guzman, I., Grace, M. Lila, M.A., Steiner, R., and Sanogo S. (2021) Efficacy of Pecan Husk and Shell Phenolic Extracts Against Phytophthora Blight in Chile Pepper. *Plant Health Progress*. 22(3):342-347.
4. *Dura, S., *Lujan, P., Guzman, I., Stienen, R., Sanogo, S. (2021) A Field Evaluation of Jalapeno and Non-Jalapeno Chile Pepper Resistance to Phytophthora Blight Caused by *Phytophthora capsici*. *Plant Health Progress*. 22(3): 309-315.
5. Hongkai Liao, Chunli Zheng, Jian Long, Ivette Guzmán (2021) Effects of Biochar Amendment on Tomato Rhizosphere Bacterial Communities and Their Utilization of Plant-Derived Carbon in a Calcareous Soil. *Geoderma*, 396:115082
6. McKenzie, C., Velasco-Cruz, C., Bosland, P., Guzman, I. (2021) Photosynthetic Pigments Profiled in *Capsicum Lutescens* Mutants. *Journal of the American Society for Horticultural Science*. (In press).
7. Cramer, C.S., Mandal, S., Sharma, S., Nourbakhsh, S.S., Goldman, I., Guzman, I. (2021) Recent Advances in Onion Genetic Improvement. *Agronomy*. 11(3):482. <https://doi.org/10.3390/agronomy11030482>
8. Lozada, D.N., Coon, D.L., Guzman, I., Bosland, P.W. (2021) Heat Profiles of 'Superhot' and New Mexican Type Chile Peppers (*Capsicum* spp.). *Scientia Horticulturae*. 283: 110088
<https://doi.org/10.1016/j.scienta.2021.110088>
9. Singh, J., Guzman, I., Begna, S., Trostle, C., Angadi, S. (2020) Germination and Early Growth Response of Guar Cultivars to Low Temperatures. *Industrial Crops and Products*, 159, 113082.
<https://doi.org/10.1016/j.indcrop.2020.113082>

10. Guzman, I., Vargas, K., Chacon, C., McKenzie, C., and Bosland P.W. (2020) Thirty-one Shades of Yellow: A Study of Health Promoting Compounds in *Capsicum* Germplasm. HortScience. 56: 36-41.
<https://doi.org/10.21273/HORTSCI15039-20>
11. Guzman, I., Coon, D., Vargas, K., and Bosland, P.W. (2020) NuMex LotaLutein, a High-lutein Serrano Pepper. HortScience, 55(12), 2052-2055. <https://doi.org/10.21273/HORTSCI14949-20>
12. *Wood, J.B., Schutte, B.J., Sanogo, S., and Guzman, I. (2020) Water Availability Influences the Inhibitory Effects of Mustard Seed Meal on Palmer Amaranth (*Amaranthus palmeri*) and *Verticillium dahlia*. Journal of Weed Technology. DOI: <https://doi.org/10.1017/wet.2020.52>
13. *Cormier, J., Heyduck, R., Guldan, S., Yao, S., VanLeeuwen, D., and Guzman, I. (2019) Intercropping Winter Greens between Blackberry Rows for Year-Round High Tunnel Production. HortTechnology. 30:47-54.
14. Heyduck, R., Guldan, S. and Guzman, I. (2019) Effect of Sowing Date and Harvest Schedule on Organic Spinach Grown During the Winter in High Tunnels. HortTechnology. 29:320-329.
15. Guzman, I. and Bosland, P.W. (2017) Sensory Properties of Chile Pepper Heat - and it's importance to food quality and cultural preference. Appetite. 117:186-190.
16. Yousef, G.G., Brown, A.F., Guzman, I., Ballington, J.R., and Lila, M.A. (2016) Variations in chlorogenic acid levels in an expanded gene pool of blueberries. AIMS Agriculture and Food. 1(3): 357-368.
17. Brown, A., Yousef, G., Guzman, I., Chebroly, K., Werner, D., Parker, M., Gasic, K., and Perkins-Veazie, P. (2015) Variation of Carotenoids and Polyphenolics in Peach and Implications on Breeding for Modified Phytochemical Profiles. Journal of the American Society for Horticultural Science. 139:1–11.
18. Guzman, I., Grace, M., Yousef, G.G., Raskin, I., and Lila, M.A. (2015) Novel Strategies for Capturing Health-Protective Mango Phytochemicals in Shelf Stable Food Matrices. International Journal of Food Sciences and Nutrition. (doi:10.3109/09637486.2014.979315)
19. Yousef, G.G., Grace, M.H., *Guerrero Medina, J.L., Neff, S., Guzman, I., Brown, A.F., Raskin, I., and Lila, M.A. (2014) Concentrating Immunoprotective Phytoactive Compounds from Fruits and Vegetables into Shelf-stable Protein-rich Ingredients. Plant Foods for Human Nutrition [QUAL-D-14-00289R1]
20. Brown, A.F., Yousef, G.G., Chebroly, K.K., **Byrd, R.W., Everhart, K.W., Thomas, A., Reid, R.W., Parkin, I.A., Sharpe, A.G., Oliver, R., Guzman, I., and Jackson, E.W. (2014) High-density single nucleotide polymorphism (SNP) array mapping in Brassica oleracea: identification of QTL associated with carotenoid variation in broccoli florets. Theoretical and Applied Genetics. 127(9):2051-2064.
21. Yousef, G.G., Lila, M.A., Guzman, I., Ballington, J. and Brown, A.B. (2014) Impact of Interspecific Introgression on Anthocyanin Profiles of Southern Highbush Blueberries (*Vaccinium* spp.) Journal of the American Society for Horticultural Science. 139:99-112.
22. Grace, Mary, Guzman, I., Roopchand, D.E., Moskal, K., Cheng, D.M., Pogrebnyak, N., Raskin, I., Howell, A., and Lila, M.A. (2013) Stable binding of alternative protein-enriched food matrices with concentrated cranberry bioflavonoids for functional food applications. Journal of Agricultural and Food Chemistry. 61(28):6856–6864.

23. Guzman, I., Yousef, G.G., and Brown, A.F. (2012) Simultaneous extraction and quantitation of carotenoids, chlorophylls, and tocopherols in *Brassica* vegetables. *Journal of Agricultural and Food Chemistry*. 60(29):7238-7244.
24. Rodriguez, L., Guzman, I., *Rajapakse, W., Richins, R.D., and O'Connell, M.A. (2012) Carotenoid accumulation in orange pigmented *Capsicum annuum* fruit, regulated at multiple levels. *Journal of Experimental Botany*. 63(1):517-526.
25. Guzman, I., **Hamby, S., **Romero, J., Bosland, P.W., and O'Connell, M.A. (2010) Variability of carotenoid biosynthesis in orange colored *Capsicum* spp. *Plant Science*, 179:49-59.

Book Chapters

1. Guzman, I. and Bosland, P.W. (2018) **A Matter of Taste: Capsaicinoid Diversity in Chile Peppers and the Importance to Human Food Preference**. In Mozsik, Gyula (Ed.), *Capsaicin and its Human Therapeutic Development*. Rijeka: IntechOpen. <https://doi.org/10.5772/intechopen.77317>
2. Guzman, I., Bosland, P. W., and O'Connell, M.A. (2011) **Heat, color and flavor compounds in Capsicum Fruit** in *The Biological Activity of Phytochemicals*. Ed. David R. Gang. Springer, New York. 109-126.

Meeting Abstracts and Presentations *Graduate student **Undergraduate student

- Gomez, C. and Guzman, I. Undergraduate Research and Creative Arts Symposium, NMSU Honors College, "Peak Photosynthesis in Onion Species". (April 29, 2022).
- Lucker, A., Consford, J., Guzman, I., Schutte, B. J., Shukla, M. K., Trainor, P., Picchioni, G., American Society of Horticultural Science 2022 Annual Conference, American Society of Horticultural Science, Chicago, IL, "Utilization of Brackish Groundwater on Halophytes for Human Health" (July 30, 2022).
- Lucker, A., Consford, J., Guzman, I., Schutte, B. J., Shukla, M. K., Trainor, P., Picchioni, G., American Society of Horticultural Science 2022 Annual Conference, American Society of Horticultural Science, Chicago, IL, "Comparing Secondary Metabolite Production in Swiss Chard and Leaf Lettuce Irrigated with Brackish Groundwater" (July 30, 2022).
- Wood, J., Garcia, D., Hanson, S. F., Walker, S., Guzman, I., International Pepper Conference, Tucson, AZ, "Carotenoid profiles of yellow, orange and red chile pepper breeding lines" (September 28, 2022).
- Gomez, C. and Guzman, I. (2022) National Diversity in STEM Conference, Society for the Advancement of Chicanos and Native Americans in Science, San Juan, Puerto Rico, "Peak Photosynthesis in Allium Species", (October 27, 2022).
- Angadi, S., Singh, J., Singh, P., Begna, S., Gowda, P., Guzman, I., Idowu, O. J. (2021) ASA-CSSA-SSSA International Annual Meeting, ASA-CSSA-SSSA Societies, Salt Lake City, UT, "Reducing Irrigation Water Use By Desert Crop Guar Using Deficit Irrigation Strategies"
- Guzman, I. (2021) SACNAS National Diversity in STEM (NDiSTEM) Digital Conference, SACNAS, "A Matter of Taste: Chile Capsaicinoids" (October 25, 2021).
- Guzman, I. Alvarez Zavala, M. (2021) SACNAS National Diversity in STEM (NDiSTEM) Digital Conference, SACNAS, virtual, "Phenolic and Carotenoid Characterization in Prickly Pears (*Opuntia* spp.)" (October 25, 2021).
- Wood, J., Cramer, C., Steiner, R. L., Schutte, B. J., Heerema, R., Guzman, I., (2021) Botany Virtual Conference, "Allium physiological response to biotic and abiotic stress." (August 11, 2021).
- Guzman, I., Alvarez Zavala, M. (2021) ASHS Annual Conference, ASHS, "Nutraceutical Compounds in *Opuntia* Species" (August 5, 2021).

- Mozaffari, K. and Guzman, I. (2021) Phytochemical Society of North America Annual Meeting, Phytochemical Society of North America, virtual, "The pharmacokinetics of digesting Cannabis derived compounds".
- Mozaffari, K. and Guzman, I. (2021) American Council for Medicinally Active Plants Annual Conference, American Council for Medicinally Active Plants, virtual, "Employing an in vitro Digestion Model to Determine the Absorption of Medicinal Chile Compounds".
- Dura, S., Sanogo, S. and Guzman, I. (2021) A field evaluation of jalapeño and non-jalapeño chile pepper resistance to Phytophthora blight caused by Phytophthora capsici. Annual New Mexico Chile Conference, Las Cruces, NM.
- Guzman, I. (2021) A Guide to Developing Your Chile Palate. Annual New Mexico Chile Conference. Las Cruces, NM.
- Guzman, I., **Shakir, A. (2021) New Mexico Chile Waste Products. Annual New Mexico Chile Conference. Las Cruces, NM.
- Guzman, I., *Vargas, K., McKenzie, C. and Bosland, P. (2020) *Capsicum* carotenoids and Their Human Gut Bioavailability. American Society for Horticultural Science Conference, Virtual (August 10 – 13)
- *Wood, J.B., Guzman, I., Cramer, C., Heerema, R., Schutte, B., and Steiner, R. (2020) Effects of Deficit Irrigation and Iris Yellow Spot Virus on Onion Photosynthesis. American Society for Horticultural Science Conference, Virtual (August 10 – 13)
- *Chacon, F., Cramer, C. and Guzman, I. (2020) Leaf Area Index as an Indicator of Phenology and Dormancy in *Allium cepa* (L.) Virtual Botany Conference (July 27 – 30)
- *Swanson, A., *Gaurav, J., Pietrasiak, N., *Creegan, E., Guzman, I. and Ulery, A. (2020) NMSU Composting Club: Teaching through Hands-On Experience. 2020 North American Colleges and Teachers of Agriculture Conference, Virtual (June 16 -18)
- Guzman, I., *Dura, S. and Long, M. (2020) A Complete On-Campus Food System: From the Classroom Farm to the University Pantry. 2020 North American Colleges and Teachers of Agriculture Conference, Virtual (June 16 -18)
- *Shakir, A., Guzman, I. and Delgado, E. (2020) Identification and analysis of carotenoids in chile waste. New Mexico Chile Conference, Las Cruces, NM (February 4).
- Rogus, S., Guzman, I. and Delgado, E. (2020) Transforming Chile By-Products into Value Added Products. New Mexico Chile Conference, Las Cruces, NM (February 4).
- *Lujan, P., Guzman, I. and Sanogo, S. (2020) Using pecan byproduct extracts as novel elicitors for induced resistance against soilborne pathogens. New Mexico Chile Conference, Las Cruces, NM (February 4).
- *Dura, S., *Lujan, P., Sanogo, S., Guzman, I. and Steiner, R. (2020) Reduction of Phytophthora blight severity and its relation to temporal changes in total phenolic content in Jalapeño pepper inoculated with *P. capsici*. New Mexico Chile Conference, Las Cruces, NM (February 4).
- **Vargas, K., *McKenzie, C., Bosland, P., and Guzman, I. (2020) In search of nutraceuticals in *Capsicum* species. New Mexico Chile Pepper Conference, Las Cruces, NM (February 4).
- **Lucero, Y., *McKenzie, C., Guzman, I., Stanford, M. L. (2019) Southern New Mexico dietary practices and carotenoid content in traditional Mexican meals. NMSU Research and Creativity Week, NMSU, Las Cruces, NM (November 15). First Prize Poster Winner
- *McKenzie, C., Dungan, B., Holguin, F. O., Guzman, I. (2019) New Method for Analysis of Free Xanthophylls and Xanthophyll Esters using UPLC-ESI-MS/MS. Food Chemistry and Technology Conference, Los Angeles, CA (November 4, 2019).
- **Vargas, K., Guzman, I. (2019) In search of nutraceuticals in yellow *Capsicum* species. SACNAS National Diversity in STEM Conference, Society for Advancement of Chicanos/Hispanics and Native Americans in Science, Honolulu, HI (October 31).
- **Chacon, F., Guzman, I. (2019) New Mexico's Superfood: Chile Peppers. SACNAS National Diversity in STEM Conference, Society for Advancement of Chicanos/Hispanics and Native Americans in Science, Honolulu, HI (October 31).

- Guzman, I., **Vargas, K., *McKenzie, C., **Chacon, F. (2019) From Farm to Cell: A look at lutein in Capsicum fruit and its nutraceutical properties. 17th EUCARPIA Meeting Genetics and Breeding of *Capsicum* and Eggplant, Avignon, France (September 12).
- **Ramirez, S., Guzman, I., Fuentes-Soriano, S. (2019) The more the merrier? Bioprospecting the bitterness of cytogenetic variants from creosote (*Larrea tridentata* (DC.) Coville, Zygophyllaceae) in the Sonoran and Chihuahuan desert. Botanical Society of America, Tucson, AZ (July 29)
- *Dura, S., *Lujan, P., Sanogo, S., Guzman, I. and Steiner, R. (2019) Reduction of Phytophthora blight severity and its relation to temporal changes in total phenolic content in Jalapeño pepper inoculated with *P. capsici*. Annual American Phytopathological Society Pacific Division Meeting. Fort Collins, CO (July 25-27).
- **Vargas, K., Guzman, I., (2019) In search of nutraceuticals in *Capsicum* species. URCAS, NMSU, Las Cruces, New Mexico (April 26).
- **Chacon, F., Guzman, I. (2019) New Mexico's superfood: Chile peppers. URCAS, NMSU, Las Cruces, NM (April 26, 2019).
- **Lucero, Y., *McKenzie, C., Guzman, I., Dooley, B., Stanford, M. L. (2019) Southern New Mexico dietary practices and carotenoid content in traditional Mexican meals. URCAS, NMSU, Las Cruces, NM (April 26).
- **Ramirez, S., Guzman, I., Fuentes-Soriano, S. (2019) The more the merrier? Bioprospecting the bitterness of cytogenetic variants from creosote (*Larrea tridentata* (DC.) Coville, Zygophyllaceae) in the Sonoran and Chihuahuan desert. URCAS, NMSU (April 26).
- **Casiano, L., **Gray, T., **Torres, A., Sangami, A., Guzman, I., Serrano, E. (2019) The synergistic effect of capsaicin and dihydrocapsaicin for the treatment of glioblastoma. URCAS NMSU, Las Cruces, NM (April 24).
- **Lucero, Y., *McKenzie, C., Dooley, B., Stanford, M. L. and Guzman, I. (2019) Southern New Mexico dietary practices and carotenoid content in traditional Mexican meals. New Mexico Academy of Nutrition and Dietetics, Academy of Nutrition and Dietetics, Albuquerque, NM (April 12).
- **Lucero, Y., *McKenzie, C., *Dooley, B., Stanford, M. L. and Guzman, I. (2019) Southern New Mexico dietary practices and carotenoid content in traditional Mexican meals. ACES Open House, NMSU, Las Cruces, NM (April 6). First Prize Poster Winner
- **Vargas, K., Guzman, I. (2019) In search of nutraceuticals in yellow *Capsicum* species. ACES Open House, NMSU, Las Cruces, NM (April 6). Second Place Prize Poster Winner
- **McKenzie, C., Dungan, B., Holguin, F. O., Guzman, I. (2019) New method for analysis of free xanthophylls and xanthophyll esters using UPLC-ESI-MS/MS. ACES Open House, NMSU, Las Cruces, NM (April 4).
- *Wood, J. B., Schutte, B. J., Sanogo, S., Guzman, I., (2019) Mustard seed meal effects on Palmer Amaranth (*Amaranthus palmeri*) seedbanks. Annual Meeting of the Western Society of Weed Science, Denver, CO (March).
- *McKenzie, C., Dungan, B., Holguin, F. O., Guzman, I. (2019) New method for analysis of free xanthophylls and xanthophyll esters using UPLC-ESI-MS/MS. New Mexico Chile Conference, Las Cruces, NM (February 5).
- **Garcia, D., Guzman, I. (2019) Quantitation of b-carotene, provitamin A, in dietary supplements and *Capsicum annuum*. New Mexico Chile Conference, Las Cruces, NM (February 5, 2019).
- **Lucero, Y., *McKenzie, C., Guzman, I., Dooley, B., Stanford, M. L. (2019) Southern New Mexico dietary practices and carotenoid content in traditional Mexican meals. New Mexico Chile Conference, Las Cruces, NM (February 5).
- *Singh, J., Angadi, S., Begna, S., Vanleeuwen, D., Idowu, J. and I. Guzman (2019) Drought response and yield formation of guar under different water regimes in the Southern High Plains. ASA-CSSA-SSSA International Annual Meeting San Antonio (November 10-13)

- *Singh, J., Angadi, S., Begna, S., Vanleeuwen, D., Idowu, J. and I. Guzman (2019) Evaluating the effect of different irrigation practices on guar in the Southern High Plains. Western Society of Crop Science Annual Meeting. Tri-Cities, WA (June 25-26).
- *Singh, J., Angadi, S., Begna, S., Vanleeuwen, D., Idowu, J. and I. Guzman (2020). Sustaining irrigation water of the Southern High Plains using guar. The New Mexico Alternative Crops Conference. Portales, NM (March 10).
- *Singh, J., Angadi, S., Begna, S., Vanleeuwen, D., Idowu, J. and I. Guzman (2019) Water extraction patterns of guar under different irrigation strategies in the Southern High Plains. Western Society of Crop Science Annual Meeting. Tri-Cities, WA (June 25-26).
- *Singh, J., Angadi, S., Begna, S., Vanleeuwen, D., Idowu, J. and I. Guzman (2019) Sustaining water resources using guar crop under different irrigation practices. ACES Open House, Las Cruces, NM (April 6).
- *Wood, J., Schutte, B., Sanogo, S. and Guzman, I. (2019) Mustard seed meal effects on Palmer Amaranth (*Amaranthus palmeri*) seedbanks. Western Society of Weed Science, March 11-14, Denver, CO.
- *McKenzie, C., Dungan, B., Holguin, F.O., and Guzman, I. (2019) Novel Method for Characterizing Valuable Nutraceuticals in *Capsicum* spp. New Mexico Chile Pepper Conference, February 5, Las Cruces, NM (February 5).
- **Garcia, D. and Guzman, I. (2019) Evaluating Dietary Supplements and Chile Peppers for Pro-vitamin A Content. Chile Pepper Conference, February 5, Las Cruces, NM.
- **Lucero, Y., McKenzie, C., Mamenova, R., O'Donnell, B., Stanford, L., and Guzman, I. (2019) From Traditional to Medicinal: Carotenoids in Enchiladas and Posole. Chile Pepper Conference, February 5, Las Cruces, NM.
- **Vargas, K., *McKenzie, C., Bosland, P.W., and Guzman, I. (2019) In Search of Nutraceuticals in Yellow *Capsicum* species. Chile Pepper Conference, February 5, Las Cruces, NM.
- **Chacon, F., **Vargas, K., and Guzman, I. (2019) New Mexico's Superfood: Chile Peppers. Chile Pepper Conference, February 5, Las Cruces, NM.
- **Garcia, D. and Guzman, I. (2018) Evaluating Dietary Supplements and Chile Peppers for Pro-vitamin A Content. The National Diversity in STEM Conference, Society for the Advancement of Chicanos/Hispanics & Native Americans in Science, October 11, San Antonio, TX.
- **Vargas, K., Bosland, P.W., and Guzman, I. (2018) In Search of "Nutri-chemicals" in Yellow *Capsicum* species. American Society for Horticultural Science 2018 Annual Conference, July 30, Washington, D.C.
- *Cormier, J., Heyduck, R., Yao, S., Guldán, S. J. and Guzman, I. (2018) Intercropping Winter Greens between Cane Fruit Rows for Year-Round High Tunnel Production. American Society for Horticultural Science 2018 Annual Conference. July 30, Washington, D.C.
- **Vargas, K., Richins, R., Bosland, P.W., and Guzman, I. (2018) "In Search for "Nutri-chemicals" in Yellow *Capsicum* species" Chile Pepper Conference, February 7, Las Cruces, NM. (First Prize Student Poster Winner)
- *Cormier, J., Heyduck, R., Yao, S., Guldán, S., and Guzman, I. (2017) Intercropping Winter Greens Between Cane Fruit Rows for Year-Round High Tunnel Production" New Mexico Sustainable Agriculture Conference, December 13, Los Lunas, NM.
- **Vargas, K., Bosland, P.W., and Guzman, I. (2017) "In Search for "Nutri-chemicals" in Yellow *Capsicum* species" Chile Pepper Conference, February 7, Las Cruces, NM. First Prize Student Poster Winner
- **Justin Salazar, Northern New Mexico College Research Day "Development of *Capsicum annuum* callus protocols" Spring 2014
- **Leorrie Atencio, Northern New Mexico College Research Day "Isolation and Characterization of Antioxidants in Carrots (*Daucus carota*) spring 2014
- **Lorina Garcia Northern New Mexico College Research Day "Survey of Northern New Mexico Chile: Looking at Medicinal and Nutritional Compounds" spring 2014
- **Joel Martinez Northern New Mexico College Research Day "Chlorophyll Concentration and Antibacterial

Properties in Culinary Herbs” spring 2014

Awarded Grants and Sponsored Research

- 2022: Co-PI, USDA NIFA, "Expanding Organic Systems to Reduce Water Demand and Increase Agricultural Resilience in the Southwest"
- 2021: Co-PI, USDA NIFA, "Innovators from Marginalized Communities: Interactive Labs which Help Students See Themselves in Agricultural Careers"
- 2021: PI, NIH U54 Program, "Improving Bioavailability of Cancer Preventive Phytonutrients in New Mexican Diets"
- 2021: Co-PI, NMSU Chile Association Competitive Grants Program, "Savor the Flavor: Characterization and Marketing of New Mexico Red Chile Sauces"
- 2021: Co-PI, NMSU Competitive Grants Program, "Targeted Approaches for Improving the Competitiveness of Chile Production in NM"
- 2021: Co-PI, USDA NIFA, "Exploring the Benefits of Brackish Water and Halophytes for Human Health"
- 2021: Co-PI, NMSU Competitive Grants Program, "The Future of Farming in an Increasingly Arid New Mexico: A Water Demand-Reduction Protocol that Supports Farmer Transitions to Resilient High-Value Crops and Water Management"
- 2021: Co-PI, USDA AFRI, "Enhancing the nutritional quality and yield of New Mexican chile peppers (*Capsicum* spp.) using genomics-assisted breeding."
- 2020: PI, NMSU Competitive Operations Award, "Gut Bioavailability of Medicinal Foods and High-Value Compounds"
- 2020: PI, New Mexico Chile Association Award, "Chile Nutrition: Employing Human Cells to Determine the Absorption of Chile Compounds by the Human Gut"
- 2019: PI, Trait Biosciences, Inc. Award "Pharmacokinetics for Modified Cannabinoids and Terpenes, Simulated Human Digestion Protocol"
- 2019: PI, ACES AES Operations Research Award "Characterizing Hemp Nutraceuticals During in vitro Human Gut Digestion"
- 2019: Co-PI ACES AES Research Award "Interdisciplinary Approach to Transforming Agroindustrial By-products into Value-Added Products"
- 2018: Co-PI, USDA NIFA "Characterization of Onion Phenotypes Exhibiting Fewer Iris Yellow Spot (IYS) Symptoms and Release of Onion Germplasm for IYS Mitigation"
- 2017: PI, NMSU Vice President of Research Impact Grant "The Impact of Southern New Mexican Dietary Practices on Gut Bioavailability of Health Promoting Carotenoids"
- 2014: PI, Los Alamos National Laboratory Foundation, "Best 4 Kids: Northern New Mexico Pueblo and Rio Arriba STEM and Food Research Learning"

Inventions & Patent Disclosures

Lila, M.A., Guzman, I., Grace, M.H. "One Step Natural Phytoactive Fortification and Stabilization of Edible Oils". File # 13205. Provisional patent application submitted April 27, 2013.

Brown, A.F., Guzman, I., Yousef, G.G. "Broccwell: Broccoli Flavoring and Wellness Additive". File # 12129.

Provisional patent application submitted December 15, 2011.

Fellowships and Awards

- Distinguished (undergraduate) Teaching Award, NMSU College of Agricultural, Consumer and Environmental Sciences, 2021.
- Truly Innovative Teaching Award, NMSU Teaching Academy, 2020. – Award for novel interactive teaching modules in an undergraduate Introductory Plant Science course.
- Aggies Go Global Award for International Collaborations, 2020.
- Linton-Poodry SACNAS Leadership Institute, Full Travel Award, AAAS and SACNAS, Washington, D.C. July 16 – 20, 2018.
- PlantSEED Metabolic Modeling Workshop, Full Travel Award – University of Florida, August 17-18, 2017.
- Professional Minority Recognition Award, Full Travel Award – American Society of Plant Biologists Annual Meeting, Portland, OR, July 2014.
- Employee of the Month, Plants for Human Health Institute, North Carolina State University, North Carolina Research Campus, January 2012.
- Postdoctoral Travel Award – Phytochemical Society of North America Conference, Kohala Coast, HI. 2011.
- Best Research Poster Award – Phytochemical Society of North America Conference, Towson, MD. 2009.
- Research Initiative for Scientific Enhancement (RISE), NMSU. 2007 – 2009.
- Research Travel Award – SACNAS Annual Conference, Salt Lake City, UT. 2008.
- Best Research Poster Award – Plant Metabolism, Banff, Canada. 2008.
- Alfred P. Sloan Ph.D. Research Fellowship, New Mexico State University, 2004 – 2005.
- Graduate Fellowship MBRS, Texas Woman's University, 2002-2004

Teaching

New Mexico State University

1. Agro/Hort 100 Introductory Plant Sciences lecture and lab (SP 2017, FA 2018, FA 2020, FA 2022)
2. Hhrs 420 MARC Undergraduate Professional Development course (FA 2020, SP 2021, FA 2021, FA 2022, SP 2023)
3. Hort 310 Medicinal Herbs (SP 2019 and SP 2020)
4. Hort 485 Vegetable Crop Management (FA 2018)
5. Agro/Hort 315/515 Crop Physiology (SP 2018)
6. Biol 211 Cell and Organismal Biology Lab (2004 – 2005, as a graduate teaching assistant)

Richland College

1. Biol 1406 Biology for Science Majors lecture and lab (Spring 2016 and Summer 2016)
2. Biol 1408 Biology for Non-Science Majors lecture and lab (Spring 2016)

Collin College

1. Biol 1408 Biology for Non-Science Majors lecture and lab (Spring 2016, Summer 2016)
2. Biol 1406 Biology for Science Majors lecture and lab (Fall 2015, Spring 2016, Summer 2016)

Northern New Mexico College

1. Biol 360 Plant Biology lecture and lab (Spring 2014)
2. Chem 341 Survey of Biochemistry lecture (Spring 2014)
3. Biol 201 Introduction to Molecular and Cell Biology lecture and lab (Fall 2013)
4. Biol 203 Ecology and Evolution lecture and lab (Fall 2013)

Research, Academic, and Professional Mentoring

Total = 84; 7 graduate students and 21 undergraduate research students, 22 undergraduate academic advisees, and 34 undergraduate students in the MARC program

Graduate Research Students:**New Mexico State University**

1. Phillip Lujan, PhD (2018 – 2020) *Co-Chair*. “Pecan elicitors for Phytophthora resistance in chile peppers”
2. Joseph Wood, PhD (2019-present) *Chair* “Photosynthesis and Physiology Responses of Abiotic and Biotic Stress on Onion Cultivars in New Mexico”
3. Srijana Dura, PhD (2018 – present) *Co-Chair* “Factors contributing to the reduction of Phytophthora blight caused by Phytophthora capsici in Jalapeño pepper”
4. Maria Alvarez Zavala, MS (2020 – 2021) *Chair* “Unraveling medicinal compounds in hemp and Opuntia fruit”
5. Calen McKenzie, MS (2018 – 2020) *Chair* “*Capsicum* species *Lutescens* Mutants”
6. Jagdeep Singh, MS (2018 – 2020) *Chair* “Effect of water stress at different crop stages on physiology, seed yield and galactomannan content of guar under semi-arid conditions”
7. Jacqueline Cormier, MS (2018 – 2020) *Chair* “Year-round intercropping practices in Blackberry high tunnels”

Member on 13 additional graduate committees

Undergraduate Research Students:**New Mexico State University**

1. Elizabeth Gamez, Horticulture, (Summer 2022 – Present)
2. Chris Gomez, Horticulture, NIH MARC student (Summer 2020 – Present)
3. Adam Hopper, Horticulture, HHMI scholar (Spring 2020 – 2021)
4. Christina Perez, Horticulture, AMP (*Co-advise*; Spring 2020 – 2021)
5. Denise Garcia, Genetics and Biotechnology AMP (Spring 2019 – Fall 2019)

6. Sarah Ramirez, Horticulture, AMP (Fall 2018 – Fall 2019)
7. Yvonne Lucero, Nutrition and Dietetics (Spring 2018 – Summer 2019)
8. Francisco Chacon, Genetics and Biotechnology, MARC Research Scholar (Spring 2018 – Present)
9. Denise Garcia, El Paso Community College, RISE program (Spring 2018 – Fall 2018)
10. Rakhila Mamenova, Biology (Summer 2017 – Fall 2018)
11. Krystal Vargas, Horticulture, MARC Research Scholar (Fall 2016 – 2021)
12. Shane Hamby, Nutrition (2007 – 2008)
13. Joslynn Romero, Biology (2007 – 2009)
14. Juanita Aldaba, Business, NMSU ASSURED Program (2008)

****Academically advised 22 horticulture and agronomy students (Fall 2016 – Present)****

****Mentored 34 students in the NIH funded MARC program at NMSU****

Northern New Mexico College

15. Justin Salazar, Biology (2013 – 2014) *Current position: Geneticist at Pioneer Seeds*
16. Leorrie Atencio, Biology (2013 – 2014) *Current position: Clinical Research Coordinator UNM Cancer Center*
17. Lorina Gallegos, Biology (2013 – 2014) *Current Position: Espanola Public School High School Biology Teacher*
18. Joel Martinez, Biology (2013 – 2014) *Current Position: Lab Technician*
19. Gladys Rimkus, Biology (2014) *Current Position: High School Science Teacher*

North Carolina State University

20. Robert Byrd, Biology (2011 – 2013) *Current Position: Pharmacist*
21. Kamilla Korsvold, visiting undergraduate scholar (2012 – 2013) North Carolina State University

Invited Lectures

- 2022: Guest Lecturer, NMSU MARC Program, NMSU MARC, "Improving Bioavailability of Cancer Preventive Phytonutrients in New Mexican Diets". (March 1, 2022).
- 2022: Guest Speaker, Stanford, L. Guzman, I. 2022 Health Disparities Field Experience, NIH Partnership for the Advancement of Cancer Research, virtual, "Building Community Collaborations: Developing a Kitchen-to-Lab-to-Table Model for Community Health Educators" (July 22, 2022).
- 2021: Guest Lecture for AXED 500, Ag Extension and Education at NMSU.
- 2021: Guest Lecture for Genetics 110 at NMSU.
- 2021: Ready Set Grow Speaker Series, NMSU Extension, "Medicinal Plants" (July 21, 2021).
- 2021: Science Cafe, Sigma Xi, "Healing Plants of Southern NM" (June 15, 2021).
- 2021: Sam Steel Speaker Series, NMSU, "From Student to Faculty & Everything in Between" (March 17, 2021).
- 2020: Three guest lectures on Plant Physiology and Crop Bioactive Compounds. Erasmus Mundus at Polytechnical University of Valencia, Spain (October 5 – 8)
- 2020: Gardening with Native Plants. Brannigan Cultural Center, Las Cruces, NM (August 12)

- 2020: From Farm-to-Cell: Carotenoids and Phenolics in Capsicum and Their Nutraceutical Properties. New Mexico Chile Conference, Las Cruces, NM (February 4)
- 2019: Improving Crop Quality for Better Human Health. San Jose State University, CA (October 23).
- 2019: Medicinal Plant Chemistry: The Chile Pepper, It's Nutritious and Delicious! DreamKeepers for Indigenous Youth, NMSU Indian Resources Development, Las Cruces, New Mexico (June 19).
- 2019: Bioavailability of Plant Compounds using an In Vitro Digestion System. Trait Biosciences, Inc., Los Alamos, NM, March 7.
- 2019: Farm to Cell Research: We Are What We Eat. El Paso Community College, El Paso, TX, February 22.
- 2019: Farm to Cell Research: We Are What We Eat. Native Plants Society, Las Cruces, NM, January 23.
- 2017: Better Crops for Better Health. Biology Department Seminar at NMSU. March 9.
- 2017: Chile Pepper – It's Nutritious and Delicious. 40th Annual New Mexico Chile Conference, Las Cruces, February 7.
- 2016: Pepper Improvement Efforts at New Mexico State University. Hubei Academy of Agricultural Sciences, Vegetable Research Institute, Wuhan, Hubei Province, China, September 25.
- 2014: Plant Biochemistry: From Research to Industry. Biology Dept., California State University Northridge, Northridge, CA (October)
- 2014: Phytoactives: The Language of Plants. Native Plants Society of New Mexico, Albuquerque, NM (May)
- 2014: Phytoactives: The Language of Plants. Native Plants Society of New Mexico, Santa Fe, NM (January)
- 2009: Carotenogenesis of Orange Color in Capsicum spp. Texas A&M University, College Station, TX
- 2009: Vitamin A in Chile Peppers; Those That Have It and Those That Don't, New Mexico Chile Conference, Las Cruces, NM (February)

Media Contributions

- 2021: AAAS Subaru Prize for Excellence in Science. Documentary. (August 9, 2021). Interviewed for a piece named "STEMTalks: Questions for a Horticulturalist" <https://www.sbfprize.org/blog/stemtalks-horticulturalist>
- 2021: NOVA Education. Audio/Video Production. (April 24, 2021). Science of Spice: Chile Pepper Chemistry. <https://www.youtube.com/watch?v=wtc3dKyMDqY>
- 2021: NOVA PBS. Documentary. (February 11, 2021). Interviewed for the article "From jumping horses to jalapeños: the science of spicy peppers" <https://www.pbs.org/wgbh/nova/article/capsaicin-chili-peppers-physiological-effects/>
- 2015: Dallas Arboretum. Newsletter. (September 2015). Spice, Flavor and More: Why Chile Peppers Should be a Staple Food, <http://blog.dallasarboretum.org>

Professional Development

- Teaching Academy, NMSU. Attended over 100 hours of teaching and professional development workshops.
- Building Future Faculty Program. April 2013. North Carolina State University – Raleigh, NC
- Interactive Online Workshop Series about Communicating Science. March – April 2012 Center for Ocean Sciences Education Excellence (COSEE) California at UC Berkeley's Lawrence Hall of Science
- Training of Undergraduate and Graduate Students 2010 – 2012; Plants for Human Health Institute, NCSU. Supervised six undergraduate college students in phytochemical experiments; mentored two who completed individual lab projects for university credit in biology from the University of North Carolina at Charlotte and North Carolina State University.
- Teaching Training Courses – North Carolina State University, Spring 2011. Classroom Management and Effective Questioning Strategies

Academic and Professional Service

- Co-Director of NIH MARC program at NMSU (June 2020 – Present) – The MARC program provides tuition and stipend scholarships to **18 undergraduates** to conduct research at NMSU.
- Western SARE Proposal Reviewer (June 2020)
- Member, Herbs, Spices and Medicinal Plants Group, American Society for Horticultural Science
- Ad-hoc NMSU Hemp Guidelines, Committee Member (July 1, 2019 - September 15, 2019).
- Hemp Program Planning Committee on Education, Committee Member, (December 10, 2018 - February 1, 2019).
- Hemp Program Planning Committee on Value-Added Products, Committee Member, (December 1, 2018 - February 1, 2019).
- Training in medicinal chemistry for visiting scholar, Carla Guijarro Real, Universidad Politecnica de Valencia
- Faculty Search Committee, Plant Genetics, Plant and Environmental Sciences, NMSU
- Committee Member, Greenhouse Committee, Plant and Environmental Sciences, NMSU
- Board Member, La Semilla Food Center Non-Profit, Anthony, NM, USA, (August 15, 2017 – July 2019).
- Grant Proposal Reviewer, USDA National Institute of Food and Agriculture, Washington, D.C. (September 1, 2017 - September 14, 2017)
- Faculty Advisor, Skeen Compost Club, NMSU (June 1, 2018 – Present)
- Faculty Advisor, PES Graduate Student Organization, NMSU (June 1, 2017 – Present)
- Committee Member, Curriculum Committee, NMSU (August 4, 2017 - Present)
- Committee Member, Scholarship Committee, NMSU (August 4, 2017 - Present)
- Committee Member, Skeen Building Greenhouse, NMSU (Dec. 2016 – Present)
- Peer Reviewer for the following scientific journals.
 - Nature • HortScience • Appetite • Journal of the Science of Food and Agriculture • Food Chemistry • HortTechnology • Crop Sciences • Journal of the American Society for Horticultural Science • University of New Mexico Press (book reviewer) • Current Bioactive Compounds • International Journal of Analytical Techniques • Journal of Food Science
- Committee Member, Arts and Research Undergraduate Research Symposium, NNMC (May 2014)
- Committee Member, Undergraduate Curriculum, NNMC (Aug. 2013 – June 2014)
- Co-chair, North Carolina Research Campus Catalysts Group, NNMC (2012-2013)
- Organizer, NCRC Annual Research Symposium. Kannapolis, NC., NCSU (April 2013)
- Volunteer, Medicinal Plants of the Southwest Workshop, NCSU (June 2008)

Professional Memberships

American Society of Nutrition • Phytochemical Society of North America • American Society of Horticultural Sciences • Society for the Advancement of Chicanos and Native Americans in Science • American Society of Plant Biologists