

Dr. Sivendra Joshi, Ph.D.

Assistant Professor (Crop Improvement)

Genetics | Quantitative Genetics | Wheat Breeding | G×E Modelling

| Medicinal and Aromatic Plants

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Plant breeder and quantitative geneticist with 7+ years of experience in multi-environment wheat trials and 2+ years in applied crop improvement of medicinal and aromatic plants. Expertise in genotype × environment interaction modelling, combining ability analysis, heterosis, stability assessment, and biometrical approaches for stress resilience. Proficient in R-based statistical modelling, experimental design, Genotyping, Phenotyping and interpretation of complex breeding datasets. Research focused on climate resilience, yield stability, and selection strategy optimization in wheat.

Research Interests

- Genotype × Environment Interaction (G×E)
- Genetic Resource Conservation and Utilization
- Mixed Models and Variance Component Estimation
- Molecular marker assisted breeding strategies
- Selection Indices and Stability Parameters
- Climate Resilience and Heat Stress Breeding
- Quantitative Trait Dissection

EDUCATION

❖ Ph.D. Agricultural science (Genetics and Plant Breeding)

College of Agriculture, Department of Genetics and Plant Breeding, GBPUA&T, Pantnagar Uttarakhand, India. **2020 – 2024** <https://www.gbpuat.ac.in/>

Major subject - Genetics and Plant Breeding, Minor subject - Molecular Biology and Biotechnology

Thesis – Studies on gene action, heterosis and combining ability for grain yield and component traits in bread wheat (*Triticum aestivum* L. em. Thell).

<https://krishikosh.egranth.ac.in/handle/1/5810217712>

❖ Masters in Agricultural science (Genetics and Plant Breeding)

College of Agriculture, Department of Genetics and Plant Breeding, GBPUA&T Pantnagar Uttarakhand, India. **2016 – 2019** <https://www.gbpuat.ac.in/>

Genetics and Plant Breeding.

Thesis – G × E interaction and genetic studies for agronomic and climate resilient traits in bread wheat (*Triticum aestivum* L. em. Thell) <http://krishikosh.egranth.ac.in/handle/1/5810126650>

WORK EXPERIENCE

➤ Assistant Professor

Department of Crop Improvement, College of Horticulture, Veer Chandra Singh Garhwali Uttarakhand University of Horticulture and Forestry **10/2025 - Present**

Teaching advanced courses in Quantitative Genetics, Molecular Breeding, Varietal Development, Stress Breeding, and Plant Breeding Principles. Mentoring postgraduate students in experimental design and statistical analysis.

➤ TECHNICAL SKILLS

❖ Statistical & Data Analysis

- R (AMMI, GGE, stability parameters, biometrical models)
- SPSS
- BLUP and variance component interpretation
- Experimental design (RBD, Line × Tester, generation mean models)

❖ Breeding & Field Research

- Multi-environment trials
- Combining ability analysis
- Heterosis estimation
- Heat stress phenotyping
- Germplasm evaluation and selection
- Double haploid exposure and speed breeding concepts

❖ Molecular Tools

- SSR marker analysis
- Genetic diversity studies
- Trait mapping concepts

CERTIFICATES

➤ Course on Computer Concepts 2021

Basic computer course offered by National Institute of Electronics and Information Technology Govt. of India. <https://www.nielit.gov.in/index.php>

➤ GATE-2024 2024

Conducted by Indian Institute of Science (IISc), Bengaluru for Department of Higher Education, Ministry of Education (MoE), Government of India. <https://iisc.ac.in/>

Details of research publications and other certificates

1. Published Research papers

- [1] **Joshi S., K.T. V., Padalia R.C., Kumar D.** (2024). Multi-season-based estimation of genetic diversity, correlation and path analysis in spearmint (*Mentha spicata* L.) half-sib populations, *Ind. Crops Prod.*, 219 119150. <https://doi.org/10.1016/j.indcrop.2024.119150>. (NAAS Rating - 12.2; Impact Factor - 6.2).
- [2] **Joshi S., K.T. V., Gupta A., Padalia R.C., Kumar D.** (2024). Developing polyploid genetic resources for enhanced rebaudioside A synthesis and agronomic traits in *Stevia rebaudiana* Bertoni. *Plant Genet. Resour.* 1-9. (NAAS Rating – 6.0).
- [3] **Joshi S., Jaiswal J.P., Kumar A.** (2024). Estimation of Genetic Diversity among Bread Wheat (*Triticum aestivum* L. em. Thell) Genotypes, *J. Sci. Res. Reports*, 30 (7) 953–962. <https://doi.org/10.9734/jsrr/2024/v30i72205>. (NAAS Rating - 5.17).
- [4] **Joshi S., Kumar A., Chaudhary D., Bhatt B., Jaiswal J.P., Bisht C., Pant U., Banshidhar, Prasad H., Tripathi T.** (2024). Estimating the Inheritance Patterns of Peduncle length and Spike length in Bread Wheat (*Triticum aestivum* L. em Thell.), *J.*

- Exp. Agric. Int.*, 46 (7) 807–814. <https://doi.org/10.9734/jeai/2024/v46i72633>. (NAAS Rating - 5.14).
- [5] **Joshi S., Kumar A., Jaiswal J., Pant U., Chaudhary D., Bhatt B.** (2023). Estimation of combining ability and heterosis under normal and heat stress environments in hybrids of bread wheat (*Triticum aestivum* L. em. Thell), *Pharma Innov. J.*, 12 (9) 335–342.
 - [6] **Joshi S., Venkatesha K.T., Padalia R.C., Kumar D.** (2024). First insights into the AMMI and GGE biplot-based multi-environment analysis for morpho-chemical traits in spearmint (*Mentha spicata* L.) half-sib genotypes, *Ecol. Genet. Genomics*, 32 100274. <https://doi.org/10.1016/j.egg.2024.100274>. (SCOPUS Indexed & UGC approved).
 - [7] **Chaudhary H., Jaiswal J.P., Kumar A., Joshi S.** (2022). Determination of Genetic Variability and Diversity in Bread Wheat for Yield and Yield Contributing Traits, *Int. J. Plant Soil Sci.*, 16–23. <https://doi.org/10.9734/ijpss/2022/v34i1931084>. (NAAS Rating - 5.07).
 - [8] **Chaudhary D., Prashant S., Jaiswal J.P., Rohit R., Joshi S.** (2023). Comparative study of standard heterosis for yield and its attributes in bread wheat under two different water regimes, *Plant Genet. Resour.*, 21 (1) 50–57. <https://doi.org/10.1017/S1479262123000412>. (NAAS Rating - 6).
 - [9] **Chaudhary D., Prakash Jaiswal J., Kumar A., Joshi S., Kandwal N., Bhatt B.** (2023). Field Screening for Morpho-Physiological Traits in Bread Wheat (*Triticum aestivum* L. em. Thell) Genotypes under Moisture Stress, *Biol. Forum-An Int. J.*, 15 (2) 758. (NAAS Rating - 4.96).
 - [10] **Bisht C., Prasad B., Pant U., Verma S.K., Gaur A.K., Gupta S., Panwar N., Joshi S., Bisht Y.S., Prashad H., Deep H.** (2024). Rare inheritance studies on yellow sarson for petalous and apetalous traits, *Plant Genet. Resour. Characterisation Util.*, 22 (2) 125–130. <https://doi.org/10.1017/S147926212400008X>. (NAAS Rating - 6).
 - [11] **Bisht C., Prasad B., Pant U., Verma S.K., Gaur A.K., Gupta S., Panwar N., Joshi S., Bisht Y.S., Prasad H., Harsh deep** (2024). Unveiling the unquestionable dominance of multilocularity in Brassica rapa var. yellow sarson: pioneering advancements in Brassica crop enhancement, *Genet. Resour. Crop Evol.*, 1–9. <https://doi.org/10.1007/s10722-023-01846-8>. (NAAS Rating - 6).
 - [12] **Bisht C., Prasad B., Pant U., Verma S.K., Kumar Gaur A., Joshi S.** (2023). Genetic studies on flower color in crop varieties of yellow Sarson, *Pharma Innov. J.*, 12 (7) 2048–2050. <https://doi.org/10.1007/s10722-009-9424-z>.
 - [13] **Bhatt B., Swati, Jaiswal J.P., Khan R., Joshi S., Chaudhary D.** (2023). Assessment of Genetic Variability for Morpho-physiological and Yield Traits in Bread Wheat (*Triticum aestivum* L.), *Int. J. Environ. Clim. Chang.*, 13 (11) 2283–2291. <https://doi.org/10.9734/IJECC/2023/V13I113390>. (NAAS Rating - 5.16).

2. Popular Articles:

1. **Joshi, S., Kumar, A. and Prasad, B.** (2024). The importance of wheat in maintaining global food security. *Agrosphere*, 5(5), 1-3.
2. **Joshi, S., Kumar, A. and Chaudhary, D.** (2024). Non-gluten proteins in wheat: Composition, function, and health implications. *Current Agriculture Trends*, 3(4), 12-13.
3. **Joshi, S., Kumar, A., Jaiswal, J. P. and Bisht, C.** (2024). The importance of wheat germ oil: Nutritional, health, and economic benefits. *Sunshine Agriculture*, 4(4), 11-13.-----
4. **Joshi, S., Bhatt, B., Chaudhary, D. and Sharma, N.** (2024). Understanding gluten proteins in wheat: Composition, function, and implications. *The agriculture magazine*, 3(10), 388-389.

3. Book Chapters:

1. **Joshi, S., Venkatesha, K. T., Gupta, A. K., Padalia, R. C., Upadhyay, R. K., Kumar, D., ... & Singh, S. (2025).** Poppy Seeds (Khus Khus) (*Papaver somniferum*): The Tiny Seed of Flavor and Nutrient Density. In *Fasting Superfoods: Cultivation, Nutrition & Market Potential* (pp. 361-379). Singapore: Springer Nature Singapore.
2. **Joshi, S. (2023).** Hybrid breeding in Indian mustard. In *Hybrid seed production principles and procedures*. Jaya publishing house Delhi, India. 73–88. ISBN- 978-93-56511-93-4
3. **Prasad, H., Kumar, A. and Joshi, S. (2024).** Base editing, breeding behavior, and implication in crop improvement. In *Current Trends in Multidisciplinary Research*. Rubicon Publications, London, England. 11:63–80. ISBN– 978-1-80433-940-4-
4. **Chaudhary, D., Joshi, S., Arora, A., (2025).** Molecular markers and its breeding approaches in crop improvement. In *Advances in crop breeding*. Cornous Publication LLP, Puducherry, India. 108–127. ISBN– 978-81-973154-8-0

4. Seminars/Webinars attended:

1. The seminar titled "**Role of Legumes and Pulses in Sustainable Cropping Systems of Hot Arid Zones**", organized by Swami Keshwanand Rajasthan Agriculture University, **17-july-2021**.
2. The webinar titled "**Translating Physiological Tools to Augment Crop Breeding**", conducted by ICAR – Indian Institute of Wheat and Barley Research, Karnal. 17-19 March 2021.
3. The seminar "**Seed Production of Vegetable Crops: A Lucrative Venture**", organized by the College of Horticulture and Forestry, Central Agriculture University, Imphal, Phasighat, Arunachal Pradesh. 26-28 August 2021.
4. The webinar titled "**National Seed Systems and Policy Perspectives**", hosted by ICAR – Indian Agriculture Research Institute, New Delhi, 23 May 2020.
5. The seminar "**Advances in Chickpea Improvement and Impacts of Improved Varieties on Chickpea Production**", organized by Plantgenomia, 08 August 2021.

5. Conferences attended:

1. The "**International Conference on Advances in Medicinal & Aromatic Plant Research in Context to Indian Ocean Region (Ensuring Trade, Sustainability and Global Transformation)**" organized by Central Institute of Medicinal & Aromatic Plants, Lucknow, Uttar Pradesh, India. 4-6 February 2025.
2. The "**National Conference on Quality Seed Production: Backbone to National Food Security**", organized by G. B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India, and ICAR – IISS, Mau, Uttar Pradesh. 4-6 March 2024
3. The conference titled "**Genetics and Plant Breeding Research in Post COVID-19 Era**", organized by the Department of Genetics and Plant Breeding, Ch. Charan Singh University, Meerut. 13-14 June 2020.

6. Workshops attended:

1. The "**3-Day International Workshop on Scientific Writing**", organized by G. B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India. 4-6 February 2023.
2. The "**One-Day Workshop on Intellectual Property Rights**", conducted by the IPR Cell of G. B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India. 30 March 2024.

7. Symposium:

1. The "**National Symposium Remembering Gregor Johann Mendel on His Bicentennial Birth Year (From Scratch to Factor to Gene to Genome)**", organized by the Department of Genetics and Plant Breeding, G. B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India. 5-6 May 2022.

8. Trainings:

1. The "**3-Day Training on Application of Artificial Intelligence Tools in Agriculture**", organized by IDP-NAHEP at G. B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India. 22-24 May 2020.
2. The "**One-Day Training on Introduction to R for Biological Sequence Data Analysis**", conducted by the University of Trans-Disciplinary Health Sciences and Technology. 27 May 2020.

9. Memberships:

1. Life membership in the Indian Society of Genetics and Plant Breeding.
2. Life membership in the Indian Society of Plant Genetic Resources.