VAIBHAV B. SHELAR

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EDUCATION

Master of Science (Crop, Soil, & Environmental Sciences)	Auburn University, Auburn, Alabama, USA.	Jan 2024 – Present	3.7/4.0
Bachelor of Science (Honours) Agriculture	Mahatma Phule Krishi Vidyapeeth, Maharashtra, India.	Jun 2023	9.0/10

RESEARCH EXPERIENCES

- **Auburn University** *Auburn, Alabama*
  Graduate Research Assistant *Jan 2024 – present*
  - Study nitrogen dynamics in winter wheat and soybeans using the DSSAT-CERES-Wheat Model on commercial row crop farms.
  - Developing machine learning models to predict the runoff from agricultural watersheds.
  - Proficient in plant and soil sample collection and laboratory analysis.
  - Hands-on experience with soil moisture sensor handling, LICOR-2000, Hyprop and Edge-of-field monitoring equipment.

- **Biological Nitrogen Fixation Lab, College of Agriculture** *Pune, India*
  Undergraduate Research Assistant *Feb 2022 – Jan 2023*
  - Isolation, mass production, and assessing the potential of nitrogen-fixing, phosphate solubilizing, Potash mobilizing, micronutrient solubilizing bacteria, *Trichoderma spp.,* and cellulose-degrading microbes.
  - Investigating the effect of various herbicides on the population dynamics of the soil microbe.
  - Studying the potential use of biocontrol agents like *Trichoderma spp*. and *Paecilomyces spp.* for wilt disease and nematode control in different crops.

- **Rural Agriculture Work Experience** *Pune, India*
  Student Trainee *Feb 2023 – Apr 2023*
  - Worked with the farm families, conducted farmer's meetings to identify their problems, and Performed 20 different demonstrations to solve their problems regarding field and horticultural crop production.
  - Used various extension tools to transfer the latest agricultural technologies to the farmers.
  - Acquainted with industrial work exposure as part of 2 months of industrial attachment.

- **District Soil Testing Laboratory** *Pune, India*
  Laboratory Analyst *Jan 2022 – Feb 2022*
  - Determined various soil parameters like pH, electrical conductivity, organic carbon, available nitrogen, phosphorus & potassium, micro-nutrients, lime content, carbonate & bicarbonate, and sodium content in irrigation water.
  - Tested 300 soil samples for 15 soil parameters in a month.
  - Consulted the farmers about nutrient management to overcome nutrient deficiencies in the soil.

PUBLICATIONS

- **Shelar, V. B.,** Prasad, R., Sharma, A., & Nguyen, A. T. (2024) Understanding the Nitrogen Losses in Winter Wheat Using DSSAT-CERES-Wheat Model on Commercial Row Crop Farm [Abstract]. ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX. https://scisoc.confex.com/scisoc/2024am/meetingapp.cgi/Paper/158870.
- Nguyen, A. T., Prasad, R., Sharma, A., & **Shelar, V. B.** (2024) Calibrate and Validate the Apex Model for Simulating Winter Wheat and Runoff from Agricultural Fields: A Case Study in Alabama [Abstract]. ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX. https://scisoc.confex.com/scisoc/2024am/meetingapp.cgi/Paper/159124
  Sharma, A., Prasad, R., Nguyen, A. T., Ortiz, B. V., **Shelar, V. B.**, Gamble, A. V., Worosz, M. R., & Duzy, L. (2024) Quantifying Nitrogen Losses from Commercial Row Crop Systems of Alabama Using Nitrogen Budget Approach [Abstract]. ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX. https://scisoc.confex.com/scisoc/2024am/meetingapp.cgi/Paper/157962

- **Shelar, V. B.,** Prasad, R., Sharma, A., Nguyen, A. T., & Ortiz, B. (2024) Leveraging Soil Moisture Sensors and Machine Learning to Predict Potential Runoff from Agricultural Lands [Abstract]. 2024 Alabama Water Resources Conference & Symposium, Orange Beach, AL.
- **Shelar, V. B.,** Bansode, G. D., Yadav S. V., Landge N. J., & Mahajan M. C. (2024). Biotechnological approaches for sustainable agriculture and crop health. In Insights into Soil Implications and Management (pp. 65-94). Deepika Book Agency.
- Mhetre V. B., **Shelar V. B.,** Sharma A., Ingole A., Jadhav P., & Chaithra T. S. (2025). Introduction to nano-enabled agriculture. In Nano-Enabled Solutions for Sustainable Agriculture. Kalyani Publishers. (Under Review)
- Chakraborty, B., Banerjee, S., Samanta, S., Debangshi, U., Yadav, S. V., **Shelar, V. B.,** ... & Landage, K. B. (2023). Detection of Rice Blast Disease (*Magnaporthe grisea*) Using Different Machine Learning Techniques. International Journal of Environment and Climate Change, 13(8), 2256-2264.
- Samanta, S., Maji, A., Sutradhar, B., Banerjee, S., **Shelar, V. B**., Khaire, P. B., ... & Bansode, G. D. (2023). Impact of Pesticides on Beneficial Insects in Various Agroecosystem: A Review. *International Journal of Environment and Climate Change*, *13*(8), 1928-1936.
- Kadlag, V. D., Karande, R. A., Shandanshive, S. S., Yadav, S. V., **Shelar, V. B.,** Bansode, G. D., ... & Devikar, S. D. (2023). In vitro efficacy of fungicides against Colletotrichum gloeosporioides Penz. Asian J. Microbiol. Biotechnol. Environ. Sci, 25, 219-223.
- Vaddoriya, H. K**., Shelar, V. B.,** Pampaniya, A., & Panwala, A. (2024). "BioClay™": One Step toward the Sustainable and Novel Plant Protection Method. International Journal of Economic Plants, 11(May, 2), 142-146.
- **Shelar, V. B.,** Yadav, S. V., Landage, K. B., Veer, P. R., Bansode, G. D., & Shinde, S. H. Diversity of Beneficial Bacteria in Tamhini Ghat Region of Western Ghats, MS, India.
- Samanta, S., **Shelar, V. B.,** Banerjee, S., Doggalli, G., Hazarika, S., Agrawal, S., ... & Shahni, Y. S. Effects of Disease Complex of Penicellium and Root Knot Nematode on The growth and Development of Chilli (Capsicum annum L.) Crop.
- **V. B. Shelar.**, K. B. Landage., P. R. Veer. 2022. "A Study on The Formulation of Bio Slurry Using Beneficial Microorganisms for the Organic Farming of *Cicer arietinum* L." [Abstract]. 3rd Zonal Convention: MAHA AGRIVISION-2022 "Natural & Organic Farming: Global Perspectives & Agripreneurship" December 8-9, 2022 at Dr. Shirname Auditorium, College of Agriculture, Pune, Maharashtra State- 411005 (pp.80).

PATENTS

- **Plant Grafting Cutter** (Design No.: 400719-001) *Nov 2023*
  The Patent Office, Government of India.
  We patented a novel design for grafting hardwood plants.

CERTIFICATIONS

- International Training program **"Accessing Crop Production, Water, and Nutrient Management, Climate Risk and Environment Sustainability with Simulation Models"**
  DSSAT Foundation and the University of Florida *May 2024*
- **"Academic Writing for Publishing Research Articles in the High Impact Factor Journals"**:
  Indian Veterinary Research Institute *May 2022*
- **Five-day training program on "Smart Farming: Application of AI, Robotics, IoT & Cloud Computing"** *Feb 2022*
- **Remote Sensing and Machine Learning Technology for Precision Farming** *Nov 2021*
- **"Advanced Soil Health"**: Cornell University *Dec 2021*
- Workshop On "Science Communication**":** Indian Institute of Horticulture Research *Dec 2021*
- **"**Discover Best Practice Farming for a Sustainable 2050", "Introduction to Food and Our Environment", and "Understanding Plants: Fundamentals of Plant Biology" Online Agricultural Certifications on Coursera**.** *Nov 2021*
- **"Integrated Farming System for Sustainable Agriculture**" & **"Basic Geoinformatics":**
  Mahatma Phule Krishi Vidyapeeth *Mar 2021*

CONFERENCES

- Poster Presentation, **The 2024 ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX.** *Nov 2024*
- Poster Presentation, **Alabama Water Resource Conference**, Auburn University Water Resource Center *Sept 2024*
- Poster Presentation, **Future of Farming Symposium,** Auburn University *Sept 2024*
- Poster Presentation, International Conference on "**Innovations in Biotechnology Research for Sustainable Development: Challenges and Practices**", Microbiologist Society of India *Mar 2023*
- Poster Presentation, 3rd Zonal Convention "**Natural & Organic Farming: Global Perspectives & Agripreneurship**", College of Agriculture, Pune, India *Dec 2022*
- 5th International Conference on "**Advances in Agriculture Technology and Allied Sciences**", Centurion University *Jun 2022*
- Attendee, International Conference on **Emerging Trends in Plant Sciences, Biodiversity Conservation and Environment Sustainability,** Rayat Shikshan Sanstha *Nov 2022*

- Attendee**, 2nd International Agrobiodiversity Congress**, CGIAR Research Program *Nov 2021*
- Attendee, **Sustainable Agronomy Conference**, American Society of Agronomy *Aug 2021*
- **International Scientist-Student Interface**, College of Agriculture, Pune, India *Jan 2020*
- **India International Science Festival,** Uttar Pradesh, India *Nov 2018*

AWARDS

- **Third Prize, Poster Presentation, The 2024 ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX.** *Nov 2024*
- **ASPEE University Gold Medal (Plant Protection),** Mahatma Phule Krishi Vidyapeeth *Feb 2024*
- **Winner of Olympiad of Federal Universities, Russia in Soil Science** *Mar 2023*
- **Best Poster Presentation Award** at 3rd Zonal Conference on Natural & Organic Farming, AGRIVISION *Dec 2022*
- **First Prize, Oral Presentation of Group Project,** Three Week Certificate Courses on "Basic Geo-Informatics for Climate Smart Agriculture", Mahatma Phule Krishi Vidyapeeth *Mar 2021*

PROFESSIONAL SKILLS

- **Programming:** MS Office | Adobe Photoshop (Basic) | Python | R | SAS | DSSAT | Machine Learning|
- **Laboratory Skills:** Soil Nutrient Analysis | LICOR 2000 | Hyprop |

EXTRA-CURRICULAR ACTIVITY

- **Nature Photographer**
  Personal blog link: www.agricosphotography.blogspot.com
- **Student Ambassador: PUSA Krishi, ICAR-IARI, New Delhi, India** *Mar 2023 – present*
  Spread the word about Pusa Krishi's Incubation programs in Students and Startup Communities.
- **Volunteer: National Service Scheme, Pune, India** *Sept 2020 – Mar 2022*
  Organized webinars, training sessions, and workshops with a team of 10 students attracting 200+ participants and also organized social awareness programs and mega tree plantation drives.

CAREER REFERENCES

Dr. Rishi Prasad
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