

SINGH, HARDEEP

Assistant Professor-Cropping Systems Specialist, Agronomy Department, University of Florida-West Florida Research and Education Center, Jay, Florida 32565, USA

| Cell: 405-762-2539 | Email: hardeep.singh1@ufl.edu | Google Scholar: [Profile](#) | Researchgate: [Profile](#)

RESEARCH INTEREST

Cropping Systems, Resource Use Efficiency, Diversified Agricultural Systems, Alternative crops, Nutrient Management, Environment Quality

EDUCATION

Oklahoma State University Ph.D. in Crop Sciences Advisor: Dr. Gopal Kakani	2018-2020
Oklahoma State University M.S. in Horticultural Sciences Advisor: Dr. Bruce Dunn	2016-2017
Punjab Agricultural University B.S. in Agricultural Sciences	2009-2015

PROFESSIONAL EXPERIENCE

University of Florida Assistant Professor-Cropping Systems Specialist- Agronomy Department	April 2022-Present
<ul style="list-style-type: none"> • Leading the research program for addressing the cropping system problems in the region. • Conducting research on nutrient management for North Florida Cropping Systems. • Developing best management practices for increasing nutrient and irrigation use efficiencies. • Collaborating with other faculty for conducting inter-disciplinary research. • Advising graduate and undergraduate students in research group. 	
Kansas State University Postdoctoral Research Associate- Dept. of Agronomy	Feb 2021- March 2022
<ul style="list-style-type: none"> • Managing field, greenhouse and laboratory experiments focused on testing different crop rotations (winter wheat- cover crops) for cropping system diversification in Southern Great Plains. • Developing crop simulation models for nitrogen and water management in different winter wheat production system using computational tools. • Collaborating with team members on different projects on improving agricultural productivity of small-scale producers in different countries Bangladesh, Cambodia, and Senegal • Advising graduate and undergraduate students in research group. 	
Oklahoma State University Adjunct Assistant Professor	May 2021-Present

- Plan, coordinate and assist with the several ongoing controlled environment vegetable and ornamental production research projects.
- Write proposals for funding, extension/progress reports, and research articles.
- Present results at meetings and conferences.
- Mentor graduate students and serve on master's graduate student committees.

Oklahoma State University

Graduate Research Assistant (Ph.D.)

2018-2020

- Research fieldwork, data collection, sample processing, storage and organization, and statistical analyses.
- Monitoring greenhouse gas emissions from different cover crop residue management practices using gas analyzer GASMET DX-4040 and vial method.
- Assist in soil sampling, pH measurements, and determination of nitrogen and carbon concentration using dry combustion analyzer (LECO).

Graduate Research Assistant (M.S.)

2016-2017

- Evaluation of different hydroponic fertilizers for different vegetable and ornamental crops (Geranium, fountain grass, lilies etc. and vegetables such as lettuce, basil and swiss chard).
- Evaluation of different cultivars of ornamental and vegetable crops in field and hydroponic systems.
- Evaluation of different cultivars of vegetable crops in various hydroponic systems.
- Development of different low-cost hydroponic production systems.

REFERRED JOURNAL PUBLICATIONS (* indicates corresponding author) (Citations-150)

1. Shaik, A., **Singh, H.**, Singh, S., Montague, T., Sanchez, J.
Liquid organic fertilizers effects on growth and biomass of lettuce grown in soilless production system. *HortScience*, 57(3), 447-452 <https://doi.org/10.21273/HORTSCI16402-21> 2022
2. Pace, A., Dunn B.L., Fontanier, C., Goad, C., **Singh, H.**
Cut flower carnation luminescence, vase life, and water relations after use of glow in the dark products. *HortScience*, 57(3), pp.491-496 <https://doi.org/10.21273/HORTSCI16334-21> 2022
3. **Singh, H.***, B.K. Northup, C. Rice, P.V.V. Prasad.
"Biochar applications influence soil physical and chemical properties, microbial diversity, and crop productivity: a meta-analysis". *Biochar* 4, no. 1 (2022): 1-17 <https://doi.org/10.1007/s42773-022-00138-1> 2022
4. Baath G.S., V.G. Kakani, P.H. Gowda, B.K. Northup, A.C. Rocateli, **Singh, H.**
"Quantifying and Modeling the Influence of Temperature on Growth and Reproductive Development of Sesame". *Journal of Plant Growth Regulation*
<https://doi.org/10.1007/s00344-020-10278-y> 2021
5. **Singh, H.***, T.P. Kandel, B.K. Northup, G.S. Baath, P.H. Gowda, V.G. Kakani.
"N₂O emissions from oat and grass pea cover crop residues in the US Southern Great Plains".
Frontiers in Sustainable Food Systems [10.3389/fsufs.2020.604934](https://doi.org/10.3389/fsufs.2020.604934) 2021
6. **Singh, H.***, Dunn, B.L., Maness, M. and Brandenberger, L.
"Greenhouse and Open Field Production of Cherry and Slicer Tomatoes: Yield and Fruit Quality".
HortScience <https://doi.org/10.21273/HORTSCI16003-21> 2021
7. **Singh, H.***, T.P. Kandel, B.K. Northup, G.S. Baath, P.H. Gowda, V.G. Kakani.

- "Emissions of CO₂ and N₂O influenced by maturity level of the green manures at time of incorporation"*. Journal of Plant Nutrition and Soil Science [10.1002/jpln.202000239](https://doi.org/10.1002/jpln.202000239) 2020
8. **Singh, H.**, Poudel M., Dunn, B.L., Fontainer C., Kakani V.G.
"Carbon Dioxide Supplementation with Precision Irrigation and Fertilization Management on Two Ornamental Plants". Hortscience <https://doi.org/10.21273/HORTSCI15327-20> 2020
9. **Singh, H.**, Poudel M., Dunn, B.L., Fontainer C., Kakani V.G.
"Effect of greenhouse CO₂ supplementation on growth and nutritional quality of leafy greens grown in nutrient film technique". Agronomy 10(3) <https://doi.org/10.3390/agronomy10030323> 2020
10. Baath G.S., V.G. Kakani, P.H. Gowda, A.C. Rocateli, B.K. Northup, **Singh, H.**, J.K. Reddy.
"Forage Capabilities of Tepary Bean and Guar to Fill Summer Deficit Periods in the Southern Great Plains". Agronomy Journal <https://doi.org/10.1002/agi2.20220> 2020
11. Baath G.S., A.C. Rocateli, V.G. Kakani, **Singh, H.**, B.K. Northup, P.H. Gowda, J.K. Reddy.
"Comparing growth and physiology of three warm-season legumes under different water regimes". Scientific Reports <https://doi.org/10.1038/s41598-020-69209-2> 2020
12. B. Dunn, S. Abit, J. Ramsey, **Singh, H.**, and M. Payton.
"Efficacy of Teaching Tools and Strategies: A Student Perception Survey". NACTA Journal ([Link](#)) 2020
13. Baath H.K., G.S. Baath, P.H. Gowda, A.C. Rocateli, B.K. Northup, **Singh, H.**, J. Thomas, S. Rao.
"Predicting Forage Quality of Warm-Season Legumes by Near Infrared Spectroscopy Coupled with Machine Learning Techniques". Sensors: doi.org/10.3390/s20030867 2020
14. **Singh, H.***, Dunn, B.L., Payton, M. and Brandenberger, L.
"Fertilizer and cultivar selection of lettuce, basil, and Swiss chard for hydroponic production". HortTechnology, 29(1), 50-56. 2019
15. **Singh, H.***, Dunn, B.L., Payton, M. and Brandenberger, L.
"Selection of fertilizer and cultivar of sweet pepper and eggplant for hydroponic production". Agronomy, 9(8), 433. 2019
16. **Singh, H.***, Dunn, B. and Payton, M.
"Hydroponic pH modifiers affect plant growth and nutrient content in leafy greens". Journal of Horticultural Research, 27(1), 31-36. 2019
17. **Singh, H.***, Kandel, T.P., Gowda, P.H., Somenahally, A., Northup, B.K. and Kakani, V.G.
"Influence of contrasting soil moisture conditions on carbon dioxide and nitrous oxide emissions from terminated green manures". Agrosystems, Geosciences & Environment: DOI:[10.1002/agg2.20017](https://doi.org/10.1002/agg2.20017) 2019
18. **Singh, H.***, Northup, B.K., Baath, G.S., Gowda, P.P. and Kakani, V.G.
"Greenhouse mitigation strategies for agronomic and grazing lands of the US Southern Great Plains". Mitigation and Adaptation Strategies for Global Change: DOI: <https://doi.org/10.1007/s11027-019-099024> 2019
19. Baath G.S., V.G. Kakani, P.H. Gowda, A.C. Rocateli, B.K. Northup, **Singh, H.**, J.K. Reddy.
"Guar responses to temperature: estimation of cardinal temperatures and photosynthetic parameters". Industrial Crops and Products: DOI: doi.org/10.1016/j.indcrop.2019.111940 2019
20. Dunn, B.L., **Singh, H.**, Payton, M. and Kincheloe, S.

- "Effects of nitrogen, phosphorus, and potassium on SPAD-502 and atLEAF sensor readings of Salvia". Journal of plant nutrition, 41(13), pp.1674-1683* 2018
21. Dunn, B.L., **Singh, H.** and Goad, C.
"Relationship between chlorophyll meter readings and nitrogen in poinsettia leaves".
Journal of plant nutrition, 41(12), pp.1566-1575. 2018
22. Swearingin, L., Dunn, B.L., **Singh, H.** and Goad, C.
"Evaluation of a mobile phone plant nitrogen recommendation application in the greenhouse". Journal of plant nutrition, 41(20), pp.2615-2625. 2018

REFERRED JOURNAL PUBLICATIONS (Under Review)

1. **Singh, H.***, B.K. Northup, P.H. Gowda, G.S. Baath, P.V.V. Prasad.
Capabilities of moth bean and tepary bean as a green source of nitrogen in summer intensified rainfed winter wheat cropping systems. Under Review (Agronomy Journal)
2. **Singh, H.***, B.K. Northup, P.V.V. Prasad.
Precipitation storage and use efficiency in summer intensified rainfed-wheat cropping systems of the US Southern Great Plains. Under Review (Field Crops Research)

EXTENSION PUBLICATIONS

1. **Singh, H.**, Dunn, B.L. *"Pruning hydroponic crops. HLA-6725."* 2017
2. **Singh, H.**, Dunn, B.L. *"Building of vertical hydroponic tower- HLA-6724."* 2017
3. **Singh, H.**, Dunn, B.L. *"Electrical conductivity and pH guide for hydroponics: HLA-6722"* 2016
4. Dunn, B.L., R. Leckie, **H. Singh.** *"Mycorrhizal fungi. HLA-6449"* 2016
5. Singh, H., Kakani, G., Northup, B. "Nitrogen in Agriculture: Sources, Cycling, and Losses" (In review)

ABSTRACTS

1. **Hardeep Singh**, Brian K. Northup, P.V. Vara Prasad. 2021 (ORAL) "Productivity and Water Use in Intensified Forage-Wheat Cropping Systems of the US Southern Great Plains" for ASA conference held on November 10-13, 2021, at Salt Lake City, UT.
2. **Singh, H.***, B.K. Northup, C. Rice, P.V.V. Prasad. 2021 (POSTER) "Biochar applications influence soil physical and chemical properties, microbial diversity, and crop productivity: a meta-analysis" for ASA conference held on November 10-13, 2021, at Salt Lake City, UT.
3. **Hardeep Singh**, Brian K. Northup, P.V. Vara Prasad. 2021 (ORAL) "Precipitation storage and use efficiency in summer intensified rainfed-wheat cropping systems of the US Southern Great Plains" for RAIN annual meeting held at Wichita, Kansas on September 9-10, 2021.
4. **Hardeep Singh**, Brian K. Northup, P.V. Vara Prasad, Travis Witt. 2021 (POSTER) "Precipitation storage and use efficiency in summer intensified rainfed-wheat cropping systems of the US Southern Great Plains" for RAIN annual meeting held at Wichita, Kansas on September 9-10, 2021.
5. **Hardeep Singh**, Gurjinder S. Baath, Prasanna H. Gowda, Gopal Kakani, Brian K. Northup, Tanka P. Kandel. 2020 (POSTER) "Potential of Different Summer Cover Crops as Source of Nitrogen in Dryland Wheat Production System" for ASA conference held virtually on November 9-13, 2020.
6. **Hardeep Singh**, Tanka P. Kandel, Prasanna H. Gowda, Gopal Kakani, Brian K. Northup, Gurjinder S. Baath. 2019 (POSTER) "Influence of Maturity Level of Oat and Grass Pea Based Cover Crops at Soil

- Incorporation on Emissions of CO₂ and N₂O." for ASA conference held on November 10-13, 2019, at San Antonio, Texas. **Student Competition- First Place**
7. **Hardeep Singh**, Tanka P. Kandel, Prasanna H. Gowda, Gopal Kakani, Brian K. Northup, Gurjinder S. Baath. 2019 (ORAL) "N₂O emissions after termination of a legume (grass pea) and a non-legume (oat) cover crop." for ASA conference held on November 10-13, 2019, at San Antonio, Texas. **Student Competition- Third Place**
 8. Gurjinder S. Baath, Alexandre C. Rocateli, Gopal Kakani, Prasanna H. Gowda, **Hardeep Singh**. 2019 (POSTER) "Comparing Growth and Physiology of Three Warm-Season Legumes across an Irrigation Gradient" for ASA conference held on November 10-13, 2019, at San Antonio, Texas. **Student Competition- Second Place**
 9. Gurjinder S. Baath, Alexandre C. Rocateli, Gopal Kakani, Prasanna H. Gowda, **Hardeep Singh**. 2019 (ORAL) "Effects of Temperature on Vegetative Growth, Development, and Reproduction of Guar" for ASA conference held on November 10-13, 2019, at San Antonio, Texas. **Student Competition- Second Place**
 10. **Hardeep Singh**, Tanka P. Kandel, Prasanna H. Gowda, Gopal Kakani, Brian K. Northup. 2018 (ORAL) "Emissions of CO₂ and N₂O after termination of legume green manures at contrasting soil moisture conditions." for ASA conference held on November 4-7, 2018, at Baltimore.
 11. Gurjinder S. Baath, Prasanna H. Gowda, Gopal Kakani, Alexandre C. Rocateli, **Hardeep Singh**. 2018 (POSTER) "Forage yield of three warm-season annual legumes across an irrigation gradient" for ASA conference held on November 4-7, 2018, at Baltimore. **Student Competition- First Place**
 12. Gurjinder S. Baath, Prasanna H. Gowda, Gopal Kakani, Alexandre C. Rocateli, **Hardeep Singh**. 2018 (POSTER) "Forage yield of three warm-season annual legumes across an irrigation gradient" for 2019 Research Symposium held at Department of Plant and Soil Science, Oklahoma State University. **Student Competition- First Place**
 13. Gurjinder S. Baath, Prasanna H. Gowda, Gopal Kakani, Alexandre C. Rocateli, **Hardeep Singh**. 2018 (POSTER) "Forage yield of three warm-season annual legumes across an irrigation gradient" for The All-Crops conference which is held in Norman on Feb 19th and 20th, 2019.
 14. **Hardeep Singh**, Tanka P. Kandel, Prasanna H. Gowda, Gopal Kakani, Brian K. Northup. 2018 (POSTER) "Emissions of CO₂ and N₂O after termination of legume green manures at contrasting soil moisture conditions" for 2018 Research Symposium held at Department of Plant and Soil Science, Oklahoma State University.
 15. **Hardeep Singh**, Tanka P. Kandel, Prasanna H. Gowda, Gopal Kakani, Brian K. Northup. 2018 (POSTER) "Emissions of CO₂ and N₂O after termination of legume green manures at contrasting soil moisture conditions" for 4th Annual LTAR (Long-Term Agroecosystem Research) Conference, El Reno, Oklahoma, USA, April 24-26, 2018.
 16. **Hardeep Singh** and Bruce Dunn. 2017 (ORAL) "Fertilizer and cultivar selection for lettuce, basil and swiss chard in hydroponics" for Student Water Conference held at Oklahoma State University on 23-24 March, 2017.
 17. **Hardeep Singh**, and Bruce Dunn. 2017 (ORAL) "Fertilizer and cultivar selection for lettuce, basil and swiss chard in hydroponics" for ASHS conference held on September 19-23, 2017 at Hawaii.
 18. **Hardeep Singh**, and Bruce Dunn. 2017 (ORAL) "Fertilizer and cultivar selection for sweet pepper and eggplant in closed hydroponics system" for ASHS conference held on September 19-23, 2017 at Hawaii.
 19. **Hardeep Singh**, and Bruce Dunn. 2017 (POSTER) "Evaluation of different growing mediums in nutrient film technique" for ASHS conference held on September 19-23, 2017 at Hawaii.

20. Bruce Dunn, Jon Ramsey, Sergio Abit, **Hardeep Singh**, Megha R. Poudel. 2017 (POSTER) "Student perception of teaching approaches to student learning" for ASHS conference held on September 19-23, 2017, at Hawaii.
21. Bruce Dunn, **Hardeep Singh**, Megha R. Poudel, and Bernard Chodyla. 2017 (POSTER) "Evaluation of first color date of gediflora mums in Oklahoma" for ASHS conference held on September 19-23, 2017, at Hawaii.

AWARDS AND SCHOLARSHIPS

- | | |
|---|-----------|
| • Scientists Engaging and Educating Decision-makers (SEED) Ambassador | 2021 |
| • Outstanding PhD. Graduate Student Award | 2021 |
| • Future Leaders in Science Award | 2021 |
| • 2020 Gerald O. Mott Award | 2020 |
| • Nelson Yield-Limiting Factors Graduate Student Scholarship (\$3000) | 2020 |
| • Fall 2020 Honorary Commencement Marshal (\$1000) | 2020 |
| • First position for poster presentation at ASA, San Antonio (\$300) | 2019 |
| • Third position for Oral presentation at ASA, San Antonio (\$100) | 2019 |
| • Jerry Grant Memorial Scholarship , Oklahoma State University | 2019 |
| • GPSGA Travel Award, Oklahoma State University | 2019 |
| • Jerry Grant Memorial Scholarship , Oklahoma State University | 2018 |
| • GPSGA Travel Award, Oklahoma State University | 2017 |
| • Jerry Francis Benton Memorial Graduate Student Scholarship, Oklahoma State University | 2017 |
| • Louis P. Sumpter Scholarship, Oklahoma State University | 2017 |
| • University Merit Scholarship | 2009-2015 |

TEACHING EXPERIENCE

Teaching Assistant – "Fundamentals of Soil Science" (Dr. Sergio Abit) 2019

- Demonstrate hands-on lab exercises every week
- Soil topics covered include the soil as a natural body, soil-forming rocks and minerals, particle size analysis, soil surveys, soil profile evaluation, soil physical properties, soil water, soil microbial decomposition, ionic exchange properties of soils, fertilizers, and fertilizer use, soil pH and liming acid soil and soil erosion.

Voluntary lab assistant- "Plant Propagation (HORT 3084)" (Dr. Bruce Dunn) Spring 2016

- Review experiments beforehand, ask and answer student questions, and evaluate student's lab work.
- Demonstrated hands-on lab exercises
- Prepared culture media for lab exercises.

Invited talks- In addition to the above-mentioned teaching and lab assistants I also delivered three invited talks in different undergraduate and graduate classes.

- Plant Response to Water Stress (PLNT 5413) (1st Oct 2019) - **Relationship between plant water stress and greenhouse gas emissions.**
- Plant Environment Interactions (PLNT 4123) (12 March 2020) - **Losses of Nitrogen from agricultural lands and their impact on the environment.**
- Horticulture Graduate Seminar (HORT 5020) (2 Feb 2021)- **Key to Success**

GRANT WRITING EXPERIENCE

B. Dunn (PI), H. Singh (Co-PI), A. Kumar, N. Bailey. *“Potential of eastern red cedar biochar as potting media for greenhouse production of ornamental and vegetable crops”* (\$100,000)

Funded by: Oklahoma Center for Advancement of Science for Oklahoma Basic Plant Science Research PS21.

BOOK CHAPTERS

1. **Singh, H.,** Prasad, P.V.V., Northup, B.K., Jha, P.K., Araya, A.
Strategies for Mitigating Greenhouse Gas Emissions from Agricultural Ecosystems (Submitted for Global Agricultural Production - Resilience to Climate Change with Springer Nature Switzerland AG, Publisher)

PROFESSIONAL SERVICE

Associate Editor (Agrosystems, Geosciences, and Environment) **2021 – 2023**

Handling 6-10 papers per year form a wide range of agronomic disciplines, precision agriculture, and soil sciences

Reviewer (Publons: [Profile](#)) **2018- Present**

Reviewing papers in agronomic disciplines, precision agriculture, and soil sciences for various peer-reviewed journals

- Agronomy Journal (2)
- Agrosystems, Geosciences & Environment (10)
- Agricultural Water Management (1)
- MDPI Agronomy (6)
- MDPI Agriculture (2)
- HortScience (5)
- Nutrient Cycling in Agroecosystems (1)
- Crop & Pasture Science (1)
- Crop, Forage, and Turfgrass Management (1)
- Land (1)

Poster Presentation Judging **2018**

Research and Development of Precision Agriculture Tools for Agriculture Sustainability Oral."(Monday, November 5, 2018, 04:00-06:00 pm) ASA, CSSA and CSA, Annual Meetings, Baltimore, MD

Oral Presentation Judging **2020**

C-2 Graduate Student Oral Presentation, Virtual ASA, CSSA and CSA, Annual Meetings, 2020

LEADERSHIP ACTIVITIES AND ACHIEVEMENTS

- **Graduate Student Leadership Conference 2020** at ASA conference
- GPSGA [Parliamentarian](#) (2019-2020) (2020-2021)
- **Chair of GPSGA Bylaws Committee (2019-2020) (2020-2021)**
- **GPSGA Representative** for Graduate Student Organization (2019-2020)
- **Certification** for completion of **OSU #Globalleaders- Rise to the Challenge Leadership Program**
- **Certification** for completion of volunteer hours at **American Red Cross** for **Global Leaders Mapathon**
- **President of Pi Alpha Xi** at **OSU (2016-2017)**

- **Pest Certification** for Oklahoma.
- **Attended DSSAT annual training**, held at University of Georgia, Griffin, on May 17 to May 22, 2021.
- Attended **Teaching workshop**, held at OSU on 13th August, 2019.
- Attended **Graduate Teaching Assistant Conference**, held at OSU on 14th August, 2019.

SKILLS

DNA extraction and qPCR.

Worked in *in vitro* multiplication of various ornamental plants in Dr. Bruce Dunn's Lab at OSU.

Plant trial and field plot maintenance.

Statistical software's: SAS, R

Languages: English, Punjabi, and Hindi – Fluent; Spanish–Beginner

MEMBERSHIPS

American Society of Horticultural Sciences (ASHS)

American Society of Agronomy (ASA) Soil Science

Society of America (SSSA) Crop Science Society of

America (CSSA)

Association of Agricultural Scientists of Indian Origin (ASSIO)

American Society of Horticultural Science (ASHS)

Graduate Student Organization (Department of Plant and Soil Science)

Graduate and Professional Student Government Association