

Research Centre Ranchi

Personal Details



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Research Interests

- Land and water management

Research Highlights

- Agricultural water management
- Irrigation scheduling
- Surface and ground water hydrology
- Simulation and modelling
- Climate change impact assessment
- Water footprint assessment and policy
- Remote sensing and GIS in natural resource management

Memberships / Fellowships

- Life member Indian Society of Agricultural Engineers
- Life member Indian Association of Soil and Water Conservation
- Life member Association of Agro-meteorologists

Technologies Developed

- Deficit irrigation practices for litchi cultivation in eastern plateau and hill region
- Standardised lateral depth for subsurface drip irrigation of cucurbitaceous crops
- Improved a model on water harvesting and multiple use of water
- Developed irrigation practices for ultra-high density guava
- Farmers participatory action research in water management
- Water use and water use efficiency of mushroom
- Drum kit drip irrigation for small and marginal farmers
- Standardised planting geometry for drip irrigated crops viz. tomato, chilli, broccoli and maize
- Growth stage linked optimal fertigation patterns developed for tomato, chilli, broccoli and maize
- Quantified the impact of land use change on sediment and runoff yield from watersheds
- Characterised the partitioning of rainfall into throughfall and stem flow by jackfruit, guava, litchi and mango plants
- Developed ANN models for forecasting hopper and thrips population dynamics in mango
- Assessed the impact of climate change on occurrence and distribution of mango fruit fly
- Developed a methodology for assessing crop water footprints of the river basins in India

Publication Details

Research Papers

1. **Mali SS**, Jha BK, Singh R, Meena M. (2017). Bitter Gourd Response to Surface and Subsurface Drip Irrigation under Different Fertigation Levels. *Irrigation and drainage*, 66: 615–625. doi: 10.1002/ird.2146.
2. **Mali SS**, Singh DK, Sarangi A, Parihar, SS. (2017). Crop water footprints with special focus on response formulation: the case of Gomti river basin (India). *Environmental Earth Sciences*, doi.org/10.1007/s12665-017-7121-8.
3. Choudhary JS, Srinivasa Rao M, **Mali SS**, Das B, Kumari A, Mukherjee D, Singh AK, Bhatt BP (2017). Potential changes in number of generations of oriental fruit fly on Mango, *Journal of Agrometeorology*, 19(3): 200-206.
4. Mehta S, Singh SK, Das Bikash, Jana BR, **Mali SS**. (2012). Effect of pruning on guava CV. Sardar under ultra-high density orcharding system. *Vegetos-International Journal of Plant Research*, 25(2) : 192-195.
5. **Mali SS**, Singh R, Singh AK, Meena M (2016). Influence of drip lateral placement depth and fertigation level on germination, yield and water-use efficiency of cucumber (*Cucumis sativus*). *Indian Journal of Agricultural Sciences*, 86 (2): 178–85.
6. **Mali SS**, Singh DK (2016). Groundwater modeling for assessing the recharge potential and water table behavior under varying levels of pumping and recharge. *Indian Journal of Soil Conservation*, (44)2: 93-102.
7. **Mali SS**, Naik SK and Bhatt B (2016). Spatial Variability in Soil Properties of Mango Orchards in Eastern Plateau and Hill Region of India. *Vegetos: International journal of plant research* 29(03):06
8. **Mali SS**, B K Jha BK, Naik SK, Singh AK, Kumar Ajay (2016). Effect of fertigation pattern and planting geometry on growth, yield and water productivity of tomato (*Solanum lycopersicum*). *Indian Journal of Agricultural Sciences*, 86 (9): 1208–13.
9. **Mali SS**, Das B, Singh AK, Bhatnagar PR (2015). Effect of fruit stage based irrigation scheduling on yield, quality and irrigation water use efficiency of litchi (*Litchi Chinensis Sonn.*) cv. Shahi. *The Bioscan*, 10(1): 397-401.
10. **Mali SS**, Singh DK, Sarangi A, Khanna M, Parihar SS, Das DK (2015). Variability mapping of crop evapotranspiration for water footprint assessment at basin level. *Indian Journal of Soil Conservation*, Vol. 43, No. 1, pp 255-259.
11. Naik SK, **Mali SS**, Das B, Bhatnagar PR, Kumar S, Sikka AK (2016). Rainwater harvesting using plastic-lined doba technology for orchard establishment in the eastern plateau and hill region of India. (*Scientific Correspondence*). *Current science*, 111(11):1751-1753.
12. Mehta S, Singh SK, **Mali SS**, Das B (2012). Effect of pruning on root distribution in guava cv Allahabad Safeda under ultra-high density orchard system. *Progressive Agriculture*, 12(2):303-309.
13. **Mali SS**, Singh DK (2015). Mapping spatial variability in crop evapotranspiration and defining spatial resolution units for crop water footprint assessment at river basin scale. *The Ecoscan*, 9(1&2): 75-79.
14. Singh AK, Kumar PR., Das B, Pan RS, **Mali SS**, Yadav VK, Bhatt BP (2018). Impact of agriculture research centre on socio-economic upliftment in backward region of India: a case study. *Multilogic In Science*, 7(25):229-238.

Book Chapters

- Mali SS.** (2016). Basic Concepts of Water Productivity. In: Singh, A.K. et al. (eds.): Approaches to Improve Water Productivity. Satish Serial Publishing House, New Delhi, ISBN 978-93-85055-80-5, pp. 1-13.
- Mali SS, Jha BK, Naik SK.** (2016). Effect of planting geometry and fertigation pattern on growth, yield and water productivity of Tomato. In: Singh, A.K. et al. (eds.): Approaches to Improve Water Productivity. Satish Serial Publishing House, New Delhi, ISBN 978-93-85055-80-5, pp. 53-60.
- Mali SS, Singh AK, Kumar A.** (2016). Water Harvesting and Management. In: Singh, A.K. et al. (eds.): Approaches to Improve Water Productivity. Satish Serial Publishing House, New Delhi, ISBN 978-93-85055-80-5, pp: 33-53
- Dhakar M.K, Mali SS.** (2016). Irrigation Management in Fruit Crops in Approaches to improve agricultural water productivity. In: Singh, A.K. et al. (eds.): Approaches to Improve Water Productivity. Satish Serial Publishing House, New Delhi, ISBN 978-93-85055-80-5, pp.1-13.
- Mali SS, Sanyal SK, Bhatt BP, Pathak H** (2015). Water Pollution and Agriculture. In State of Indian Agriculture – Water, H Pathak, BP Bhatt, SK Gupta. National Academy of Agricultural Sciences., ISBN: 9788193152409
- Mali SS, Kumar S** (2012). Economic Water Productivity of Drum Kit Drip Irrigation Systems for Vegetable Production. In Conservation of Natural Resources for Food and Environmental Security. Eds. S.K. Dubey, R.K. Dubey, A.K. Singh, P.K. Panda, S.Kala, V.N. Sharda, Satish Serial Publishing House., ISBN: 9381226156
- Mali SS, Kumar S.** (2010). Water Management Practices in Horticultural Crops, In Resource Conservation Technologies For Food Security and Rural Livelihood. Eds. AR Khan, SS Singh, RC Bharati, TK Srivastava, MA Khan, Agrotech, 2010., ISBN: 8183212026

Books

- Singh AK, Mali SS, Das B, Bhavana P, Kumar, PR, Sarkar B, Bhatt BP.** (2016). Approaches to Improve Agricultural Water Productivity, Satish Serial Publishing House, New Delhi ISBN: 978-93-85055-80-5

Technical Bulletins/Manuals

- Jha BK, Mali SS, Naik SK, Singh AK, Kumar A.** (2015) Optimal planting geometry and growth stage based fertigation in vegetable crops, ICAR-RCER, Technical Buletin No. R-56/ Ranchi-25.
- Choudhary JS, Kumari A, Mukherjee D, Maurya S, Das B, Mali SS, Moanaro, Singh AK.** (2016). *Badalti Jalvayu mai Aam ke Mukhya Keet evam Vyadhiyo ka Prakop evam Prabhandhan*. Technical bulletin No.: R-60/Ranchi-27. ICAR Research Complex for Eastern Region, Research Centre, Ranchi. pp. 1-36.
- Naik SK, Shinde R, Mali SS, Jha BK, Das B, Singh AK.** (2016). Diagnosis of nutrient deficiency and its management in horticultural crops. ICAR-RCER, Technical bulletin No.R-59/Ranchi-26.
- Ghosh SK, Mukherjee S, Beuria DK, Kumar S, Singh R, Mali SS, Kumar D, Job M.** (2010). Models for vegetable cultivation with drip irrigation in Jharkhand. NABARD, Jharkhand Regional Office, 60pp.
- NICRA team of Mango Pest Surveillance.** (2012). Manual for Mango Pest Surveillance. Jointly published by National Centre for Integrated Pest Management, New Delhi, ICAR Research Complex for Eastern Region, Research Centre, Ranchi, Central Research Institute for Dry land Agriculture, Hyderabad, and Central Institute for Subtropical Agriculture, Lucknow. 39 pp.

Extension Bulletins

Jha BK, **Mali SS**, Naik SK, Kumar A, Singh AK. (2016). *Tapak sinchai ke antargat sabjiyon ki ropan jayamiti awam ghulansheel urvarak prayog padhyati*. Extension bulletin no.E-154/Ranchi-70.

Mali SS, Jha BK, Naik SK, Kumar A, Singh AK. (2016). Planting geometry and fertigation patterns for drip irrigated vegetables. Extension bulletin no.E-151/Ranchi-69.

Mali SS, Singh RV, Kumar S, Das B, Sikka AK. (2009). Rainwater harvesting and it's multiple uses in plateau region, ICAR-RCER, Ext. Bul. No E-93/Ranchi

Singh RV, Kumar S, **Mali SS**, Das B, Sikka AK. (2009). *Pathari Kshetron me varsha jal sangrahan aur jal ke bahu aayami upyog*, ICAR-RCER.

Mali SS, Singh RV., Kumar S, Das B, Sikka AK. (2009). Rainwater harvesting and it's multiple uses in plateau region, ICAR-RCER, Ext. Bul. No E-93/Ranchi.

Mali SS, Jha BK, Naik SK, Kumar A, Singh AK. (2016). Planting geometry and fertigation patterns for drip irrigated vegetables, ICAR-RCER, Extension Folder No:E-151/Ranchi-69.

Bhavana P, Singh AK, Pan RS, Naik SK, Maurya S, **Mali SS**, Choudhary JS, Kumar D, Maonaro. (2015). *Prubi bharat me baingan ki unnat kheti*, ICAR-RCER, Prasar pustika, No. E-132/Ranchi-52.

Naik SK, **Mali SS**, Bhatnagar PR, Das B, Kumar S. (2012) ICAR-RCER, Plastic lined Doba – A Promising Technology for Water Harvesting for Orchard Establishment in Uplands of Eastern plateau region, ICAR-RCER.

Popular Articles

Mali SS. (2016). Wheat irrigation in Gangetic plains of Bihar – It's time for a change. *In: Improving water use for dry season agriculture by marginal and tenant farmers in the Eastern Gangetic Plains*. (available at <http://dsi4mtf.usq.edu.au/dsi4mtf/2016/03/>).

Mali SS, Jha BK, Naik SK, Singh AK. (2016). ड्रिप सिंचित सब्जी फसलों के लिये श्रेष्ठ रोपण ज्यामिति व उर्वरक प्रयोग पद्धति. *Krishiseva-online*, (available at <http://krishiseva.com/>).

Mali SS, Das B, Singh AK. (2014). *Drum kit tapakan vidhi (hindi)*, Ikshu, Lucknow, 3(2), 26-28

Patle GT, Mukesh Kumar and **Mali SS**, Importance of crop residue management in context of climate change, *Indian Farmers digest*, 46(6), 12-16.

Kumar A, **Mali SS**., Kumar R. (2017). Documenting engagement: A case study of Mauahi village in Madhubani district of Bihar. Project site report No 2017/1, pp:10, doi: 10.13140/RG.2.2.26252.72325

Kumar A, **Mali SS**, Kumar R. (2017). Technology Study: A case of Mauahi village in Madhubani district of Bihar. Project site report No 2017/2, pp:04 doi:10.13140/RG.2.2.34641.33129.

Mali SS. (2016). Wheat irrigation in Gangetic plains of Bihar – It's time for a change (Web content: <http://dsi4mtf.usq.edu.au/>).

Training teaching material

- Introduction to drip irrigation systems
- Design of drip irrigation systems
- Precision farming
- Water harvesting and multiple use of water in eastern plateau and hill region
- Toposequential rainwater harvesting in hill and plateau region
- Introduction to watershed management
- Low cost drip irrigation systems
- Installation, operation and maintenance of micro irrigation system
- Micro irrigation and fertigation technology in horticultural crops
- Water management in high density orchards
- Subsurface drip irrigation in cucurbitaceous crops
- Use of plastics in agriculture
- Utilization of harvested rainwater in a watershed for horticulture based farming System
- Assessment of water footprint at river basin scale
- Basic concepts of water productivity in agriculture