

Name: Dr Sunayan Saha

Designation: Senior Scientist
(Agrometeorology)



Contact Details

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Date of Birth (DD-MM-YYYY): 10-06-1982

Academic Background

Degree	Year	University / Institute
Bsc (Ag)	2005	Bidhan Chandra Krishi Viswavidyalaya, W.B., India
MSc (Ag. Physics)	2007	ICAR-Indian Agricultural Research Institute (IARI), New Delhi
Ph.D (Ag. Physics)	2012	ICAR-Indian Agricultural Research Institute (IARI), New Delhi

Research Experience:

Employment Record (Starting from the present position)					
Designation	Pay Scale/ Pay Band with Grade Pay	Nature of work	Organization	Institution & Place of posting	Period (From- To)
Senior Scientist	PB-3 RGP-8000	Agrometeorological Research	ICAR	Central Potato Research Institute (Regional Station: Jalandhar)	From 27-04-2020
Scientist (Sr. Scale)	PB-3 RGP - 7000	Agrometeorological Research	ICAR	Central Potato Research Institute (Regional Station: Jalandhar)	01-04-2017 to 26-04-2020
Scientist (Sr. Scale)	PB-3 RGP - 7000	Agrometeorological Research	ICAR	National Institute of Abiotic Stress Management, Baramati, Pune	27-04-2015 to 31-03-2017

Scientist	PB-3 RGP-6000	Agrometeorological Research	ICAR	National Institute of Abiotic Stress Management, Baramati, Pune	03-09-2011 to 26-04-2015
Scientist (Trainee)	PB-3 RGP-6000	Agrometeorological Research	ICAR	NAARM, Hyderabad	27-04-2011 to 23-08-2011

Research Projects					
Title of the Project	Whether PI/CO-PI/Associate	Duration	Category	Major Accomplishments	
Institutional					
Assessment of consumptive water use pattern and exploring water-efficient technologies for potato under changing hydro-climatic regimes [Programme: Nutrient and Water Management for Improved Productivity and Sustainability of Potato; ID: IXX18570/ Project 2]	PI	From 2020-21 to 2024-25	Basic & Strategic Research	Technology evaluation for various weather based drip irrigation scheduling (K. Jyoti); Water use versus yield & tuber quality (cracking) relations; Comparative evaluation of multiple evapotranspiration models; Comparative performance evaluation of image processing softwares & mobile app (ImageJ, Canopeo & AI-approach) for predicting canopy cover under different irrigation scheduling	
Evaluating Aquacrop simulation model for forecasting the potato productivity under changing climatic conditions [Programme ID: HORTCPRISIL202100100150 /Project 7]	PI	From 2020-21 to 2024-25	Basic & Strategic Research	Calibration and validation for potato; Developed new protocols/methodologies for estimation of a model parameter (CC%-canopy cover percentage) using digital images, ImageJ software and deep learning (AI) based approach	
Evaluation of newly released potato cultivars/ hybrids under elevated CO ₂ and rising temperature [Programme ID: HORTCPRISIL202100100150 / Project 2]	Co-PI	From 2020-21 to 2024-25	Basic & Strategic Research	Evaluation of newly released potato cultivars/ hybrids under elevated temperature conditions	
Identification of climate resilient potato cultivars in relation to	Co-PI	2017-18 to 2019-	Basic & Strategic Research	Protocol Development for Varietal Screening under Climate Change	

rising CO ₂ level and temperature [Programme ID: HORTCPRICIL201600100139/ Project 3]		20		(controlled environmental chambers); Recommended adaptive potato varieties under changing climate scenarios; Recommended Irrigation Scheduling under warming climate in Punjab condition
Development of agro-techniques for enhancing seed potato quality [Under the Service Programme: Development and production of nucleus and breeder seed of notified potato varieties through conventional and hi-tech systems]	Co-PI	2020-21 to 2024-25	Basic & Strategic Research	Evaluation of various irrigation scheduling strategies & mulching practices for seed potato production
Impact assessment and development of adaptation strategies for potatoes using modeling and GIS tools [Programme ID: HORTCPRICIL201600100139/ Project 1]	Co-PI	2017-18 to 2019-20	Basic & Strategic Research	Calibration and validation of InfoCrop & Aquacrop model; Quantifying the climate change effect on potato yield in different growing regions using InfoCrop
Monitoring and quantifying energy and mass fluxes from edaphically stressed crops in western Maharashtra: micrometeorological approach [Project ID: IXX09647]	PI	2013-14 to 2016-17	Basic & Strategic Research	Developed flux measurement protocols [GHG/CO ₂ ; Evapotranspiration/H ₂ O; Sensible heat energy] for Dhaincha, Wheat, Soybean and Chickpea crops under Western Maharashtra agro-ecological conditions; Validation of CO ₂ flux measurement using energy balance closure technique; Methodology for testing gas and energy flux dependence on soil-vegetation stress
Impact of radiation levels on physio-biochemical behaviour, yield and yield attributes in soybean (Glycine max) and rabi sorghum (Sorghum bicolor) [Project ID: IXX09650]	Co-PI	2013-14 to 2016-17	Basic & Strategic Research	Conceptualization of shade net structures for simulating reduced PAR micro-environment and its uniformity over field crops; Investigated the impact of reduced PAR and drought in soybean

Evaluation of water saving techniques for fruits and vegetables in shallow soils of semi-arid region [Project ID: IXX10721]	Co-PI	2013-14 to 2016-17	Basic & Strategic Research	Developed excel based protocol for reference evapotranspiration (ET) computations using meteorological data for irrigation scheduling; Evaluation of overall performance of tomato crop under different irrigation methods and scheduling strategies
Sponsored				
National Innovations in Climate Resilient Agriculture [NICRA]	Co-PI	2017-18 to 2019-20	Basic & Strategic Research	Impact of climate change on potential yield of potato varieties was assessed using WOFOST crop simulation model
Characterizing sugarcane and citrus stress responses to abiotic and biotic stresses through hyperspectral remote sensing [Project ID: OXX03595/ DST, GOI, Network Project]	Co-PI	2016 to 2017	Basic & Strategic Research	Generated spectral libraries for Sugarcane and Sweet Orange; Developed a protocol for distinguishing healthy and stressed sugarcane crops
ICAR-Consortia Research Platform on Conservation Agriculture: Conservation agriculture for enhancing resource-use efficiency, environmental quality and productivity of sugarcane cropping system [Project ID: OXX03355/ ICAR, Conservation Agricultural Platform]	CC-Co-PI	2015-16 to 2016-17	Applied Research	New management practices, based on conservation agriculture principle of ratoon sugarcane cultivation & trash management were evaluated
Consultancy				
-	-	-	-	-
Awards Received				
Items of Recognition	Year	Awarding Organization (National/International,	Individual/ Collaborative	

		Institutional/Professional Society/Academy)	
ICAR Award			
-	-	-	-
National Academy Award			
-	-	-	-
Institute Recognition			
Member of Multi-Institutional Technical sub-Committee (potato) under Restructured Weather Based Crop Insurance Scheme (RWBCIS)	2021	Ministry of Agriculture & Farmers Welfare, GOI.	Collaborative (Standardization of termsheets, weather triggers and risk periods for potato)
Paper Co-ordinator (Atmospheric Processes/Environmental Sciences) under UGC's e-PG pathshala programme	2017	HRD Ministry (now Ministry of Education), GOI [co-ordinated through Central University of Punjab]	Collaborative (coordinating among experts of 20 different institutes in preparing lecture modules for post graduate students)
Member of multi-institutional technical committee on Frost under Prime Minister Fasal Bima Yojana (PMFBY)	2020	MNCFC/Ministry of Agriculture & Farmers Welfare, GOI, New Delhi	Collaborative (Report preparation)
Evaluator for National Children Science Congress	2016	Department of Science & Technology, Govt. of India.	Individual

Professional Society Award			
-	-	-	-
Professional Society Recognition			
Co-Chairman in two technical sessions of the XVI Biennial Workshop of AICRP on Agrometeorology (AICRPAM)	2022	AICRP on Agrometeorology (AICRPAM, Hyderabad)	Individual
Rapporteur in a technical session during a Brainstorming Workshop Hyderabad	2023	Association of Agrometeorologists (AAM, Anand)	Individual
Editorial Boards			
-	-	-	-
Best Paper/poster award			
Best oral presentation	2021	Global Conference on “Innovative Approaches for Enhancing Water Productivity in Agriculture including Horticulture” organized at PJTSAU, Hyderabad	Individual
2 nd Best Oral presentation award	2021	International potato e-conference organized virtually from ICAR-CPRI, Shimla	Individual
Best oral presentation	2015	Indian Society of Plant Physiology (ISPP) west zonal seminar on “Enhancement of Crop Productivity through Physiological Interventions” organized at Navsari Agricultural University, Navsari, Gujrat, India.	Collaborative (as a co-author)
Best oral presentation	2016	National Seminar on “Breeding of field crops for biotic and abiotic stresses in relation to climate change” held organized at Parbhani (VNMKV), Maharashtra, India.	Collaborative (as a co-author)

Professional Affiliations

S.No.	Professional Affiliations
1	Life member (L27103) of Indian Science Congress Association (ISCA), Kolkata
2	Life member (L-3535) of the Indian Society of Remote sensing, Dehradun
3	Life member (LM-581) of the Association of Agrometeorologists, Anand
4	Life member (LM-2246) of the Indian Meteorological Society, New Delhi
5	Life member (LM-99) of the Indian Society of Agro Physics, New Delhi

Best Ten Research Publication's

SN.	Authors	Year	Title with full reference*	Journal with volume & page number	NAAS Journal ID/(Rating)[Score obtained]
1	Kaur, B., Kaur, N., Gill, K. K., Singh, J., Bhan, S.C. and Saha, S.	2022	Kaur, B., Kaur, N., Gill, K. K., Singh, J., Bhan, S.C. and Saha, S. (2022). Forecasting mean monthly maximum and minimum air temperature of Jalandhar district of Punjab, India using seasonal ARIMA model. Journal of Agrometeorology, Vol. 24(1): 42-49.	Journal of Agrometeorology, Vol. 24(1): 42-49.	NAAS JrnID-J034 (ISSN-0972-1665)/IF 6.55
2	Kumar, P., Kumar, D., Sharma, J., Saha, S. , Nare, B., Sharma, A., Kumar, R., Gupta, Y. K., Gupta, V.K., Dua, V. K. and Pandey, N. K.	2021	Kumar, P., Kumar, D., Sharma, J., Saha, S., Nare, B., Sharma, A., Kumar, R., Gupta, Y. K., Gupta, V.K., Dua, V. K. and Pandey, N. K. (2021). Impact of concurrent elevation in CO2 and temperature on tuber yield and associated traits of potato genotypes. Potato J. 48 (2): 134-140.	Potato Journal. 48 (2): 134-140.	NAAS JrnID-P159 (ISSN-0970-8235)/IF 5.29 (yr. 2024)
3	Kumar, P., Minhas, J.S., Sharma, J., Dua, V.K., Kumar, D., Saha, S. and Gupta, Y.K.	2018	Kumar, P., Minhas, J.S., Sharma, J., Dua, V.K., Kumar, D., Saha, S. and Gupta, Y.K. (2018). Impact of elevated CO2 level on growth, tuber yield and mineral content of Indian potato cultivars. Potato J. 45 (2):123-130.	Potato Journal. 45 (2):123-130.	NAAS JrnID-P159 (ISSN-0970-8235)/IF 5.29 (yr. 2024)

4	Bhagat, K P., Bal, S.K., Singh, Y., Potekar, S., Saha, S. , Ratnakumar, P., Wakchaure, G.C. and Minhas, P.S.	2017	Bhagat, K P., Bal, S.K., Singh, Y., Potekar, S., Saha, S., Ratnakumar, P., Wakchaure, G.C. and Minhas, P.S. (2017). Effect of reduced PAR on growth and photosynthetic efficiency of soybean genotypes. <i>Journal of Agrometeorology</i> . 19 (1): 1-9.	Journal of Agrometeorology. 19 (1): 1-9	NAAS JrnID-J026 (ISSN-0972-1665)/IF 6.36
5	Saha, S. , Bal, S.K. and Bhagat, K. P.	2016	Saha, S., Bal, S.K. and Bhagat, K. P. (2016). Fluxes and production efficiency of irrigated wheat ecosystem under edaphic constraints of western Maharashtra plateau: a micrometeorological investigation. Published in the <i>Journal of Agrometeorology</i> . 18(2):175-183.	Journal of Agrometeorology. 18(2):175-183.	NAAS JrnID-J027 (ISSN-0972-1665)/IF 6.15
6	Saha, S. , Bal, S.K., Minhas, P.S. and Singh, Y.	2014	Saha, S., Bal, S.K., Minhas, P.S. and Singh, Y. (2014). Net carbon-dioxide exchange in green manuring ecosystem, <i>Sesbania aculeata</i> : assessment through eddy covariance approach. <i>Journal of Agrometeorology</i> . 16(2): 149-156.	Journal of Agrometeorology. 16(2): 149-156.	NAAS JrnID-J027 (ISSN-0972-1665)/IF 6.15 [yr. 2016]
7	Bal, S.K., Choudhury, B.U., Sood, A., Saha, S. , Mukherjee, J., Singh, H. and Kaur, P.	2013	Bal, S.K., Choudhury, B.U., Sood, A., Saha, S., Mukherjee, J., Singh, H. and Kaur, P. (2013). Relationship between leaf area index of wheat crop and different spectral indices in Punjab. <i>Journal of Agrometeorology</i> 15(2): 98-102.	Journal of Agrometeorology 15(2): 98-102.	NAAS JrnID-J027 (ISSN-0972-1665)/IF 6.15 [yr. 2016]
8	Patil, D.V. Bhagat, K. & Saha, S.		Patil, D.V. Bhagat, K. & Saha, S. (2014). Effect of water stress at critical growth stages in drip irrigated muskmelon (<i>Cucumis melo</i> L.) of semi-arid region of Western Maharashtra, India. <i>Plant Archives</i> . 14. 161-169.	Plant Archives. 14. 161-169	NAAS JrnID-P092 (ISSN-0972-5210)/IF 5.59 (yr. 2024)
9	Saha, S. , Chakraborty, D., Sharma, A. R., Tomar, R. K., Bhadraray S., Sen, U., Behera, U. K., Purakayastha, T. J., Garg R. N. and Kalra, N.	2010	Saha, S. , Chakraborty, D., Sharma, A. R., Tomar, R. K., Bhadraray S., Sen, U., Behera, U. K., Purakayastha, T. J., Garg R. N. and Kalra, N. (2010). Effect of tillage and residue management on soil physical properties and crop productivity in maize (<i>Zea mays</i>)-Indian mustard (<i>Brassica juncea</i>) system. <i>The Indian Journal of Agricultural Sciences</i> . 80 (8): 679-685.	The Indian Journal of Agricultural Sciences. 80 (8): 679-685	NAAS JrnID-I034 (ISSN-0019-5022)/IF 6.4 (yr. 2024)

10	Singh, M., Kalra, N., Chakraborty, D., Kamble, K., Barman, D., Saha, S. , Mittal, R.B. and Pandey, S.	2008	Singh, M., Kalra, N., Chakraborty, D., Kamble, K., Barman, D., Saha, S. , Mittal, R.B. and Pandey, S. (2008). Biophysical and socioeconomic characterization of a water-stressed area and simulating agri-production estimates and land use planning under normal and extreme climatic events: a case study. <i>Environmental Monitoring and Assessment</i> .142:97-108.	Environmental Monitoring and Assessment	NAAS JrnID-E100 (ISSN-0167-6369)/IF 9.0 (yr. 2024)
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Foreign Exposure

SNo	Country	Period	Purpose
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