

DINESH PHUYAL

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CURRENT POSITION (Summer 2020 – To present)

Ph.D. Student and Graduate Research Assistant: Soil and Crop Sciences Department | Texas A&M University | College of Agriculture and Life Sciences, United States (Summer 2020 – Expected Spring 2025). GPA: 4.00

Ph.D. Project Title: Investigating the Biological Nitrification Inhibition Activity in Selected Sorghum Genotypes.

Duties: Data collection, analysis, report writing, manuscript preparation, and publishing.

Supervisory Committee:

Dr. Nithya Rajan and Dr. Sakiko Okumoto (Chair)

Dr. William L. Rooney

Dr. Sanjay Antony-Babu

PREVIOUS UNIVERSITY EDUCATION

1. **Master of Science, Agriculture; University of Florida, College of Agricultural and Life Sciences, United States** (2018-2020). GPA: 4.00

M.Sc. Project Title: Unraveling the effect of advanced horticultural practices on Huanglongbing-affected grapefruit.

Supervisory committee:

Dr. Rhuanito Soranz Ferrarezi (Chair)

Dr. Davie M. Kadyampakeni

Dr. Kelly Morgan

2. **Bachelor of Science, Agriculture; Tribhuvan University, Institute of Agriculture and Animal Sciences, Nepal** (2012-2016). Grade: Distinction.

PEER-REVIEWED JOURNAL ARTICLES

1. Ghosh, E., Rajan, N., **Phuyal, D.**, Subramanian, N., & Bagavathiannan, M. (2024). High rhizospheric ammonium levels in Sorghum halepense (johnsongrass) suggests nitrification inhibition potential. *Agricultural & Environmental Letters*, 9(2), e20137.
[DOI: 10.1002/ael2.20137](https://doi.org/10.1002/ael2.20137)
2. **Phuyal, D.**, Nogueira, T. A. R., Jani, A. D., Kadyampakeni, D. M., Morgan, K. T., & Ferrarezi, R. S. (2020). 'Ray Ruby' Grapefruit Affected by Huanglongbing I. Planting Density and Soil Nutrient Management. *HortScience*, 55(9), 1411-1419.
[DOI: 10.21273/HORTSCI15111-20](https://doi.org/10.21273/HORTSCI15111-20)
3. **Phuyal, D.**, Nogueira, T. A. R., Jani, A. D., Kadyampakeni, D. M., Morgan, K. T., & Ferrarezi, R. S. (2020). 'Ray Ruby' Grapefruit Affected by Huanglongbing II. Planting Density, Soil, and Foliar Nutrient Management. *HortScience*, 55(9), 1420-1432.
[DOI: 10.21273/HORTSCI15255-20](https://doi.org/10.21273/HORTSCI15255-20)

PEER-REVIEWED JOURNALS (SUBMITTED)

1. Low-Intensity Prescribed Fire Has No Impact on Soil Physical Properties and Enzymatic Activity in the Post Oak Savannah Ecoregion.
Kathryn Watson, Jordan Anderson[†], Alejandro Atenas Navarrete[†], Leila Joharzadeh[†], Bismark Osei[†], **Dinesh Phuyal**[†], Chiranjibi Poudyal[†], Mingxiu Wang[†], Larissa Watkins[†], Opeyemi Alabi, Siddhartha Shankar Bhattacharyya, Nicholas Boogades, Achla Jha, Deepa Khadka, Dallas Williams, A. Peyton Smith and Briana M. Wyatt*
([†]equal contribution, *Corresponding author) [*Soil Science Society of America Journal*]
 2. Mechanistic insight on biochar effect on soil physical, chemical, and biological properties: A Review. Arjun Kafle, Kaushik Adhikari, M. Samrat Dahal, Anil Timilsina, **Dinesh Phuyal** [Submitted: *Discover Soil*]
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PEER-REVIEWED JOURNALS (IN PREPARATION)

1. Fertilizer Types Impacts Biological Nitrification Inhibition of Sorghum and its Climate-smart Benefits. [In preparation- PI is reviewing]
2. Unraveling the Effect of Biological Nitrification Inhibition of Sorghum Under Different Soil Types. [In preparation- PI is reviewing]
3. The Biological Nitrification Inhibition Activity of Sorghum Shows a Potential Climate-Smart Solution for Sustainable Agriculture in a Field Condition. [In preparation- PI is reviewing]
4. Issues With Nitrogen Loss in Crop Production and Environment: Synthetic and Biological Approaches to Resolve it. [In preparation- PI is reviewing]

EXTENSION PUBLICATION

1. **Phuyal, D.**, & Davenport, R. (2022). Science Advocacy and Leadership Opportunities for Graduate Students. CSA News, September.
[DOI: 10.1002/csan.20867](https://doi.org/10.1002/csan.20867)
2. **Phuyal, D.**, Soto, H., & Ferrarezi, R. (2020). High-density Planting Increases Fruit Yield of HLB-affected Grapefruit Trees while Enhanced Nutrition has No Impact in a Short-term Study in Flatwoods Soil. Newsletter, November.
[Link](#)
3. **Phuyal, D.**, & Ferrarezi, R. (2020). Improved Horticultural Practices for Grapefruit Production in the Indian River District. Indian River Citrus League, Newsletter, September.
[Link](#)
4. Ferrarezi, R., **Phuyal, D.**, Kadyampakeni, D., & Morgan, K. (2020). Impact of Higher Planting Density and Enhanced Nutrition on Grapefruit Fruit Yield and Quality. EDIS, January.
[Link](#)
5. Ferrarezi, R., **Phuyal, D.**, Kadyampakeni, D., & Morgan, K. (2020). Effect of Planting Density and Enhanced Nutrition on Grapefruit. Citrus Industry, March.
[Link](#)
6. Biological nitrification inhibition: A climate-smart solution and key for sustainability. [In preparation- PI is reviewing]

JOURNALS REVIEWED

1. Frontiers in Plant Science (1 article)
2. Computers and Electronics in Agriculture (1 article)
3. Hort Science (1 article)
4. Agrosystems, Geosciences & Environment (1 article reviewed twice)

GRANT

Dinesh Phuyal and Dr. Nithya Rajan

- Title: “A Novel Approach for Reducing Nitrous Oxide Emission and Improving Nitrogen Fertilizer Use Efficiency of Sorghum”.
- Submitted to: Southern Region SARE 2022 Graduate Student Grant Proposal.
- Amount Requested: \$16,226.
- Status: Not funded.

CONFERENCE ABSTRACTS (* is the presenting author)

1. **Phuyal, D.***, Rajan, N., Rooney, W. L., Antony-Babu, S., Okumoto, S., Peiguo, Y., Casey, K. D., & Subbarao, G. V. (2024). Evidence for Biological Nitrification Inhibition Activity of Sorghum (*Sorghum bicolor*) at Field: Implications for Climate Change and Agriculture. ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX, 10 November to 13 November. (Oral Presentation)
[Link](#)

2. **Phuyal, D.***, Rajan, N., Rooney, W. L., Antony-Babu, S., Okumoto, S., Peiguo, Y., Casey, K. D., & Subbarao, G. V. (2024). Genotype and Soil Interactions on Biological Nitrification Inhibition Activity of Sorghum (*Sorghum bicolor*). ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX, 10 November to 13 November. (Oral Presentation)
[Link](#)
 3. Gomez, C.*, **Phuyal, D.**, Miyanaka, N., Salehin, S. M. U., Rooney, W. L., Okumoto, S., & Rajan, N. (2024) The Effect of Fertilizer Type and Genotype on Biological Nitrification Inhibition Expression of Sorghum Under Field Conditions. ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX, 10 November to 13 November. (Poster Presentation)
[Link](#)
 4. **Phuyal, D.***, Rajan, N., Rooney, W. L., Antony-Babu, S., Casey, K. D., Okumoto, S., & Subbarao, G. V. (2023). Exploring the Impact of Sorghum BNI Activity: Implications for Climate Change and Agriculture. ASA, CSSA, SSSA International Annual Meeting, St Louis, MO, 29 October to 1 November. (Oral Presentation; presenter won first prize)
[Link](#)
 5. **Phuyal, D.***, Rajan, N., Rooney, W. L., Antony-Babu, S., Casey, K. D., Okumoto, S., & Subbarao, G. V. (2023). Impact of Nitrogen Fertilizer Sources on Biological Nitrification Inhibition Activity of Sorghum. ASA, CSSA, SSSA International Annual Meeting, St Louis, MO, 29 October to 1 November. (Oral Presentation)
[Link](#)
 6. Schill, M. L.*, Subramanian, N. K., **Phuyal, D.**, Rajan, N., & Bagavathiannan, M. (2023). *Sorghum halepense* Promotes Biological Nitrification Inhibition in Its Rhizosphere. ASA, CSSA, SSSA International Annual Meeting, St Louis, MO, 29 October to 1 November. (Poster Presentation)
[Link](#)
 7. Schill, M. L.*, **Phuyal, D.**, Chobhe, K., Rajan, N., Ibrahim, A., & Bagavathiannan, M. (2023). Investigating the Biological Nitrification Inhibition Potential in *Avena sativa* Cultivars. ASA, CSSA, SSSA International Annual Meeting, St Louis, MO, 29 October to 1 November. (Oral Presentation; presenter won third prize)
[Link](#)
 8. **Phuyal, D.***, Rajan, N., Rooney, W. L., Antony-Babu, S., Casey, K. D., Zapata, D., Schill, M., Subramanian, N. K., Salehin, S. M. U., Maharjan, B. K., Okumoto, S., & Subbarao, G. V. (2022). Biological Nitrification Inhibition Activity of Sorghum Genotypes with Differential Sorgoleone Secretion Capacity. ASA, CSSA, SSSA International Annual Meeting, Baltimore, MD, 6-9 November. (Oral Presentation)
[Link](#)
 9. **Phuyal, D.***, Rajan, N., Rooney, W. L., Antony-Babu, S., Schill, M., Subramanian, N. K., Okumoto, S., & Subbarao, G. V. (2022). Effect of Biological Nitrification Inhibition Activity of Sorghum Genotypes on Nitrification in a Field Study. ASA, CSSA, SSSA International Annual Meeting, Baltimore, MD, 6-9 November. (Poster Presentation; presenter won second prize)
[Link](#)
 10. Schill, M. L.*, **Phuyal, D.**, Maharjan, B. K., Rajan, N., Subramanian, N. K., & Bagavathiannan, M. (2022). Biological Nitrification Inhibition Potential Improves Nitrogen Availability in Johnsongrass (*Sorghum halepense*) Rhizosphere. ASA, CSSA, SSSA International Annual Meeting, Baltimore, MD, 6-9 November. (Oral Presentation)
[Link](#)
 11. **Phuyal, D.***, Rajan, N., Rooney, W. (2022). Sorghum Genotypes with Contrasting Sorgoleone Secretion Convey Varying Biological Nitrification Inhibition (BNI) Activity in Acidic Soil. 8th Annual Texas A&M Plant Breeding Symposium, Soil and Crop Sciences, Texas A & M University, College Station, TX, 17 February. (Poster Presentation)
 12. Ghosh, E.*, Rajan, N., **Phuyal, D.**, Bagavathiannan, M., Subramanian, N. (2022). Preliminary Investigation of Biological Nitrification Inhibition (BNI) Potential in Johnsongrass (*Sorghum halepense*). 62nd Meeting of Weed Science Society of America, Virtual Meeting, 22-24
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February. (*Poster Presentation; presenter won first prize*)

[Link](#)

13. **Phuyal, D.***, Rajan, N., Schnell, R., Rooney, W., Maharjan, B., Casey, K., Zapata, D., Okumoto, S., Subramanian, N., Kim, J., Chu, K. H., Peterson, J. A., & Subbarao, G. V. (2021). Biological Nitrification Inhibition (BNI) Activity of Sorghum Genotypes on a Typical Field Soil. ASA, CSSA, SSSA International Annual Meetings, Salt Lake City, UT, 7-10 November. (*Oral Presentation*)

[Link](#)

14. **Phuyal, D.***, Rajan, N., Schnell, R., Salehin, S. M., Casey, K., Rooney, W., Maharjan, B., Okumoto, S., & Subbarao, G. V. (2021). Effect of Biological Nitrification Inhibition of Sorghum on Nitrous Oxide Emission Under Different Nitrogen Fertilizer Types. ASA, CSSA, SSSA International Annual Meetings, Salt Lake City, UT, 7-10 November. (*Poster Presentation*)

[Link](#)

15. Rajan, N.*, **Phuyal, D.**, Maharjan, B., Okumoto, S., Casey, K., Subramanian, N., Peterson, J. A., Bagavathiannan, M., Jifon, J., Rooney, W., Schnell, R., & Subbarao, G. V. (2020). Climate Solutions: Biological Nitrification Inhibition in Modern Crop Varieties. 2020. AGU Virtual Meeting, 15 December 2020. (*Oral Presentation*)

[Link](#)

16. **Phuyal, D.***, Rajan, N., Rooney, W., Kim, J., Chu, K. H., Subramanian, N., Maharjan, B., Okumoto, S., Schnell, R., Peterson, J. A., & Subbarao, G. V. (2020). Effect of Biological Nitrification Inhibition (BNI) of Sorghum on Weswood Silt Loam Soil. 2020 Texas Plant Protection Conference. ASA, CSSA, SSSA International Annual Meetings, Virtual Meeting, 8 December. (*Poster Presentation*)

[Link](#)

17. **Phuyal, D.***, Rajan, N., Rooney, W., Kim, J., Chu, K. H., Subramanian, N., Maharjan, B., Okumoto, S., Schnell, R., Peterson, J. A., & Subbarao, G. V. (2020). Climate Smart Farming: A Preliminary Investigation of Biological Nitrification Inhibition (BNI) in Selected Sorghum Genotypes. ASA, CSSA, SSSA International Annual Meetings, Virtual Meeting, 9-13 November. (*Poster Presentation; presenter won second prize*)

[Link](#)

18. **Phuyal, D.***, Nogueira, T. A. R., Jani, A. D., Kadyampakeni, D., Morgan, K., & Ferrarezi, R. S. (2020). Tree Density and Soil Micronutrient Application Using Controlled-release Fertilizer on Grapefruit Affected by Huanglongbing. 117th Annual American Society for Horticultural Science, Orlando, FL, 9-13 August. (*Poster Presentation*)

[Link](#)

19. **Phuyal, D.***, Nogueira, T. A. R., Jani, A. D., Kadyampakeni, D., Morgan, K., & Ferrarezi, R. S. (2020). Effect of Tree Planting Density and Nutrient Application by Soil and Foliar on Grapefruit Trees Affected by Huanglongbing. 117th Annual American Society for Horticultural Science, Orlando, FL, 9-13 August. (*Oral Presentation*)

[Link](#)

20. Ferrarezi, R. S.*, **Phuyal, D.**, Kadyampakeni, D., & Morgan, K. T. (2019). Can Higher Planting Density and Enhanced Fertilization Increase Fruit Yield of HLB-infected Grapefruit? Materials Innovation for Sustainable Agriculture Center of Excellence, Orlando, FL, 24 October. (*Oral Presentation*)

[Link](#)

21. Ferrarezi, R. S.*, **Phuyal, D.**, Kadyampakeni, D., & Morgan, K. T. (2019). Grapefruit Nutritional Research in the Indian River District. IRREC Citrus Nutrition Management Day, Fort Pierce, FL, 20 October. (*Oral Presentation*)

22. **Phuyal, D.***, Ferrarezi, R. S., Morgan, K. T., & Kadyampakeni, D. (2019). Tree Density and Micronutrient Application on Grapefruit Affected by Huanglongbing. 116th Annual American Society for Horticultural Science, Las Vegas, NV, 21-25 July. (*Oral Presentation*)

[Link](#)

23. **Phuyal, D.***, Ferrarezi, R. S., Morgan, K. T., & Kadyampakeni, D. M. (2019). Assessment of Different Grapefruit Tree Spacing on Tree Health, Fruit Quality, and Fruit Yield. 7th Annual South Florida Graduate Research Symposium, Homestead, FL, 16 July. (*Poster Presentation*)
24. **Phuyal, D.***, Ferrarezi, R. S., Morgan, K. T., & Kadyampakeni, D. (2019). Nutrient Management on HLB-affected Grapefruit on Flatwoods Soil in the Indian River District. Florida State Horticultural Society 132nd Annual Conference, Orlando, FL, 9-11 June. (*Oral Presentation*)

INVITED PRESENTATION

Phuyal, D.* and Rajan, N. (2022). Update on Sorghum BNI Research at Texas A&M. The 4th Biennial Meeting organized by Japan International Research Center for Agricultural Sciences, Tsukuba, JAPAN, 17 November to 19 November. (Oral Presentation)

[Link](#)

PROFESSIONAL MEMBERSHIP AND LEADERSHIP

2022- 2023	Vice President: Soil and Crop Sciences Graduate Organization
2021-2022	International Student Association (External Programs Committee)
2019-Present	Soil Science Society of America
2019-Present	Crop Science Society of America
2019-Present	American Society of Agronomy
2020-2021	NAPA Career and Outreach Committee
2018-2020	UF Treasure Coast Graduate Student Organization
2018-2020	Florida State Horticultural Society
2018-2020	American Society for Horticultural Science

FELLOWSHIP AND AWARDS

2022-23	<i>Encompass Scholar (ASA-CSSA-SSSA)</i> : Participated in a professional development workshop.
2022	<i>ASA-CSSA-SSSA SEED Ambassador (Scientists Engaging & Educating Decision-makers Ambassador)</i> : Participated in an advocacy training program to connect scientists with members of Congress.
2022-23	<i>Future Leaders in Science</i> : Selected to participate in the 2022 Virtual Congressional Visits Day. Visited the offices of Sen. Ted Cruz, Rep. Jake Ellzey, Rep. Roger Williams, and Rep. Henry Cuellar to discuss USDA funding for agricultural science.
2019	<i>Yara North America Crop Innovation Scholarship</i> : University of Florida College of Agricultural and Life Sciences: Awarded for outstanding academic and research record.
2019	<i>Center for Stress Resilient Agriculture, University of Florida</i> : To participate in an innovative root course.
2018	<i>LI-COR Biosciences Training Travel Award</i> : Participated in LICOR 6400 photosynthesis equipment training.
2012-2016	<i>Tribhuvan University Scholarship</i> : Awarded for outstanding academic performance across all eight semesters.
2012	<i>Tribhuvan University- TU Merit Admission Scholarship</i> : Awarded for securing a high score in the admission exam.

TEACHING EXPERIENCE

1. **Teaching Assistant, Soil Fertility and Plant Nutrient Management Laboratory (SCSC 432), Texas A & M University, United States**
Fall 2024: Assist with the laboratory component for fourteen undergraduate students, focusing on methods used in soil testing, fertilizer recommendations, and the chemical and physical properties of soils. Guide the determination and analysis of specific soil characteristics and support students in understanding and applying these techniques.

2. **Teaching Assistant, Soil Science (SCSC 301), Texas A & M University, United States**
Spring 2022: Supported both virtual and in-person instruction for fifty undergraduate students. Facilitated laboratory sessions that involved soil physical, chemical, and biological analysis, and guided students in the interpretation of results. Assisted with the scientific evaluation of soil properties and their environmental roles. Also, proctored exams.
3. **Teaching Assistant, World Food and Fiber Crops (SCSC 105), Texas A & M University, United States**
Fall 2021: Assisted twenty-four undergraduate students in both lecture and laboratory settings. The course covered plant relationships, structure, development, and the environmental factors affecting crops. Supported students in plant data collection, statistical analysis, and report presentation, with a focus on the technological aspects of agricultural practices and food production.
4. **Agriculture Instructor, Galkot Higher Secondary School, Baglung, Nepal**
2016 - 2017: Led an introductory course on entomology and vegetable production for 30 high school students, fostering foundational knowledge in agricultural sciences.

EXTENSION ACTIVITIES

1. **ASA, CSSA, SSSA International Annual Meeting: Poster Judge**
 Served as a Judge for five undergraduate poster competition related to soil nutrition and plant physiology.
2. **Student Research Week, Texas A&M University**
March 2023: Served as a Judge, grading and scoring six posters from undergraduate and graduate students.
3. **Student Research Week, Texas A&M University**
January 2022: Served as a Judge, grading and scoring eight posters from undergraduate students.
4. **Florida Citrus Show**
January 2018 and 2019: Assisted at the registration desk and helped presenters load presentations. Ensured the audio and visual equipment functioned properly for over thirty presenters, serving more than eight hundred attendees.
5. **Agricultural Workers Training**
January 2018: Interacted with growers and assisted them during the event. Set up and took down materials for the seminar, serving over three hundred attendees.
6. **Citrus Expo**
August 2019: Prepared and presented two posters at a grower's event:
 - Tree Density and Micronutrient Application on Grapefruit Affected by Huanglongbing.
 - Application of Soil Moisture Sensors.

ADVOCACY ACTIVITIES

Congressional Meetings 2022

- Selected among 14 SEED Ambassadors nationwide by the American Society of Agronomy.
- Trained for a year to build trusted relationships between Science Societies and the Members of Congress.
- Communicated with some Congressional Members (offices of Sen. Ted Cruz, Rep. Jake Ellzey, Rep. Roger Williams, and Rep. Henry Cuellar) via emails/phone and video calls and requested to support agricultural research and funding.
- Discussed the impact of USDA-funded research programs in addressing current and emerging agricultural problems.

CERTIFICATION

FAA Part 107 UAV pilot License (Valid until Jan 2027)

An Introduction to Evidence-Based Undergraduate STEM Teaching (From 2025 to unexpired)

TRAVEL GRANTS

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| 2022 | <i>The Lloyd and Maxine Rooney Fellowship Endowment</i> : Presented research at an international conference. |
| 2021 | <i>The Lloyd and Maxine Rooney Fellowship Endowment</i> : International Travel scholarship (could not use it due to postponement of the conference). |
| 2021 | <i>Graduate Student Leadership Conference</i> : Participated in leadership training. |
| 2019 | <i>American Society for Horticultural Science</i> : Presented research at the ASHS international conference. |
| 2019 | <i>Graduate Student Council Travel Award</i> : Presented research at the ASHS international conference. |

