

## Division of Crop Research

### Personal Details



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### Research Interest

Abiotic stress management,

### Research Highlights

### Memberships / Fellowships

- i. Life membership of **Indian Society of Soil salinity and Water Quality**.
- ii. Awarded *Foundation for Academic Excellence and Access (FAEA) Fellowship*.
- iii. Awarded **National Fellowship–UGC (RGNF)**.

### Technology Developed

### Publication Details

#### I. Research Paper

1. **Makarana, G.**, Kumar, A., Yadav, R. K., Kumar, R., Soni, P. G., Lata, Charu and Sheoran, P. (2019). Effect of saline water irrigations on physiological, biochemical and yield attributes of dual purpose pearl millet (*Pennisetum glaucum*) varieties. *Indian Journal of Agricultural Sciences*, 89(4), 624-633.
2. **Makarana, G.**, Yadav, R. K., Kumar, A., Kumar, R., Sheoran, P., Kushwaha, M., and Yadav, T. (2019). Physiological, Biochemical and Yield Traits of Pearl-millet (*Pennisetum glaucum* L.) Accessions under Saline Irrigation. *Journal of Soil Salinity and Water Quality*, 11(1), 98-107.
3. **Makarana, G.**, Yadav, R. K., Kumar, R., Sheoran, P., Soni, P.G., Yadav T. and Meena VK (2018). Morphological and Yield Response of Pearl Millet (*Pennisetum Glaucum* L.) as Influenced by Different Accessions and Cutting Management under Saline Irrigation Water in North Western Region of India. *Chemical Science and Review Letters*, 7(26):616-624.
4. **Makarana, G.**, Yadav, R. K., Kumar, R., Kumar, A., Soni, P. G., Kar, S., & Rajvaidya, S. K. (2018). Fodder and grain quality of Pearl millet (*Pennisetum glaucum* L.) under cutting management in saline irrigation water. *Journal of Pharmacognosy and Phytochemistry*, 7(3), 1251-1257.
5. **Makarana, G.**, Yadav, R.K., Kumar, R., Kumar, A., Sheoran, P., Yadav, G., Soni, P.G., Yadav, T., Yadav, M.R., Kushwaha, M. and Gautam, P.B., 2017.

Growth, yield and grain quality of pearl millet (*Pennisetum glaucum* L.) genotypes as influenced by salinity of irrigation water in north western regions of India. *International Journal of Current Microbiology and Applied Sciences*, 6(6), pp.2858-2874.

6. **Makarana, G.**, Yadav, R.K., Kumar, R., Soni, P.G., Yadav, T., Yadav, M.R., Datt, C., Rathore, D.K., Kar, S. and Meena, V.K., 2017. Fodder Yield and Quality of Pearl Millet (*Pennisetum glaucum* L.) Genotypes as Influenced by Salinity of Irrigation Water in North Western India. *Indian Journal of Animal Nutrition*, 34(1), pp.56-63.
7. Kumar, R., Kumar, D., Datt, C., **Makarana, G.** and Yadav, M.R., 2018. Forage Yield and Nutritional Characteristics of Cultivated Fodders as Affected by Agronomic Interventions: A Review. *Indian Journal of Animal Nutrition*, 35(4), pp.373-385.
8. Kushwaha, M., Singh, M., Kumar, R., Tyagi, N., Soni, P.G., Choudhary, S. and **Makarana, G.**, 2018. Yield and quality of multicut fodder sorghum as affected by nutrient levels and biofertilizer application. *Indian Journal of Animal Nutrition*, 35(1), pp.82-89.
9. Yadav, M.R., Parihar, C.M., Jat, S.L., Singh, A.K., Kumar, R., Yadav, R.K., Parihar, M.D., **Makarana, G.** and Jat, M.L., 2017. Impact of legume intensified crop rotations and tillage practices on maize productivity vis-à-vis C and N dynamics of a sandy loam soil in north-western Indo-Gangetic Plains of India. *Legume Research-An International Journal*, 40(6), pp.1028-1037.
10. Kar, S., Kumar, R., Kumar, P., Singh, M., Soni, P.G., **Makarana, G.**, Joshi, D. and Kushwaha, M., 2017. C4 Photosynthesis and Biomass. *International Journal of Current Microbiology and Applied Sciences*, 6(3): pp.1567-1574.
11. Kar, S., Singh, M., Kumar, P., Kumar, R. and **Makarana, G.**, 2017. Evaluation of sugargraze (*Sorghum bicolor*), fodder maize (*Zea mays*) and sorghum (*Sorghum bicolor*) under different sources of nitrogen. *Indian Journal of Agronomy*, 62(2), pp.236-238.
12. Yadav, T., Chopra, N. K., Chopra, N. K., Yadav, M. R., Kumar, R., Rathore, D.K., Soni, P.G., **Makarana G.**, Tamta, A., Kushwah, M., Ram, H., Meena, R.K., and Singh M. (2017). Weed Management in Cowpea-A Review. *International Journal of Current Microbiology and Applied Sciences*, 6(2), 1373-1385.
13. Meena, V.K., Kaushik, M.K., Singh, M., Kumar, R., Meena, R.K., Meena, B.L., Meena, B.P., Ram, H., Kumar, U., Yadav, M.R. and **Makarana, G.**, 2016. Performance of cluster bean cultivars under the application of various agrochemicals in Sub-Humid area of Rajasthan, India. *Legume Research-An*

14. Rathore, D.K., Kumar, R., Singh, M., Kumar, P., Tyagi, N., Datt, C., Meena, B.S., Soni, P.G., Yadav, T. and **Makarana, G.**, 2015. Effect of phosphorus and zinc Application on nutritional characteristics of fodder cowpea (*Vigna unguiculata*). *Indian Journal of Animal Nutrition*, 32(4), pp.388-392.
15. Rathore, D.K., Kumar, R., Singh, M., Meena, V.K., Kumar, U., Gupta, P.S., Yadav, T. and **Makarana, G.**, 2015. Phosphorus and zinc fertilization in fodder cowpea-A review. *Agricultural Reviews*, 36(4), pp.333-338.

## **II Book chapters**

1. Kumar, D., Kushwaha, M., Yadav, T., **Makarana, G.** and Dutta, S. 2020. Biochar: An emerging approach for sustainable crop production under changing climate dilemma. (In) *Advances in Agricultural and Life Sciences*, Volume 2, (Ed) Yessimbekov, Z. pp. 19-41. Weser Books, Zittau, Germany.
2. Mrunalini K., Rolaniya, L.K., Datta D., Kumar S., Behera B., **Makarana G.**, Singh A., Prasad J.V.N.S., Pratibha G., Naik M.R., Swamy Narayana and Rao C.S. (2020). Resource Conservation Technologies for Climate Change Adaptation and Mitigation. In: Ch. Srinivasarao et al., (Eds). *Climate Change and Indian Agriculture: Challenges and Adaptation Strategies*, ICAR-National Academy of Agricultural Research Management, Hyderabad, Telangana, India. pp-131-156.

## **III Popular articles**

- I. **Makarana G.**, Yadav R.K., Yadav T. and Kumar R. (2018-2019). Unnat krishi taknikon dwara lawaniy aevam shariy jal ka sinchayi prabandhan, *Krishi kiran (variskaank-11)* p. 22-27.
- II. **Makarana, G.**, Kumar D., Bhakar A., Koli D.K. (2018-19). *Krishi ke satat vikash ke liye yatharth (Satik) kheti*, *Dugdanga* p.32-34.
- III. **Makarana G.**, Kumar R. Soni P.G., aevam yadav T. (2018-19). *Fasalon ke posak tatv prabandhan me hari khad (green manuring) ka yogdan*, *Dugdanga*, p.42-44.
- IV. Bhakar A., Singh M., **Makarana G.** aevam kumar R. (2018-19). *Fasal avasheshon ka samuchit upyog: samsya, nirakaran aevam sujhav*, *Dugdanga*, p.35-37.
- V. Kumar, D., Kumar S., Yadav S.S., aevam **Makarana G.** (2018-2019). *Sarson: Ek bahuudhesiya fasal*, *Dugdanga*, p.58-61.
- VI. Soni Pooja Gupta, Yadav Taramani, **Makarana Govind**, Kumar Sourabh, Tamta Akansha and Kumar Rakesh (2015-16). *Chara wali faslo main paye jane wale*

gunvattarodhi ghatk, Dugdanga 5:59-60.