BIODATA

1.. Name : Dr. Beena R.

2. Mailing Address : Assistant Professor, Department of Plant Physiology, College of Agriculture, Vellayani, Thiruvananhapuarm-695522

3. Date of Birth & Gender: : 25-12-1975, Female

4. Educational Qualifications (Starting from Graduation onwards):

Sl. No.	Degree	University	Year	Subjects	Percentage
1.	Ph.D.	Tamil Nadu Agricultural University	2005	Crop Physiology	9.57
2.	M.Sc. (Ag.)	Kerala Agricultural University	2000	Plant Physiology	9.20
3.	B.Sc.(Ag.)	Kerala Agricultural University	1998	Agriculture and allied subjects	8.70

5. A. Details of professional training and research experience, specifying period.

- Five days "International workshop on Phenotyping for drought tolerance" from 7th to 11th March 2023, organized by ICAR- National Research Centre for Banana, Trichy, India and Alliance of Biodiversity International, International Centre for Tropical Agriculture (CIAT), Columbia, USA.
- International training cum workshop on "Seed testing for quality assurance under the aegis of Indo-German corporation on Seed Sector Development; TNAU, March 7-10,2022
- International Webinar cum Workshop on "Seed Quality Enhancement" under the aegis of Indo-German Cooperation on Seed Sector Development". ICAR-Indian Institute of Millets Research, Hyderabad and Tamil Nadu Agricultural University, Coimbatore, 23-25 Jan 2021.
- One week International online training on "Recent Physio-molecular digital tools in abiotic stress management for crop modeling", organized by Centre for Advance Agricultural science and technology (CAAST), Centre of Excellence for Digital Farming Solutions for Enhancing Productivity by Robots, Drones and AGVs, VNMKV, Parbhani under National Agricultural Higher Education Project (NAHEP) by ICAR, New Delhi and World Bank during 29th June to 3rd July, 2020.
- Fourteen days DST training programme on "Basic and advanced proteomics approaches-Omics technologies for life sciences" at IIT-Bombay, 22ndSept- 4th Oct, 2019.

- Ten days training on "Phenomics, the next generation phenotyping (NGP), the trait dissection and crop improvement" at Department of plant physiology, ICAR-IARI, New Delhi during 22-31 October, 2018.
- 21 days training on 'Molecular breeding with emphasis on developing climate resilience rice varieties" from 02-22 November, 2016 organized by ICAR- Indian Institute of Agricultural Research, Cuttack, Odisha.
- 21 days course on "Current Biochemical and Molecular Techniques for Nutritional Enhancement and Stress Tolerance in Plants" from1st -21st November, 2012, organized by Centre of Advanced Faculty Training, Division of Biochemistry, ICAR-IARI, New Delhi.
- 21 days course on "Physiological and molecular basis of plant adaptations to drought" from Sept. 17th to Oct. 8th 2007, organized by the Department of Crop Physiology, University of Agricultural Sciences, GKVK, Bangalore supported by Indian Council of Agricultural Sciences (ICAR), New Delhi.
- 12 days course on "Application of molecular markers for crop improvement" from Nov 8th to Nov 19th, 2010, organized by Centre of Excellence in Genomics, ICRISAT, Hyderabad, sponsored by Department of Biotechnology, Govt. Of India.
- 21 days course on "Molecular characterization of GMO's and its purity testing", from Dec 1st to Dec 21st, 2011, organized by NSRTC, Varanasi, at Seed Centre, Dept. Of Seed Science and Technology, Tamil Nadu Agricultural University, Coimbatore-3.

1. **B. Details of employment (past & present)**.

a. Present employment – Assistant Professor (Plant Physiology) at Department of Plant Physiology, College of Agriculture, Vellayani, Kerala Agricultural University.

b. Assistant Professor (Plant Physiology) at Regional Agricultural Research Station, Kerala Agricultural University, Pattambi, Palakkad, since **29th July, 2009 to 25th May, 2015.**

c. **Past experience** – 1. Worked as Post Doctoral Research Associate in the Department of Crop Physiology, University of Agricultural Sciences, GKVK, Bangalore from Aug, 2006 to July, 2009 in the project entitled 'Molecular, Environmental and Nutritional evaluation of Bambara groundnut (*Vigna subterranea* Verdc.) for food production in Semi Arid Africa and India". This project was funded by European Union.

C. Details of projects completed:

S.No.	Title	Funding Agency	Amount sanctioned	Year
1.	Identification of microsatellite markers associated with drought tolerant traits in rice	Kerala Biotechnology Commission	16.36 Lakhs	2011-2014
2.	Rationalization of organic management practices for aerobic rice	State Planning board, Govt of Kerala	2.73 Lakhs	2011-2013
3.	Physiological and biochemical basis of heat tolerance in rice	ICAR- One time grant	50 Lakhs	2012-2014
4.	Screening of rice varieties to develop a thermo-tolerant variety using temperature induction response technique.	KSCSTE-Young Scientist Award	1.00 Lakhs	2014-2017
5.	Elucidation of temperature tolerance mechanisms and development of suitable management strategies in rice (*Oryza sativa* L.)	State Planning board, Govt of Kerala	2.5 Lakhs	2018-2020

Ongoing project:

S.No.	Title	Funding Agency	Amount sanctioned	Year
1.	Ecological restoration and agro-biodiversity conservation of Vellayani lake ecosystem at College of Agriculture, Vellayani	Kerala State Biodiversity Board	50 Lakhs	2023-24
2.	Network project on development of high yielding short duration rice varieties tolerant to abiotic stress through marker assisted breeding and mutagenesis.	State Planning board, Govt of Kerala	50 Lakhs	2020-2024
3.	Identification of molecular markers and QTLs linked to	State Planning board, Govt of	20 Lakhs	2021-2025

	nutritional and functional properties of specialty land races of rice (*Oryza sativa* L.) from Kerala using association genetic analysis	Kerala		

D. Varieties developed: Involved in the development of two rice varieties namely, Ptb-61(Supriya) and Ptb-62 (Akshara) suited for *Kharif, rabi* and summer season of Kerala.

Beena R 2005. Studies on physio- morphological traits and genetic markers associated with drought responses in rice (*Oryza sativa* L.). Ph.D. thesis submitted to Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, India.

I Book chapters

1. Mayes, S., Basu, S., Murchie, E., Roberts , J.A., Azam-Ali, S.N., Stadler, F., Mohler, V., Wenzel, G., Massawe, F., Kilian, A., Bonin, A., Beena, R. and Sheshshayee, M.S. (2009). BAMLINK - A cross disciplinary programme to enhance the role of bambara groundnut (Vigna subterranea l. verdc.) for food security in Africa and India. Acta Hortic.806,137-150 DOI: 10.17660/ActaHortic.2009.806.15. https://doi.org/10.17660/ActaHortic.2009.806.15

2.Sheshshayee M.S., Shashidhar G. Parsi, Madhura J.N., Beena R., Prasad T.G. and Udayakumar M. 2011. "Drought phenotyping in crops: from theory to practice". (Eds. Philippe Monneveux and Jean-Marcel Ribaut). CGIAR Generation Challenge Programme/ CIMMYT.

3. Beena R, (2012c) An overview on QTLs linked to physio-morphological traits under water limited condition in rice (Oryza sativa L.). In: Advances in Plant Physiology, An International Treatise Series, Ed. Hemantaranjan A, Scientific Publishers 13:233-249

4. Beena, R., Sheshshayee M.S., Madhura J.N., Prasad T.G. and Udayakumar M., 2012b.Development of SSR markers and genetic variability in physiological traits in bambara groundnut (Vigna subterranea L. Verdc). Prospects in Bioscience: Addressing the Issues. Springer Nature Publishing. (Eds Sabu,A and Anu A.). Springer Publication.. pp 229-242.

5. Beena, R., Sheshshayee M.S., Prasad T.G. and Udayakumar M., 2012.Bambara Groundnut: A drought hardy crop. (Eds. Bijukumar,A). Agrobiodiversity. Narendra Publishing House, New Delhi. Pp: 453-463.

6. Beena R., 2013. Research paradigm and inference of studies on high temperature stress in rice (Oryza sativa L.). In: Advances in Plant Physiology, An International Treatise Series, Ed. Hemantaranjan A, Scientific Publishers 14: 497-511.

7. Ch.L.N. Manikanta, P. Ratnakumar, R. Manasa, Brij B. Pandey, P.R. Vaikuntapu, Akankhya Guru, Arti Guhey, R. Beena, K Ramesh and Yogeshwar Singh. 2022. Chemical elicitors- a mitigation strategy for maximize crop yields under abiotic stress. IN: Plant stress mitigators: types, techniques and functions. Edited by:Ghorbanpour, M. and Shahid, M.A. Elsevier: Academic Press.ISBN: 978-0-323-89871-3.

8. Jha, U.C., Nayyar, H., Sharma, K.D., Jha, R., Thudi, M.,Bakir, M., Lone, A.A., Tripathi, S., **Beena, R.,** Paul,P.J., Dixit, G.P., Prasad, PV.V. and Siddique, K.H.M**. (2023).** Chickpea Diseases: Breeding and "Omics" Approaches for Designing Next-Generation Disease-Resistant Chickpea Cultivar. In: Jha, U.C., Nayyar, H., Sharma, K.D., von Wettberg, E.J.B., Singh, P., Siddique, K.H. (eds) Diseases in Legume Crops. Springer, Singapore. https://doi.org/10.1007/978-981-99-3358-7_1.

9. **R. Beena,** P.R. Nithya and Roshni Vijayan. **2024**. Crop Wild Relatives of Pea (*Pisum sativum*) for Designing Future Climate-Resilient Cultivars. In: Legume Crop Wild Relatives: Their Role in Improving Climate Resilient Legumes. Editors: Uday Chand Jha, Harsh Nayyar, Kamal Dev Sharma, Eric J Bishop von Wettberg, Kadambot H. M. Siddique. Taylor & Francis Group, LLC, FL 33487,U.S.A. Page No. 132-152. DOI: 10.1201/9781003434535-8.

II Research Articles:

1. Saranya Sasikumar, Sarada S, Merin EG, Joy M, Beena T, Swapna A, **Beena R. 2025.** Anthracnose resistance in leguminous vegetables- A review. Plant Science Today (accepted). https://doi.org/10.14719/pst.9498. NAAS- 6.7.

2. ARYA S. NAIR, GAYATHRI G., **BEENA R.,** USHA C. THOMAS, PRATHEESH P. GOPINATH, SEEJA G. AND AMARESH CHANDEL. 2025. Morpho-biochemical responses and fodder yield assessment of cowpea (vigna unguiculata l. walp) genotypes under waterlogging stress. Forage Research. 50(4) : pp. 382-389. NAAS- 4.76.

3. Aparna S, Raj SK, **Beena R,** Smitha B, Vandana DVS, Aswin M, Anand RD, Meenakshi RP. 2025. Seed invigouration in pulses: More vigour, more yield. **Plant Science Today** (Early Access). https:/doi.org/10.14719/pst.7871. NAAS- 6.7.

4. Arya S. Nair, Gayathri G, Beena R, Usha C. Thomas , Pratheesh P. Gopinath, Seeja G and Amaresh Chandel. 2025. Understanding Waterlogging Stress in Cowpea: An Overview. Journal of Advances in Biology & Biotechnology. 28(6): 1069-1080. DOI: https://doi.org/10.9734/jabb/2025/v28i62465.NAAS- 5.3.

5. Airina, C.K., Sarada, S., Radhika, N.S., Beena, T., Rafeekher, M. and **Beena, R**. (2025). Estimates of Gene Effects of Yield and Mosaic Resistance in Yard Long bean [Vigna

unguiculata subsp. sesquipedalis (L.) Verdcourt]. **Legume Research**. 1-7. doi: 10.18805/LR-5436. NAAS- 6.8.

6. Elizabeth Jose, Soni KB, Swapna Alex, Shalini Pillai P., **Beena R.,** Roy Stephen, Manjushri Dinkar Dongare. 2025. An optimized method for high quality RNA isolation from field-grown mature roots of rice. Plant Science Today (accepted). **https://doi.org/10.14719/pst.7161**. NAAS-6.7.

7. Reshma Mohan, **R. Beena**, Madamsetty Phani Kumar , Manikanta Ch L N, Nivedhitha M.S, Pratheesh P. Gopinath. 2025. Seed priming with silicon dioxide and potassium nitrate alleviates water stress ill effects in chilli (Capsicum annuum L.) by suppressing Reactive Oxygen Species (ROS) accumulation and improving antioxidant defense systems.. Plant Science Today (accepted). **https://doi.org/10.14719/pst.5814**. NAAS- 6.7.

8. **Beena R**., Sowmiya S.,Visakh, R.L., Shelvy S., Sasmita B., and Sah R.P. **2025**. Unravelling Genetic Mechanisms for Heat Tolerance in Rice landraces of Kerala, India. **Euphytica**, 221, 51 . https://doi.org/10.1007/s10681-025-03504-9. NAAS- 7.6, IF- 1.6.

9. Lakshmi, G. A., P. S. Abida, M. S. Parvathi., Rose Mary Francies., Latha A., **Beena R**., and Sankar C. 2025. "Mapping Heat Resilience: Parental Polymorphism Study in Contrasting Rice (Oryza Sativa L.) Genotypes Using Micro Satellite Markers". Journal of Advances in Biology & Biotechnology 28 (2):322-29. https://doi.org/10.9734/jabb/2025/v28i21993. NAAS- 5.3.

10. Koshy, N.G., Rajan A. S., Anith, K. N., Chitra, N. , Soumya , V. I., Scaria, T.M. and **Beena R. 2025**. Beyond the pink: uncovering the secrets of pink pigmented facultative methylotrophs. **Archives of Microbiology**. 207:80, https://doi.org/10.1007/s00203-025-04280-9. NAAS- 8.3; IF- 2.3.

11. Reshna, O.P. and **Beena R. 2025.** Salinity tolerance mechanisms in rice. Indian Journal of Agricultural Research.59 2): 179-186. 10.18805/IJARe.A-5760. NAAS- 5.6.

12. Sushitha, K., Sajeena, A, Radhakrishnan, NV, Joy M, John J, Alex S and **Beena R. 2025.** Endophytic Xylaria sp. enhances tolerance in riceto bacterial leaf blight and promotes growth. **Eur J Plant Pathol**. https://doi.org/10.1007/s10658-025-03014-3. NAAS- 7.7, IF- 1.7.

13. Thomas, S.L., Bindhu, J. S., Shalini Pillai, P., Biju, J. , Sarada, S., Beena, R. and Gopinath, P. 2025. Standardization of Nutrient Sources and Foliar Calcium Nutrition for Productivity Enhancement in Grafted Tomato. International Journal of Plant & Soil Science. 37(5): 1-9. DOI: https://doi.org/10.9734/ijpss/2025/v37i55422.

14. Nalam, SR, Seeja G, **Beena R,** Nivedhitha MS and Pratheesh PG. **2025.** Impact of Gametocides on Pollen Sterility and Growth Traits in Chilli (Capsicum annuum L.). Journal of Advances in Biology & Biotechnology. 28(1): 711- 718. DOI: https://doi.org/10.9734/jabb/2025/v28i11926. NAAS- 5.3.

15. Sanchika Snehi, Pawan Kumar Singh, **R. Beena**, Suneetha Kota, Satish Kumar Sanwal, K. T. Ravi Kiran,· C. Anilkumar, Krishnendu Chattopadhyay , Nitish Ranjan Prakash, Rameswar Prasad Sah. **2025**. QTL-Meta-analysis and Candidate Gene(s) for Anaerobic Germination Potential in Rice. **Journal of Plant Growth Regulation**. https://doi.org/10.1007/s00344-024-11618-y.

16. S. Anand, R. L. Visakh, R. Nalishma, R. P. Sah**, R. Beena. 2024.** High throughput phenomics in elucidating drought stress responses in rice (Oryza sativa L.). **Journal of Plant Biochemistry and Biotechnology**. 10.1007/s13562-024-00949-2. NAAS- 7.9. IF-1.6.

17. Amrutha, V. and Beena, R. **2024.** Characterizing Tomato Genotypes for High Temperature Stress Adaptation in Field Conditions. **Vegetos**. 10.1007/s42535-024-01109-6. NAAS- 5.68.

18. Anie, T. and Beena R., **2024**. Sucrose metabolism in plants under drought stress condition: A review. **Indian Journal of Agricultural Research**. 10.18805/IJARe.A-5805. NAAS- 5.6.

19. Anu Rajan S, Manju Bhargavi Yarlagadda, Chitra Natarajan, Soumya V.I., Beena Radha, Anith K. N. 2024. Pink Pigmented Facultative Methylotrophs (PPFMs) improve rooting in black pepper (*Piper nigrum* L.) cuttings and mitigate drought stress. Plant Science Today. https://doi.org/10.14719/pst.4546

20. Blessy, R.J., Nivedhitha, M.S., Beena, R., Sheeja, K. Raj and Nithya, P.R. 2024. Organic Grain Protectants for Enhancing Storability of Rice Seeds. International Journal of Plant & Soil Science. 36(11): 41-49. DOI: https://doi.org/10.9734/ijpss/2024/v36i115119.

21. Pooja P., Adheena R.A., Seeja, G., Beena, R. and Bindhu J.S. 2024. Drought Stress Screening in Backcross Inbred Lines of Rice (Oryza sativaL.) at Germination and Seedling Stage. International Journal of Plant & Soil Science. 36(10): 590-600. DOI: https://doi.org/10.9734/ijpss/2024/v36i105109.

22. R.L. Visakh , S.Anand, R.Nalishma, G.Seeja, R.P.Sah, R.Beena. **2024.** Unlocking Rice Drought Tolerance through Affordable Phenotyping Methods. **Plant Physiology Reports.**
23. https://doi.org/10.1007/s40502-024-00823-2 NAAS- 7.7; IF- 1.5.

24. Amrutha, V., Reshma, M., Manju, R.V.,. Anith K.N , Gopinath, P.P., Sarada, S., and Beena R.**2024.** High temperature stress induced changes in physiological, biochemical, hormonal

and gene expression patterns in contrasting tomato genotypes. **Plant Physiology Reports**. DOI : 10.1007/s40502-024-00829-w. NAAS- 7.7; IF- 1.5.

25. Visakh, R.L., Anand, S., Reddy, S.B., Jha, U.C., Sah, R.P. and **Beena, R.** .**2024**. Precision Phenotyping in Crop Science: From Plant Traits to Gene Discovery for Climate-Smart Agriculture. **Plant Breeding**. 0:1–29 1 of 29. https://doi.org/10.1111/pbr.13228. NAAS- 8; IF- 1.5.

26. Anadhu, S., Visakh, R.L., Sah, R.P., Soni, K.B., Swapna Alex, ', Manju R.V. and **Beena R.**. 2024. Unveiling genetic diversity and population structure for nutraceutical and grain ionome profile in traditional rice cultivars. **Genetic Resources and Crop Evolution**. https://doi.org/10.1007/s10722-024-02224-8. NAAS- 8; IF- 1.6.

27. Thomas, S. L. , Bindhu, J. S., Pillai, S. P., Beena, R. , Biju, J. and Sarada, S. 2024. Nutrient Dynamics and Moisture Distribution under Drip Irrigation System. Journal of Experimental Agriculture International. 46(10): 485-493. DOI: https://doi.org/10.9734/jeai/2024/v46i102972. NAAS- 5.14.

28. Mohanty, S.P., Azharudheen, T.P M., Anilkumar, C., Behera, S., Pradhan, A.K., **Beena, R**., Chidambaranathan, P., Devanna, B.N.,Marndi, B.C., Dash, S.K., Meher, J. and Rameswar Prasad Sah, R.P. **2024.** Genome-Wide Association Study Revealed the Genetics of Seed Vigour Traits in Rice (*Oryza sativa* L.). **Plant Breeding**. 0:1–12. https://doi.org/10.1111/pbr.13225. NAAS- 8; IF- 1.5.
29. Simhi Samyukta, Viji M M, Manju R V, Anith K N, Nisha S K, and **Beena R.** 2024. Synergy of biochar and biofertilizers to improve bell pepper fruit biochemical quality with increased soil carbon, Azospirillum population and mycorrhization. **Plant Science Today** (accepted). https://doi.org/10.14719/pst.4283. NAAS- 6.9; IF- 0.7.

30. Sushitha, Sajeena, A., Radhakrishnan, N.V., Johnson, J.M., Swapna, A and R.Beena, 2024. Natural Defense: The Inhibitory Effects of Endophytic Bacillusand Xylaria sp. against Rice Pathogens. International Journal of Plant and Soil Science.36(10): 208-219. DOI: https://doi.org/10.9734/ijpss/2024/ NAAS- 5.07.
31. Ammu AJ , Roy S, Manju R V, **BEENA R** , RAFEKHER M and SARADA S. 2024. Genetic Variation for Tolerance to High Temperatures in Tomato Using Critical Sterility Temperature. International Journal of Environment and Climate Change. 14(10): 110-116. ISSN: 2581-8627. DOI: https://doi.org/10.9734/ijecc/2024/v14i104472. NAAS- 5.16.
32. Lekshmi Sekhar, Ameena, M., Nimmy Jose, **Beena, R**., Susha, V.S. and Fathima Umkhulzum. 2024. Differential response of grass weeds to ALS inhibiting broad-spectrum herbicide bispyribac-sodium. **Indian Journal of Weed Science** (2024) 56(2): 136–141. http://dx.doi.org/10.5958/0974-8164.2024.00023.4. NAAS- 5.42.

33. Reddy, N.R.S., Thomas, B., Gayathri, G., Seeja, G. and **Beena, R**. 2024. Study on Genetic Variability and Heritability in F_3 Population of Yard Long Bean (Vigna unguiculata subsp.

sesquipedalis (L.) Verdcourt) for Yield and its Components. International Journal of Plant & Soil Science. 36(7): 482-493. .IJPSS.118577 ISSN: 2320-7035. NAAS- 5.07.

34. Raghunath M.P., **Beena R**. (2024). Manipulation of Flowering Time to Mitigate High Temperature Stress in Rice (Oryza sativa L.). **Indian Journal of Agricultural Research**. 58(3): 484-487. doi: 10.18805/IJARe.A-5707. NAAS- 5.6; IF- 0.64.

35. Jha UC, Nayyar H, Thudi M, **Beena R**, Prasad PVV and Siddique KHM (**2024**) Unlocking the nutritional potential of chickpea: strategies for biofortification and enhanced multinutrient quality. **Front. Plant Sci**. 15:1391496. doi: 10.3389/fpls.2024.1391496.. NAAS- 11.6; IF- 5.6.

36. Diya, A., Beena, R. and Jayalekshmy, V.G. 2024. Physiological, biochemical and molecular mechanisms of seed priming : A review. Legume Research. 47(2): 159-166. 10.18805/LR-4638 NAAS- 6.8. IF- 0.63

37. Kunhikrishnan Hemalatha Dhanyalakshmi, Reshma Mohan, Sasmita Behera, Uday Chand Jha, Debashis Moharana, Ahalya Behera, Sini Thomas, Preman Rejitha Soumya, Rameswar Prasad Sah, **Radha Beena**. 2024. Next Generation Nutrition: Genomic and Molecular Breeding Innovations for Iron and Zinc Biofortification in Rice. **Rice Science**.31: (): https://doi.org.10.1016/ NAAS- 10.8; IF- 5.6.

38. Nalishma, R., Viji, M.M., Raju, S., Senthilkumar, K.M., Manju,R.V., Roy, S and **Beena, R.** 2024. Screening of sweet potato (*Ipomea batatas* L.Lam) cultivars for drought tolerance multi –index analysis. International Journal of Advanced Biochemistry Research. 8(4): 533-538. NAAS- 5.29.
39. Lekshmy Mohan, S., **Beena R**. and Joy, M. **2024.** An improvement in water stress tolerance in rice by altering morpho-physiological and biochemical mechanisms using root colonizing endophyte *Piriformospora indica* . Vegetos. 10.1007/s42535-024-00832-4. NAAS- 5.68. IF- 1.62.
40. Visakh, R.L., Anand, S., Arya, S. N., Sasmitha, B., Jha, U.C., Sah, R.P. and **Beena, R**. **2024.** Rice heat tolerance breeding: A comprehensive review and forward gaze. **Rice Science**. 31(4): 375-400. https://doi.org/10.1016/j.rsci.2024.02.004. NAAS- 10.8; IF- 5.6.

41. Vijayakumar, A. and **Beena, R**. 2023. Response of Tomato Quality and Yield to Elevated Temperatures under Controlled Environment. International Journal of Environment and climate change. 13(12): 256-271. IJECC.110465 ISSN: 2581-8627.NAAS- 5.16.

42. Josiya Joy, Radhika N. S., Joy Michal Johnson , Radhakrishnan N. V., Susha S. Thara , Makeshkumar T.and **Beena R**.. 2023. Distribution of *Papaya Ring Spot Virus* Infecting Papaya in Kerala, India. International Journal of Plant and Soil Science. 35(23): 97-105. IJPSS. 110624. ISSN: 2320-7035. NAAS- 5.07.

43. Jose, E., Soni, K.B., Alex, S., Shalini, P., Beena, R and Stephen, R. 2023. Molecular frameworks of nitrogen response in plants- A review. International Journal of Environment and Climate Change. 13(12): 380-390. DOI: 10.9734/IJECC/2023/v13i123694. NAAS- 5.16.

44. Arunima, A. S., Manju , R.V., Viji, M. M., Roy, S., Sarada, S. and **Beena, R**. 2023. Role of Nutrients and Biofertilizers for Improved Tolerance of Tomato under Elevated Co2 Induced High Temperature Stress. Journal of Experimental Agriculture International. 45(12): 9-15. JEAI.109160 ISSN: 2457-0591. NAAS- 4.89.

45. Arya M., Radhika N.S., Joy M , Heera G. and **Beena R. 2023**. Distribution of Stunted Disease of Black Pepper in Kerala, Varietal Response and Sero-molecular Characterization of PYMoV. Journal of Tropical Agriculture 61(1): 111-116. NAAS- 4.85 , IF-0.6.

46. Shankar, C., Abida, P.S., Jiji, J., Francis, R.M., Mathew, D. and **Beena R. 2023**. Evaluation for parental polymorphism and identification of microsatellites linked to drought tolerance in rice. International Journal of Plant and Soil Science. 35(22): 275-284. DOI: 10.9734/IJPSS/2023/v35i224134. NAAS- 5.07.

47. Subhashini Shinde, P. S. Abida, Manjesh Saakre, Haseena Bhaskar, **R. Beena** and R. Preetha. **2023**. Identification and comparative analysis of differential proteins expression in rice under biotic stress by protein sequencing. Cereal Research Communications.52(4): 1587-1598. 10.1007/s42976-023-00464-5. NAAS- 7.24; IF- 1.77.

48. Koya Madhuri Mani; Joy Michel Johnson; Anith K Narayanan; P. Shalini Pillai; Jacob John; **Radha Beena. 2023**. Endophytic root colonization by Piriformospora indica mitigates drought stress in rice by modifying the root architecture. Rhizosphere. 28:1-5. https://doi.org/10.1016/j.rhisph.2023.100799.NAAS- 9.44; IF-3.7.

49. Amrutha V, **Beena R**., Shanija S., **2023**. Physiological and biochemical traits contributing for high temperature tolerance in tomato (*Solanum lycopersicum* L.). **Agricultural Research Journal**. 60(4):516-526. 10.5958/2395-146X.2023.00075.3.NAAS-5.44; IF-0.15.

50. Mani, K.M., Ameena M., Johnson, J.M., Pillai P..S., John, J. and **Beena R. 2023**. Root endophyte *Piriformospora indica* significantly affects mechanisms involved in mitigating drought stress in rice (*Oryza sativa*). **Indian Journal of Agronomy** 68 (3): 324-327. NAAS-5.55; IF-0.27.

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Mentorship provided (Students guided):

Student Guidance as major advisor:

1. Ph.D. Plant Physiology- 3

Title of thesis: 1. Identification of molecular markers and Quantitative Trait Loci (QTLs) associated with drought tolerant and plant production traits in rice (*Oryza sativa* L.*)* using association genetic analysis. Nithya N (2016-21-008)

2. High temperature mediated changes in sugar signaling pathway and identification of associated microsatellite markers in rice (*Oryza sativa* L.) Stephen Kukkamudi (2018-21-053)

3. Response mechanisms induced by exposure to high temperature in tomato genotypes and development of suitable management strategies for enhancing thermo-tolerance. Amrutha Vijayakumar (2020-21-014)

2. M.Sc. (Ag.) Plant Physiology – 7

1. Identification of microsatellite markers associated with drought tolerant traits in rice (*Oryza sativa* L.)Mr. Rejeth R N(2015-11-069)

2. Validation of Temperature Induction Response (TIR) technique for inducing drought and heat stress tolerance in rice (*Oryza sativa* L.*).*Reshma Mohan (2016-11-063)

3. Physiological and anatomical plasticity of root traits under water stress and molecular characterization using root specific genes in rice (*Oryza sativa* L.) Chennamsetti Lakshmi Naga Manikanta (2017-11-100)

4. Impact of foliar application of plant growth regulators and nutrients on high temperature stress mitigation in rice (*Oryza sativa* L.). Raghunath M.P. (2017-11-137)

5. Effect of high temperature on physiological, biochemical and yield parameters in tomato (*Solanum lycopersicum* L.). Amrutha Vijayakumar (2018-11-095)

6. Elucidating the role of growth promoting endophytic fungus *Piriformospora indica* for water stress tolerance in rice (*Oryza sativa* L.) Lekshmi Mohan S. (2019-11-197)

7. Elucidating the role of growth promoting endophytic fungus *Piriformospora indica* for salinity tolerance in rice (*Oryza sativa* L.) Reshna O. P. (2019-11-208)

3. B.Sc/M.Sc. Integrated Biotechnology-8

1. Identification of SSR markers for Heat tolerance in rice. Neethu .V. Mohan **(**2012- 09- 118)

2. Assessment of multiple abiotic stress tolerance mechanisms in rice (*Oryza sativa* L.) Alif Ali B. S. (2014-09-109)

3. Molecular characterization and construction of population structure of selected tomato genotypes (*Solanum lycopersicum* L.) under high temperature stress condition. Shanija Shaji (2015-09-005)

4. Physiological intervention and molecular analysis for high temperature tolerance in rice (Oryza sativa L.). Lakshmi G. (2016-09-031)

5. Impact of water stress on sucrose metabolism in rice (Oryza sativa L.) Anie Thomas (2016-09-032)

6. Population structure and genetic diversity analysis in traditional rice landraces of Kerala. Sowmiya S. (2017-09-018)

7. Identification of Simple Sequence Repeat (SSR) markers linked to high temperature tolerance in rice (Oryza sativa L.) by bulked segregant analysis. Aparna K. (2018-09-005)

8. Population structure and genetic diversity analysis for grain ionome and nutraceutical qualities in traditional rice landraces. Anandu S. (2019-09-006)

4. M.Sc. (Ag.) Seed Science and Technology- 5

1. Combined effect of water and heat stress on seed filling and nutritional quality of rice (*Oryza sativa* L.) Kandanulu Pravallika (2018-11-162)
2. Biopriming for seedling establishment, growth, yield and nutritional characters in tomato (Lycopersion esculentum Mill.). Diya Amreen (2019-11-249)
3. Efficacy of seed priming for inducing stress tolerance in chilli (*Capsicum annuum* L.) under water stress condition. Kanala Rohitha (2020-11-137)
4. Impact of seed priming on physiological and molecular mechanisms under water stress condition in chilli (*Capsicum annuum* L). Madamsetty Phanikumar (2021-11-152)
5. Exposure of seeds to simulated microgravity and its impact on growth and development in tomato. Ram Ambiya **(**2022-11-112)

Professional recognition, awards, fellowships received:

1) Best Publication Award from KAU- First Prize- 2025
2) Best Publication Award from KAU- Third Prize- 2024
3) Section Editor of Plant Science Today (2024-2025)
4) Editor of Plant Physiology Reports.

5) Best Research Paper Award (Oral) for paper entitled "Beneficial endophytes for the management of bacterial leaf blight in rice" during National Symposium on plant health management- current trends conducted by Indian Phytopathological Society and ICAR-CTCRI during 11-12 September 2023.

6) Dr. Harbhajan Singh Award for best paper in Vegetable Science Journal during 2022.

7) Best Centre for Plant Physiology, RARS, Pattambi, 2015. (Scientist worked as Plant Physiologist) All India Co-ordinated Rice Improvement Programme, ICAR.

8) "Young Scientist Award" of the Kerala State Council for Science, Technology and Environment in the subject area Agriculture based on the presentation of the paper entitled "Molecular mapping and identification of QTLs linked to physio-morphological and plant production traits in rice (*Oryza sativa* L.) in the 24th Kerala Science Congress held at Rubber Research Institute of India, Kottayam from 29th-30th January 2012.

9) Indian Council of Agricultural Research (ICAR) - Senior Research Fellowship

10) Council of Scientific and Industrial Research (CSIR) - Senior Research Fellowship