Krishna Jagadish SV
PhD (Agriculture [Crop Physiology]; University of Reading, UK)
MSc (Agronomy), BSc (Agriculture)

Current position and contact details

Associate Professor
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Crop ecophysiology Lab - https://www.agronomy.k-state.edu/crop-ecophysiology-lab/

Work experience

- Associate Professor (Crop Physiology), Department of Agronomy, Kansas State University, Manhattan, Kansas from May 2015 - Continuing
- Adjunct Scientist, Crop and Environmental Sciences Division, International Rice Research Institute from April 2015 - Continuing
- Scientist II – Team leader for IRRI's heat and combined drought and heat stress physiology research and as the *Deputy Division Head* at the Crop and Environmental Sciences Division, International Rice Research Institute from Mar 2014 - Apr 2015
- Scientist I - Team leader for heat stress physiology at the Crop and Environmental Sciences Division, International Rice Research Institute from Mar 2011 - Mar 2014
- Post-doctoral fellow at the Plant Breeding Genetics and Biotechnology Division, International Rice Research Institute from Feb 2008 - Mar 2011
- Visiting research fellow at the Plant Breeding Genetics and Biotechnology Division, International Rice Research Institute from Nov 2007 - Jan 2008
- Senior Research Fellow in a project funded by IFAD/IPGRI/MSSRF entitled "Enhancing the contribution of neglected and underutilized species to food security and to incomes of the rural poor" Dec 2002 - June 2003 at the University of Agricultural Sciences, Bangalore, India.

Professional qualifications

- Adjunct Assistant Professor – Ag. Economics and Agribusiness, University of Arkansas, USA (2013 - Continuing)
- Adjunct Professor – Genetic Engineering, SRM Institute of Science & Technology, TamilNadu, India (2019 – Continuing)
- Adjunct Faculty – Department of Crop Physiology, University of Agricultural Sciences, Bangalore, India (2020 – Continuing)

Successful grant proposals

As Project Investigator (PI)

- EPSCoR RII Track-2 FEC: Comparative genomics and phenomics approach to discover genes underlying heat stress resilience in cereals. Funded by National Science Foundation (1,715,216 USD) 2017 to 2021
- Unlocking the production potential of "polder communities" in coastal Bangladesh through improved resource use efficiency and diversified cropping systems. Funded by USAID Feed the Future Innovation Lab for Sustainable Intensification (999,508 USD) 2016 to 2019
- Redox-engineered soybean – a novel way to safeguard Kansas soybeans from severe drought and heat stress. Funded by Kansas Soybean Commission (80, 000 USD) 2020 to 2022

- Strategies to develop wheat genotypes to beat post-flowering heat and drought stress. Funded by the Kansas Wheat Commission (135,000 USD) 2015 to 2018
- Physiological and genetic characterization of grain sorghum for enhancing terminal heat and drought stress resilience. Funded by Kansas Grain Sorghum Commission (210, 000 USD) 2015 to 2019
- Impact of heat and drought stress on sorghum and wheat grain composition and chemistry. Funded by USDA as a multi-year extramural non-assistance cooperative agreement (362,266 USD) 2015 to 2020
- Tolerance to environmental stress in wheat. Funded by USDA as a multi-year extramural non-assistance cooperative agreement (599,889 USD) 2016 to 2020
- High throughput platform to enhance quality of beans and add value to Kansas Soybean Breeding Program. Funded by Kansas Soybean Commission (70,000 USD) 2017 to 2019
- Improving pearl millet productivity for smallholder resilience to climate change in Niger. Funded by USAID through US (KSU) - CGIAR (ICRISAT, Africa) linkage program (59,200 USD [30,000 USD for KSU]) 2015 to 2017
- Validating promising rice transgenic events identified with potential superior salt stress resilience. Industry funded (TeachAccel) (89,132 USD) 2016 to 2017
- Safeguarding Asian rice production from a rapidly warming climate. Funded by the German Federal Ministry for Economic Cooperation and Development Small Grants Program (BMZ) (1.2 million Euros) 2012 to 2014
- Physiological and molecular characterization of rice hybrids to heat stress. Funded by Scientific and Knowledge Exchange Program - Bayer Crop Science (375,000 USD) 2013 to 2015
- Transcriptional and metabolic alterations in circadian rhythm networks with increasing night-time temperatures in rice. Funded by USDA/NIFA (438, 000 USD) 2014 to 2017 (PIs – Dr Doherty from NCSU, USA and Dr Jagadish from IRRI)
- Free Air CO_2 enrichment (FACE) and temperature interaction in a rice-rice cropping system. Funded by ICAR-IRRI collaborative project (300,000 USD) 2013 to 2016
- Drought- and heat-stress recovery for partial mitigation of climate change-driven losses in rice yield and grain quality. Funded by the German Federal Ministry for Economic Cooperation and Development Small Grants Program (BMZ) (60,000 Euros) 2014 to 2015
- Rice pollen lipidomic and metabolite re-programming under heat stress. Funded by US (KSU) - CGIAR (IRRI, Philippines) Universities Linkage Program (15, 000 USD) for 2013
- Breeding heat-tolerant rice cultivars for sub-Saharan Africa: understanding the genetics of oxidative stress tolerance. Funded by US (University of Florida) - CGIAR (IRRI] Universities Linkage Program (12, 000 USD) for 2014

As Co-PI, PI*

- Dr Behzad Ghanbarian*(KSU), EAGER – Real-time measurement of sap-flow dynamics in sunflower via nuclear magnetic resonance. Funded by National Science Foundation (300,000 USD) 2019 to 2021
- Doina GFS
- Dr William Schapaugh* (KSU), Integrating germplasm evaluation, breeding and physiology to improve post-flowering heat-stress resilience in soybean. Funded by USDA-NIFA (500, 000 USD) 2020 to 2023
- Dr. Doohong Min*(KSU), Establishing the value of Alfalfa with highly digestible fiber. Funded by USDA-NIFA (500,000 USD) 2019 to 2021
- Prof. Steve Welch*(KSU), RII Track-2 FEC: Building field-based eco-physiological genome-to-phenome prediction. Funded by National Science Foundation (4,000,000 USD) 2018 to 2022

- Prof. Ruth Welti*(KSU), MRI: Acquisition of an electrospray ionization triple quadrupole mass spectrometer with ion mobility spectrometry for improved plant lipidomics. Funded by National Science Foundation (496,823 USD) 2017 to 2020
- Dr. Sunghun Park*(KSU), Field performance to develop genetically engineered drought and heat tolerant Kansas corn. Funded by Kansas Corn Commission (49,450 USD) 2017 to 2018
- Dr. Robert Aiken*(KSU), New selection strategies for drought-tolerant wheat. Funded by Kansas Wheat Alliance (75,600 USD) 2015 to 2018
- Dr. Ray Asebedo*(KSU), Breaking Barriers: Developing tools for moving Kansas irrigated soybeans beyond 70 bushels per acre. Funded by the Kansas Soybean Commission (49,265 USD) 2016 to 2017
- Dr. Ignacio Ciampitti*(KSU), N management approaches for maximizing yield and N Use Efficiency (NUE) in corn. Funded by The Kansas Fertilizer Fund Administrative Council (60,000 USD) 2016 to 2017
- Dr. Kulvinder Gill*(WSU), Developing and enhancing heat tolerance in wheat using genomics, molecular and physiological tools. Funded by USAID Feed the Future Lab (460,602 USD) 2014 to 2019
- Dr. Michael Stamm*(KSU), Heat and drought effects on the oil formation of Southern Great Plains winter canola. Funded by USDA NIFA (269, 999 USD) 2016 to 2019
- Dr. Ajay Shards*(KSU), Testing and evaluation services agreement. Funded by CNH Industrial America LLC (126,800 USD) 2016 to 2018
- Dr. Tesfaye Tesso*(KSU), Breeding sorghum for improved dryland productivity and utilization. Funded by Kansas Sorghum Commission (443,558 USD) 2016 to 2018
- Dr. Dirk Hincha*(Max Planck, Germany), Rice and global climate change: Candidate genes for preventing heat- and drought-induced yield losses due to spikelet sterility. Funded by the German Federal Ministry for Economic Cooperation and Development Small Grants Program (BMZ) (60,000 Euros) 2008 to 2010
- Involved as one of the key staff in the successful write up of the heat tolerance component (Objective 3) of the Cereal Systems Initiative for South Asia II. Funded by USAID/BMGF (36M USD) 2013 to 2015
- Impact of local climatic conditions on rice spikelet fertility and grain quality in hot and vulnerable regions of India - a feasibility study. Funded by JIRCAS President's incentive project (32,000 USD) 2011 to 2012
- Exploiting CO_2 rich future climates to enhance rice production in China – joint NSFC-IRRI funded project
- Quantifying mechanisms underlying changes in rice yield formation and nitrogen use efficiency under elevated temperature from global climate change – joint NSFC-CGIAR funded project

PhD fellowships

- Project titled "Growing rice like wheat" – in collaboration with Wageningen University, Netherlands; Graduate student – Mr. Niteen Kadam
- Lee foundation scholarship – in collaboration with University of Illinois, USA; Graduate student – Mr. Partibhan Thatapalli
- China Scholarship Council – in collaboration with Hunan and Huazhong Universities, China; Graduate student - Mr. Jianquan Qin

Peer-reviewed Publications (*Corresponding author)

1. Schaarschmidt S, Lawas LMF, Glaubits U, Li X, Erban A, Kopka J, **Jagadish SVK**, Hincha DK, Zuther E. 2020. Season affects yield and metabolic profiles of rice (*Oryza sativa*) under high night temperature stress in the field. International Journal of Molecular Sciences, 21, 3187. doi:10.3390/ijms21093187
2. Pokharel M, Chiluwal A, Stamm M, Min D, Rhodes D, **Jagadish SVK***. 2020. High night-time temperature during flowering and pod filling affects flower opening, yield and seed fatty acid composition in canola. Journal of Agronomy and Crop Science. https://doi.org/10.1111/jac.12408

3. Bheemanahalli R, Impa SM, Krassovskaya I, Vennapusa AR, Gill KS, Obata T, **Jagadish SVK***. 2020. Enhanced N-metabolites, ABA and IAA-conjugate in anthers instigate heat sensitivity in spring wheat. Physiologia Plantarum. https://doi.org/10.1111/ppl.13109
4. **Jagadish SVK***. 2020. Heat stress during flowering in cereals – effects and adaptation strategies. New Phytologist – Tansley Insight. doi.org/10.1111/nph.16429
5. Sadok W* and **Jagadish SVK***. 2020. The hidden costs of nighttime warming on yields. Trends in Plant Science. doi.org/10.1016/j.tplants.2020.02.003
6. Impa SM, Vennapusa AR, Bheemanahalli R, Sabela D, Boyle D, Walia H, **Jagadish SVK***. 2020. High night temperature induced changes in grain starch metabolism alters starch, protein and lipid accumulation in winter wheat. Plant Cell and Environment doi: 10.1111/pce.13671 (AES# 20-035-J; IF = 5.6)
7. Yadav S, Mondal MK, Shew A, **Jagadish SVK***, Khan ZH, Sutradhar A, Bhandari H, Humphreys E, Bhattacharya J, Parvin R, Rahman M, Chandna P. 2019. Community water management to intensify agricultural productivity in the polders of the coastal zone of Bangladesh. Paddy Water Management 18(2), 332-343. doi.org/10.1007/s10333-019-00785-4
8. Melandri G, Prashar A, Mccouch SR, Van Der Linden G, Jones HG, Kadam N, Jagadish SVK, Bouwmeester H, Ruyter-Spira C. 2019. Association mapping and genetic dissection of drought-induced canopy temperature differences in rice. Journal of Experimental Botany doi.org/10.1093/jxb/erz527
9. Chiluwal A, Bheemanahalli R, Kanaganahalli V, Boyle D, Perumal R, Pokharel M, Halilou O, **Jagadish SVK***. 2019. Deterioration of ovary plays a key role in heat stress-induced spikelet sterility in sorghum. Plant Cell and Environment doi.org/10.1111/pce.13673
10. Coast O*, Sebela D, Quinones C, **Jagadish SVK***. 2019. Systematic determination of the most sensitive reproductive growth stage to high night temperature stress in rice (Oryza sativa). Crop Science doi: 10.2135/cropsci2019.05.0344
11. Sebela D, Bheemanahalli R, Tamilselvan A, Kadam NN, **Jagadish SVK***. 2019. Genetic dissection of photochemical efficiency under water-deficit stress in rice. Plant Physiology Reports doi.org/10.1007/s40502-019-00467-7
12. Moghimi N, Desai JS, Bheemanahalli R, Impa SM, Vennapusa AR, Sebela D, Perumal R, Doherty CJ, **Jagadish SVK***. 2019. New candidate loci and marker genes on chromosome 7 for improved chilling tolerance in sorghum. Journal of Experimental Botany doi:10.1093/jxb/erz143. (AES# 19-103-J).
13. Hein N, Wagner D, Bheemanahalli R, Sebela D, Bustamante C, Chiluwal A, Neilsen M, **Jagadish SVK***. 2019. Integrating field-based tents and cyber-physical system technology to phenotype high night-time temperature impact on winter wheat. Plant Methods, 15:41. doi.org/10.1186/s13007-019-0424-x (AES# 19-028-J).
14. Impa SM, Perumal R, Bean S, Sunoj JVS, **Jagadish SVK***. 2019. Water deficit and heat stress induced alternations in grain physico-chemical characteristics and micronutrient composition in field grown grain sorghum. Journal of Cereal Science 86-124-131 (AES# 19-109-J).
15. Peiris KHS, Bean SR, Chiluwal A, Perumal R, **Jagadish SVK**. 2019. Moisture effects on robustness of sorghum grain protein near-infrared spectroscopy calibration. Cereal Chemistry 96:678–688 (AES# 19-127).
16. Lawas LMF, Erban A, Kopka J, **Jagadish SVK**, Zuther E, Hincha DK. 2019. Metabolic responses of rice source and sink organs during recovery from combined drought and heat stress in the field. GigaScience doi: 10.1093/gigascience/giz102.
17. Bheemanahalli R, Hechanova SL, Jena KK, **Jagadish SVK***. 2019. Root anatomical traits of wild-rices reveal links between flooded rice and dryland sorghum. Plant Physiology Reports doi.org/10.1007/s40502-019-00451-1.
18. Lawas LMF, Li X, Erban A, Kopka J, **Jagadish SVK**, Zuther E, Hincha DK. 2019. Metabolic responses of rice cultivars with different tolerance to combined drought and heat stress under field conditions. GigaScience. doi: 10.1093/gigascience/giz050.
19. Melandri G, Abdelgawad H, Riewe D, Hageman JA, Asard H, Beemster GTS, Kadam N, **Jagadish SVK**, Altmann T, Ruyter-Spira C, Bouwmeester H. 2019. Biomarkers for grain yield stability in rice under drought stress. Journal of Experimental Botany doi.org/10.1093/jxb/erz221.
20. Slabaugh E, Desai JS, Sartor RC, Lawas LMF, **Jagadish SVK**, Doherty C. 2019. Analysis of differential gene expression and alternative splicing is significantly influenced by choice of reference genome. RNA doi:10.1261/rna.070227.118.
21. Impa SM, Sunoj JVS, Krassovskaya I, Bheemanahalli R, Obata T, **Jagadish SVK***. 2018. Carbon balance and source-sink metabolic changes in winter wheat exposed to high night-time temperature. Plant Cell and Environment 2019, 1233-1246.

22. Bheemanahalli R, Sunoj JVS, Saripalli G, Prasad PVV, Balyan HS, Gupta PK, Grant N, Gill KS, **Jagadish SVK***. 2018. Quantifying the impact of heat stress on pollen germination, seed-set and grain-filling in spring wheat. Crop Science 59, 684-696.
23. Lawas LMF, Shi W, Yoshimoto M, Hasegawa T, Hincha DK, Zuther E, **Jagadish SVK***. 2018. Combined drought and heat stress impact during flowering and grain filling in contrasting rice cultivars grown under field conditions. Field Crops Research 229, 66-77.
24. Desai JS, Slabaugh E, Liebelt DJ, Fredenberg JD, Gray BN, **Jagadish SVK**, Wilkins O, Doherty CJ. 2018. Neural net classification combined with movement analysis to evaluate *Setaria viridis* as a model system for time of day of anther appearance. Frontiers in Plant Science, 9, 1585 doi.org/10.3389/fpls.2018.01585 (AES# 19-073-J).
25. Kilasi NL, Singh J, Vallejos CE, Ye C, **Jagadish SVK**, Kusolwa P, Rathinasabapathi B. 2018. Heat stress tolerance in rice (*Oryza sativa* L.): Identification of quantitative trait loci and candidate genes for seedling growth under heat stress. Frontiers in Plant Science 9, 1578 doi.org/10.3389/fpls.2018.01578 (AES# 19-074-J).
26. Chiluwal A, Bheemanahalli R, Perumal R, Asebedo AR, Bashir E, Lamsal A, Sebela D, Shetty NJ, **Jagadish SVK***. 2018. Integrated aerial and destructive phenotyping differentiates chilling stress tolerance during early seedling growth in sorghum. Field Crops Research 227, 1-10. (AES# 18-365-J).
27. Lawas LMF, Zuther E, **Jagadish SVK**, Hincha DK. 2018. Molecular mechanisms of combined heat and drought stress resilience in cereals. Current Opinion in Plant Biology 45, 212-217 (AES# 18-325-J).
28. Djanaguiraman M, Boyle DL, Welti R, **Jagadish SVK**, Prasad PVV. 2018. Decreased photosynthetic rate under high temperature in wheat is due to lipid desaturation, oxidation, acylation, and damage of organelles. BMC Plant Biology 18(1)55 (AES# 17-213-J).
29. Bergkamp B#, Impa SM, Asebedo AR, Fritz AK, **Jagadish SVK***. 2018. Popular winter wheat varieties response to post-flowering heat stress under controlled chambers and field-based heat tents. Field Crops Research 222, 143-152. (AES# 18-149-J).
30. Lawas LMF, Bheemanahalli R, Solis CA, **Jagadish SVK***. 2018. Sheathed panicle phenotype (cv. Sathi) maintains normal spikelet fertility and grain filling under prolonged heat stress in rice. Crop Science 58, 1-13.
31. Kadam NN, Struik PC, Rebolledo MC, Yin X, **Jagadish SVK***. 2018. Genome-wide association reveals novel genomic loci controlling rice grain yield and its component traits under water-deficit stress during the reproductive stage. Journal of Experimental Botany 69(16), 4017-4032.
32. Shi W, Li X, Schmidt RC, Struik PC, Yin X, **Jagadish SVK***. 2018. Pollen germination and in vivo fertilization in response to high temperature during flowering in hybrid and inbred rice. Plant Cell and Environment 41(6), 1287-1297.
33. Bahuguna R, Tamilselvan A, Muthurajan R, Solis CA, **Jagadish SVK***. 2018. Mild pre-flowering drought priming improves stress defenses, assimilation and sink strength in rice under severe terminal drought. Functional Plant Biology 45(8), 827-839.
34. Shiva S, Enninful R, Roth MR, Tamura P, **Jagadish SVK**, Welti R. 2018. An efficient modified method for plant leaf lipid extraction results in improved recovery of phosphatidic acid. Plant Methods 14, 14. (AES# 17-391-J).
35. Sun A, Impa SM, Sunoj JVS, Singh K, Gill KS, Prasad PVV, **Jagadish SVK***. 2017. Heat stress during flowering affects time of day of flowering, seed-set and grain quality in spring wheat (*Triticum aestivum* L.). Crop Science 58, 380-392 (AES# 17-319-J).
36. Shi W, Yin X, Struik PC, Solis C, Xie F, Schmidt RC, Huang M, Zou Y, Ye C, **Jagadish SVK***. 2017. High day-time and night-time temperature affect grain growth dynamics in contrasting rice genotypes. Journal of Experimental Botany 68(18):5233-5245.
37. Desai JS, Sartor RC, Lawas LL, **Jagadish SVK**, Doherty C. 2017. Improving gene regulatory network inference by incorporating rates of transcriptional changes. Scientific Reports 7(1)17244.
38. Hu Y, Wu Q, Peng Z, Sprague SA, Wang W, Park J, Akhunov E, **Jagadish SVK**, Nakata PA, Cheng N, Hirschi KD, White FF, Park S. 2017. Silencing of OsGRXS17 in rice improves drought stress tolerance by modulating ROS accumulation and stomatal closure. Scientific Reports 7, 15950.
39. Šebela D, Quinones C, Cruz CV, Ona I, Olejníčková J, **Jagadish SVK***. 2017. Chlorophyll fluorescence and reflectance-based non-invasive quantification of blast, bacterial blight and drought stresses in rice. Plant and Cell Physiology 59(1):30-43.
40. Djanaguiraman M, Perumal R, **Jagadish SVK**, Ciampitti IA, Welti R, Prasad PVV. 2017. Relative sensitivity of sorghum pollen and pistil under high temperature stress. Plant Cell and Environment 41(5):1065-1082 (AES# 17-267-J).

41. Tack J, Lingenfelser J, **SVK Jagadish***. 2017. Disaggregating sorghum yield reductions under warming scenarios exposes narrow genetic diversity in US breeding programs. Proceedings of the National Academy of Sciences 114(35), 9296-9301 (AES# 18-015-J).
42. Chaturvedi AK, Bahuguna RN, Shah D, Pal M, **SVK Jagadish***. 2017. High temperature stress during flowering and grain filling offsets beneficial impact of elevated CO_2 on assimilate partitioning and sink-strength in rice. Scientific Reports DOI:10.1038/s41598-017-07464-6
43. Kadam NN, Tamilselvan A, Lawas LMF, Quinones C, Bahuguna RN, Thomson MJ, Dingkuhn M, Muthurajan R, Struik PC, Yin X, **Jagadish SVK*** 2017. Genetic control of plasticity in root morphology and anatomy of rice in response to water-deficit. Plant Physiology 174, 2302-2315.
44. Fu J, Bowden RL, **Jagadish KSV**, Gill BS. 2017. Genetic variation for tolerance to terminal heat stress in *Dasypyrum villosum* Crop Science 57, 2626-2632 (AES# 17-196-J).
45. Kikuchi S, Bheemanahalli R, **Jagadish SVK***, Kumagai E, Masuya Y, Kuroda E, Dingkuhn M, Abe A, Shimono H, Raghavan C. 2017. Genome-wide association mapping for phenotypic plasticity in rice. Plant Cell and Environment. 40(8), 1565-1575.
46. Sunoj JVS, Somayanda IM, Chiluwal A, Perumal R, Prasad PVV, **Jagadish SVK***. 2017. Resilience of pollen and post-flowering response in diverse sorghum genotypes exposed to heat stress under field conditions. Crop Science 57, 1658-1669 (AES# 17-080-J).
47. Chaturvedi AK, Bahuguna RN, Pal M, Shah D, Maurya S, **Jagadish SVK***. 2017. Elevated CO_2 and heat stress interactions affect grain yield, quality and mineral nutrient composition in rice under field conditions. Field Crops Research 206, 149-157.
48. Quinones C, Mattes N, Faronilo J, Sudhir-Yadav*, **Jagadish SVK***. 2017. Drought stress reduces grain yield by altering the floral meristem development and sink size under dry-seeded rice cultivation. Crop Science 57(4), 1–11.
49. Prasad PVV*, Bhemanahalli R, **Jagadish SVK***. 2017. Field crops and the fear of heat stress - opportunities, challenges and future directions. Field Crops Research, 200, 114-121 (AES# 16-187-J).
50. Bahuguna R, Solis C, Shi W, **Jagadish SVK***. 2017. Post-flowering night respiration and altered sink activity account for high night temperature-induced grain yield and quality loss in rice (*Oryza sativa* L.). Physiologia Plantarum 159(1), 59-73.
51. Shi W, Xiao G, Struik PC, **Jagadish SVK*,** Yin X*. 2017. Quantifying source-sink relationships of rice under high night-time temperature combined with two nitrogen levels. Field Crops Research 202, 36-46.
52. Bheemanahalli R, Sathishraj R, Manoharan M, Sumanth HN, Muthurajan R, Ishimaru T, **Jagadish SVK***. 2016. Is Early Morning Flowering an effective trait to minimize heat stress damage during flowering in rice? Field Crops Research 203, 238-242.
53. **Jagadish SVK*,** Bahuguna RN, Djanaguiraman M, Gamuyao R, Prasad PVV, Craufurd PQ. 2016. Implications of high temperature and elevated CO2 on flowering time in plants. Frontiers in Plant Sciences 7,913 (KSRE 14-355-J).
54. Sunoj JVS, Shroyer KJ, **Jagadish SVK**, Vara Prasad PV. 2016. Diurnal temperature amplitude alters physiological and growth response of maize (*Zea mays* L.) during vegetative stage. Environmental and Experimental Botany 130, 113-121 (AES# 16-180-J).
55. Brye KR, Nalley LL, Tack JB, Dixon BL, Barkley AP, Rogers CW, Smartt AD, Norman RJ, **Jagadish SVK**. 2016. Factors affecting methane emissions from rice production in the Lower Mississippi River Valley, USA. Geoderma Regional 7, 223-229 (AES# 16-069-J).
56. Nalley L, Tack J, Barkely A, **Jagadish KSV**, Brye KR. 2016. Quantifying the agronomic and economic performance of hybrid and conventional rice varieties. Agronomy Journal 108, 1514-1523 (AES# 15-454-J).
57. Wilkins O, Hafemiester C, Plessis A, Holloway-Phillips MM, Pham G, Nicotra AB, Gregorio GB, **Jagadish SVK**, Septiningsih EM, Bonneau R, Purugganan M. 2016. Environmental gene regulatory influence networks in rice (*Oryza sativa*) – response to water deficit, high temperature and agricultural environments. The Plant Cell 28(10), 2365-2384.
58. Bheemanahalli R, Sathishraj R, Tack J, Nalley LL, Muthurajan R, **Jagadish KSV***. 2016. Temperature thresholds for spikelet sterility and associated warming impacts for sub-tropical rice. Agricultural and Forest Meteorology 221, 122-130.
59. Reynolds M et al., 2016. An integrated approach to maintaining cereal productivity under climate change. Global Food Security 8, 9-18.

60. Ishimaru T, Seefong X, Nallathambi J, Rajendran S, Yoshimoto M, Phoudalay L, Benjamin S, Hasegawa T, Hayashi K, Gurusamy A, Muthurajan R, **Jagadish SVK**. 2016. Quantifying rice spikelet sterility in potential heat-vulnerable regions: field surveys in southern Laos and southern India. Field Crops Research 190, 3-9.
61. Sathishraj R, Bheemanahalli R, Ramachandran M, Dingkuhn M, Muthurajan R, **Jagadish SVK***. 2016. Capturing heat stress induced variability in spikelet sterility using panicle, leaf and air temperature under field conditions. Field Crops Research 190, 10-17.
62. Nalley L, Dixon B, Tack J, Barkley A, **Jagadish KSV**. 2015. Optimal harvest moisture content for maximizing Mid-South rice milling yields and returns. Agronomy Journal 108, 701-712.
63. Shi W, Lawas LMF, Raju BR, **Jagadish SVK***. 2015. Acquired thermo-tolerance and trans-generational heat stress response at flowering in rice. Journal of Agronomy and Crop Science 202, 309-319.
64. **Jagadish SVK**, Polavarapu KK, Bahuguna R, von Wirén N, Sreenivasulu N. 2015. Staying alive or going to die during terminal senescence– An enigma surrounding yield stability. Frontiers in Plant Science 6,1070.
65. González-Schain N, Dreni L, Lawas LMF, Galbiati M, Colombo L, Heuer S, **Jagadish KSV**, Kater M. 2015. Genome-Wide transcriptome analysis during anthesis reveals new insights in the molecular basis of heat stress responses in tolerant and sensitive rice varieties. Plant and Cell Physiology 57, 57-68.
66. Shi W, Yin X, Struik PC, Xie F, Schmidt RC, **Jagadish SVK***. 2015. Grain yield and quality responses of tropical hybrid rice to high night-time temperature. Field Crops Research 190, 18-25.
67. Dingkuhn M, Laza MRC, Kumar U, Mendez KS, Collard B, **Jagadish SVK**, Singh RK, Padolina T, Malabayabas M, Torres E, Rebolledo MC, Manneh B, Sow A. 2015. Improving yield potential of tropical rice: Achieved levels and perspectives through improved ideotypes. Field Crops Research 182, 43-59.
68. Kadam N, Yin X, Bindraban P, Struik PC, **Jagadish SVK***. 2015. Does morphological and anatomical plasticity make wheat more tolerant of water-deficit stress than rice? Plant Physiology doi: http://dx.doi.org/10.1104/pp.114.253328
69. Ye C, Tenorio FA, Argayoso MA, Laza MA, Koh HJ, Redoña DE, **Jagadish SVK**, Gregorio GB. 2015. Identifying and confirming quantitative trait loci associated with heat tolerance at flowering stage in different rice populations. BMC Genomics 16(1)41.
70. Ye C, Tenorio FA, Redoña ED, Morales–Cortezano PS, Cabrega GA, **Jagadish SVK**, Gregorio GB. 2015. Fine-mapping and validating qHTSF4.1 to increase spikelet fertility under heat stress at flowering in rice. Theoretical and Applied Genetics 128, 1507-1517.
71. Xia L, Lawas LMF, Malo R, Glaubitz U, Erban A, Mauleon R, Heuer S, Zuther E, Kopka J, Hincha DK*, **Jagadish SVK***. 2015. Metabolic and transcriptomic signatures of rice floral organs reveal sugar starvation as a factor in reproductive failure under heat and drought stress. Plant Cell and Environment 38, 2171-2192.
72. Peraudeau S, Lafarge T, Roques S, Quinones C, Clément-Vidal A, Ouwerkerk P, Van Rie J, Fabre D, **Jagadish SVK**, Dingkuhn M. 2015. Effects of carbohydrates and night temperature on night respiration in rice. Journal of Experimental Botany 66, 3931-3944.
73. Sabela D, Quinones C, Olejníčková J, **Jagadish SVK***. 2015. Temporal chlorophyll fluorescence signals to track changes in optical properties of maturing rice panicles exposed to high night temperature. Field Crops Research 177, 75-85.
74. Bahuguna RN, **Jagadish SVK***. 2015. Temperature regulation of plant phenological development. Environmental and Experimental Botany 111, 83-90.
75. Bahuguna RN, Jha J, Madan P, Shah D, Lawas ML, Khetarpal S, **Jagadish SVK***. 2015. Physiological and biochemical characterization of NERICA-L 44: A novel source of heat tolerance at the vegetative and reproductive stages in rice. Physiologia Plantarum 154, 543-559.
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81. Coast O, Ellis RH, Murdoch AJ, Quiñones C, **Jagadish SVK***. 2014. High night temperature induces contrasting responses for spikelet fertility, spikelet tissue temperature, flowering characteristics and grain quality in rice. Functional Plant Biology 42, 149-161.
82. **Jagadish SVK ***, Murty MVR, Quick WP. 2014. Rice responses to raising temperatures – challenges, perspectives and future directions. Plant Cell and Environment 38(9),1686-1698.
83. Kadam NN, Xiao G, Melgar RJ, Bahuguna RN, Quinones C, Tamilselvan A, Prasad PVV, **Jagadish SVK***. 2014. Agronomic and physiological responses to high temperature, drought and elevated CO_2 interaction in cereals. Advances in Agronomy 127, 111-156.
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88. Shi W, Muthurajan R, Rahman H, Selvam J, Peng S, Zou Y, **Jagadish SVK***. 2013. Source–sink dynamics and proteomic reprogramming under elevated night temperature and their impact on rice yield and grain quality. New Phytologist 197, 825–837.
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92. Madan P[#], **Jagadish SVK[#]**, Craufurd PQ, Fitzgerald M, Lafarge T, Wheeler TR. 2012. Effect of elevated CO_2 and high temperature on seed-set and grain quality of rice. Journal of Experimental Botany 63, 3843-3852.
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101. Muthurajan R, Shobbar ZS, **Jagadish, SVK*,** Bruskiewich R, Ismail A, Leung H, Bennett J. 2010. Physiological and proteomic responses of rice peduncles to drought stress. Molecular Biotechnology 48, 173-182.
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103. Wassmann R, **Jagadish SVK**, Sumfleth K, Pathak H, Howell G, Ismail A, Serraj R, Redona E, Singh RK, Heuer S. 2009. Regional vulnerability of rice production in Asia to climate change impacts and scope for adaptation. Advances in Agronomy 102, 91-133.
104. **Jagadish SVK**, Craufurd PQ, Wheeler TR. 2008. Phenotyping rice mapping population parents for heat tolerance during anthesis. Crop Science 48, 1140–1146.
105. **Jagadish SVK**, Craufurd PQ, Wheeler TR. 2007. High temperature stress and spikelet fertility in rice. Journal of Experimental Botany 58, 1627-1635.

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Key Book Chapters

1. Bahuguna RN, **Jagadish SVK***, Coast O, Wassmann R. 2014. Plant Abiotic Stress: Temperature Extremes. In: Neal Van Alfen, editor-in-chief. Encyclopedia of Agriculture and Food Systems, Vol. 4, San Diego: Elsevier, pp. 330-334.
2. Craufurd PQ, **Jagadish SVK**, Jon Padgham. 2011. Impacts of climate change on rainfed agriculture and adaptation strategies to improve livelihoods. In: Integrated Watershed Management in Rainfed Agriculture; Eds Wani SP, Rockstrom J and Sahrawat KL. CRC Press, pp. 421-437.
3. Impa SM, Nadarajan S, **Jagadish SVK*.** 2011. Drought stress induced reactive oxygen species and anti-oxidants in plants. In: Abiotic Stress Responses in Plants: Metabolism, Productivity and Sustainability. Eds. P. Ahmad and M.N.V. Prasad. pp 131-148.
4. Prasad PVV, Maduraimuthu D, **Jagadish SVK**, Ciampitti I. 2018. Drought and high temperature stress and traits associated with tolerance. In: Sorghum: State of the art and future perspectives. Published by: American Society of Agronomy and Crop Science Society of America, Inc. doi:10.2134/agronmonogr58.2014.0065
5. Tesso T, Gobena DD, Dechassa OD, Roozeboom K, **Jagadish SVK**, Perumal R, Serba DD, Weerasooriya D. 2018. Harnessing genetic/genomics resources to transform the production and productivity of sorghum. In: Achieving sustainable cultivation of sorghum – Vol. 1. Ed. Dr. Bill Rooney Burleigh Dodds Science Publishing Limited. http://dx.doi.org/10.19103/AS.2017.0015.09

Academic record

PhD - Molecular and physiological dissection of heat tolerance during anthesis in rice: University of Reading, UK (2003 – 2007) - Research was conducted at the Plant Environment Laboratory, University of Reading and the International Rice Research Institute, Philippines

M.S. Agronomy with distinction [95%]: University of Agricultural Sciences, Dharwad, India (2000 – 2002)

B.S. Agriculture and allied subjects with distinction [90%]**:** University of Agriculture Sciences, Bangalore, India (1996 – 2000)

Accolades and appreciations

1. Received the AASIO (Association for Agricultural Scientists of Indian Origin) **Outstanding Young Agricultural Scientist Award** in 2015.
2. Received **THE FELIX SCHOLARSHIP** for doctoral studies at the University of Reading, UK, from Sept 2003 - Mar 2007

3. Accepted as a **PhD affiliate research scholar** to work on Azucena x Bala rice mapping population in response to heat stress during anthesis at the International Rice Research Institute, Philippines from Dec 2004 - Apr 2005
4. Accepted for the second time as a **PhD affiliate research scholar** at IRRI to work on various physiological processes involved and affected by heat stress during reproductive stage in rice and anther, spikelet proteomics from Jan 2006 - Nov 2006
5. Awarded the **Arthur Hosier and Meyer Sassoon travel award** in 2006 to travel to Philippines to work on reproductive stage proteomics
6. Successful in winning travel grants from the **Society of Experimental Biologists** (**Company of Biologists**) to attend Interdrought II in Rome, Italy during Sept 24-28, 2005
7. Recipient of **merit scholarship** for highest OGPA (Overall Grade Point Average) during Master's
8. Received a regular scholarship from **Jindal Trust** for academic excellence during Bachelor's

Certification

PRINCE II Project Management (HiLogic Inc., 2012)

Editorial board member and reviewer

Associate Editor for Field Crops Research (2020 -
Associate Editor for Agronomy Journal (2016 and Continuing)
Associate Editor for Frontiers in Plant Science (2016 - 2017)
Editor for Plant Production Science (2016 - 2018)
Overseas Editor for Plant Physiology Reports (2016 - Continuing)
Editorial board member for Field crops Research (2014 - 2020)

Reviewer for (1) Crop Science (2) Agricultural and Forest Meteorology (3) Planta (4) Plant Physiology and Biochemistry (5) Annals of Botany (6) Field Crops Research (7) Euphytica (8) Netherlands Journal of Agricultural Sciences (9) Crop and Pasture Science (10) Functional Plant Biology (11) Global Change Biology (12) Journal of Experimental Botany (13) Journal of Science of Food and Agriculture (14) AoB Plants, (15) Biologia Plantarum (16) Plant Science (17) Climatic Change (18) Experimental Agriculture (19) PLOS one (20) Proceedings of the National Academy of Sciences, USA

Reviewer of proposals from Wageningen University, NSF CAREER (Proposal Number: 1451900), NWO domain Applied and Engineering Sciences – The Netherlands (Proposal number: 18039)

External thesis reviewer – University of Melbourne, Australia National University (PhD student – Weisser, Marianne Veronica)

Membership to societies

1. Crop Science Society of America
2. American Association for the Advancement of Science
3. Life member for Association of Agricultural Scientists of Indian Origin
4. Gamma Sigma Delta

Mentored/Mentoring

Research Assistant Professor

- Dr. Jianming Fu from April 2016 - Continuing

Post Docs

- Dr. Impa M Somayanda from August 2015 - Continuing
- Dr. John Sunoj V. Sebastian from July 2015 – Dec 2016
- Dr. Raju R Bheemanahalli from June 2016 - Continuing
- Dr. Kamaranga Peiris from Oct 2017- Continuing

- Dr. Assefa Yared from September 2019 -Continuing

Research Assistants and Assistant Scientist

- Dr. Pavitra Pitumpe Arachchige from April 2017 – October 2018
- Dr. David Sebela from Oct 2017 – December 2018
- Dr. Amaranatha Reddy Vennapusa from April 2018 - Continuing
- Mr. Nathan Hein from March 2018 – Continuing
- Dr. Nisarga Narayana from March 2019 – Continuing

Short term visitors

- Ms. Yuanyuan Wang from Oct 2019 – Apr 2021
- Mr. Gautam Saripalli from June 2016 – Oct 2016
- Mr. Halilou Oumarou from July 2016 – Dec 2016
- Ms. Naghmey Moghimi from Jan 2017 – Continuing
- Dr. Hanafey Maswada from Sept 2015 – Feb 2016
- Dr. Aiqing Sun from July 2015 – July 2016
- Dr. Wang Dong from Oct 2016 – Oct 2017
- Mr Dhanush Srikanthan from Jan 2019 – Jun 2019

MS Students

- Nathan Lyman, University of Arkansas, US (2010 to 2012)
- Wanju Shi, Hunan Agriculture University, China (Oct 2010 to Oct 2012)
- Lovely Mae Lawas, University of Philippines (2011 to 2014)
- Bermenito Punzalan, University of Philippines (2010 to 2013)
- Lisa Straussberger, University of Arkansas (2013 to 2015)
- Reshma Anthony, Kansas State University (Spring 2016 to Summer 2018)
- Blake Bergkamp, Kansas State University (Fall 2015 to Fall 2017)
- Carlos Bustamante, Kansas State University (Fall 2015 to Summer 2020)
- Troy Ostemeyer, Kansas State University (Fall 2018 – Spring 2020)
- Nathan Hein, Kansas State University (Fall 2018 – Spring 2021)

PhD Students

- Zhongwen Rang, Hunan Agriculture University, China (2008 to 2010)
- Richard Malo, Dhaka University, Bangladesh, (2009 to 2012)
- Onoroido Coast, University of Reading, UK (2009 to 2012)
- Jianquan Qin, Hunan Agricultural University, China (2011 to 2013)
- Niteen Kadam, Wageningen University, Netherlands (2012 to 2015)
- Anandan TamilSelvan, TamilNadu Agriculture University (2011 to 2014)
- Wanju Shi, Wageningen University, Netherlands (2013 to 2016)
- Nico Mattes, Heidelberg University, Germany (2013 to 2016)
- David Sabela, Nové Hrady, Czech Republic (2013 to 2014)
- Regina Enninful, (BHEARD scholar), Kansas State University (Spring 2014 to Spring 2019)
- Anuj Chiluwal, Kansas State University (Spring 2016 to Fall 2018)
- Aaron M Shew, University of Arkansas & Kansas State University (Fall 2013 to Summer 2018)
- Meghnath Pokharel, Kansas State University (Spring 2017 to Spring 2020)
- Troy Ostmeyer, Kansas State University (Summer 2020 to Fall 2023)

Advisory Committee Member

- Mokhlesur Rahman (PhD) Major Advisor – Dr. Jesse Poland [Completed]
- Jared Kohls (MS) Major Advisor – Prof. Allan Fritz [Completed]
- Noortje Notenbaert (MS) Major advisor – Prof. Charles Rice [Completed]
- Anju Giri (PhD) Major Advisor – Prof. Allan Fritz [Completed]
- Fanna Maina Mamadou (PhD) Major Advisor – Dr. Geoffery Morris [Completed]
- Iryna McDoland (PhD) Major Advisor – Dr. Doohong Min [Completed]
- Jessica McGowen (MS) Major Advisor – Prof. Allan Fritz [Completed]
- Ethan Menke (MS) Major Advisor – Prof. William Schapaugh [Completed]
- Xuan Xu (PhD) Major Advisor – Dr. Doohong Min [Completed]
- Jacob Schwindt (MS) Major Advisor – Dr. Ajay Sharda [Completed]
- Brent Jaenisch (PhD) Major Advisor – Dr. Romulo Lolatto

- Francis Tsiboe Major Advisor – Dr. Jesse Tack

Professional placements of members from Dr. Jagadish team

Name	Graduate institute	Year of graduation	Employment status
Dr. Aaron M Shew	University of Arkansas, USA	2018	Chair of Agricultural Business at A-State, Arkansas, USA
Dr. Raju Bheemanahalli	Mississippi State University		Assistant Professor (April 2020)
Mr. Blake Bergkamp	Kansas State University, USA	2017	Sales Agronomist, Great Plains Mfg. Salina, Kansas, USA
Dr. Anuj Chiluwal	Kansas State University, USA	2018	Post-doctoral Fellow, Uni of Kentucky
Dr. Onoroide Coast	University of Reading, UK	2013	Post-doctoral scientist, The Australian National University, Australia
Dr. Rajeev Bahuguna	G. B. Pant University of Agriculture and Technology, Uttarakhand, India	2009	Assistant Professor, Amity Institute of Microbial Technology, Uttar Pradesh, India
Dr. Ashish Chaturvedi	HNB Garhwal Central University, Srinagar Garhwal, Uttarakhand, India	2012	Scientist B, Centre for Water Resources Development and Management, Kozhikode, Kerala, India
Dr. Niteen Kadam	Wageningen University, Netherlands	2017	Post Doc, Dr Leaky lab, IUIC, Illinois, Urbana, USA
Dr. Wanju Shi	Wageningen University, Netherlands	2017	Lecturer, Hunan Agricultural University, Hunan, China
Dr. Jian Qin	Hunan Agricultural University, China	2014	Associate Professor, Guizhou University, Guizhou, China

Invited presentations at scientific meetings[#] and regular symposium talks[&]

- **Jagadish SVK[#].** Aug 3-7, **2019**. Winter wheat responses to high night-time temperature exposure during grain-filling. Plant Biology (ASPB), San Jose, CA.
- **Jagadish SVK[#]**. Apr 24-25, **2019**. Winter wheat responses to heat stress during grain-filling. US Eastern wheat breeders annual meeting. Raleigh, NC.
- **Jagadish SVK[#]**. July 2-5, **2019**. Night-time temperature and flower-opening time dynamics affect crop adaptation in a changing climate. Society of Experimental Botany Conference, Seville, Spain.
- **Jagadish SVK[#]**. Apr 15-17, 2019. Molecular mechanisms that differentiate high night-time temperature responses in rice and wheat. Sensing and signaling in plant stress response, New Delhi, India
- **Jagadish SVK[#].** Dec 2-5, **2018**. Advances, challenges and opportunities in enhancing heat tolerance in major field crops. 4th International Plant Physiology Congress, Lucknow, India.
- **Jagadish SVK[&]**. Nov 4-7, **2018. Joint C2 and C7 Special Symposium, Organizer and Moderator**– Heat Stress Symposium. ASA-CSSA-SSSA, Baltimore, MD.
- **Jagadish SVK[&]**. Bahuguna R, Doherthy C, Obata T. Nov 4.7, **2018**. High night-time temperature induced respiratory losses and molecular responses in wheat. ASA-CSSA-SSSA, Baltimore, MD
- **Jagadish SVK[#]**. Jan 13-17, **2018**. High day and night temperature responses in cereals. Plant and Animal Genome Conference XXVI, San Diego, CA, USA.
- **Jagadish SVK[#]**. Jan 13-17, **2018**. Sorghum for the Great Plains - integrated strategies to enhance yield potential and abiotic stress resilience. Plant and Animal Genome Conference XXVI, San Diego, CA, USA.
- **Jagadish SVK[#]**, Bheemanahalli R, Perumal R, Asebedo A, Prasad PVV. Apr 9-12, **2018**. Integrated strategies to enhance abiotic stress resilience in US sorghum. Sorghum in the 21st Century, Cape Town, South Africa.
- **Jagadish SVK[&]**. Sept 8, **2017.** K-State Crop Physiology. Legislative Assistants/CARET Mini-Ag Tour. Manhattan, Kansas.

- **Jagadish SVK[#]**, Kadam NN, Bheemanahalli R, Prasad PVV. Jan 9-13, **2016**. Exploring root morphological and anatomical plasticity among cereals to enhance adaptation to water limited conditions. Plant and Animal Genome Conference XXIV, San Diego, CA, USA.
- **Jagadish SVK[&]**, Ishimaru T, Ye C. Nov 15-18, **2015**. Rice races against rising temperatures - achievements, opportunities and challenges. ASA-CSSA-SSSA, Minneapolis, USA.
- **Jagadish SVK[#]**. Apr 16-18, **2013**. Climate change adaptation strategies at the International Rice Research Institute. International symposium on resilience to climate change in southeast Asia, Johor Bahru, Malaysia.
- **Jagadish SVK[#].** Nov 18-20, **2013.** Recent genetic gains and research achievements in rice at Maintaining cereal productive under climate change through international collaboration organized by USAID and Bill and Melinda Gates Foundation, New Delhi, India.
- **Jagadish SVK[#]**. Jan 9-12, **2012**. IRRI's role and progress on heat and drought stress research" delivered during 100 years of rice science celebrations. TamilNadu Agriculture University, Coimbatore, India.
- **Jagadish SVK[#]**. Oct 16-19, **2011**. Keynote presentation on Climate change and food production in Asia at the ASA-CSSA-SSSA annual meeting, San Antonio, TX.