Profile

Dr. Arvind Kumar Shukla

Designation: Principal Scientist &
Project Coordinator (AICRP-MSPE)
Project Coordinator Micronutrient Unit

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Research specialization:

Nutrient management, Nutrient use efficiency, Carbon sequestration, Micronutrient in soil-plant-animal/human continuum, Agronomic biofortification

Professional Experience:

During my professional carrier, I have made significant contributions in developing eco-friendly integrated nutrient management technologies for improving soil-crop productivity, enhancing nutrient use efficiency and improving soil health through balanced and site-specific nutrient management options. I worked extensively on development and standardization of i) low cost customized leaf colour chart for real time N management and arresting nitrate leaching ii) geo-referenced soil fertility maps (615 districts) of sulphur and micronutrients and multi micronutrient deficiencies for site-specific nutrient management options, and iii) soil quality indices to monitor soil health and creation of soil fertility management zones for precision nutrient prescription and higher productivity. Integrated and balanced nutrient management technologies coupled with resource conservation technologies proved effective in increasing carbon sequestration potential and improving nutrient use efficiency under rice based cropping system. I developed technologies for managing iron toxicity in acid lateritic soils and using fly ash in improving productivity in rice based cropping system. My contribution in extending the sphere of micronutrients from soil plant system to soil-plant-animal-human continuum through enrichment of micronutrients in edible plant parts has emerged as an important tool to alleviate zinc and iron malnutrition in the country.

Awards and Honours:

- Awarded Fellowship of National Academy of Agricultural Sciences for the year 2016
- Awarded Chaudhary Devilal Outstanding AICRP Award 2015 by the Indian Council of Agriculture Research (ICAR), New Delhi
- Awarded IPNI-FAI Award for the year 2016 by International Plant Nutrition Institute, Norcross, USA and FAI, India
- Awarded IZA-FAI Award for the year 2014 by International Zinc Association (IZA), Belgium–Fertilizer Association of India (FAI), India
- Awarded Dheeru Morarji Memorial Award for the years 2004 and 2015 by Fertilizer Association of India (FAI), India
- Awarded Fellowship for the year 2014 by Society for Recent Development in Agriculture
- Awarded Shri Ram Awards for the years 1998, 2003, 2012 and 2013 by Fertilizer Association of India (FAI), India

- ❖ Awarded ISSS-JSP Yadav Memorial Team Award for the year 2011 by Indian Society of Soil Science, New Delhi
- ❖ Received Golden Jubilee Commemoration Young Scientist Award for the year 2005 by Indian Society of Soil Science, New Delhi
- ❖ Awarded Young Scientist Award for the year 2004 by Society for Recent Development in Agriculture
- ❖ Awarded PPIC-FAI Award for the year 2004 by Society for Recent Development in Agriculture
- ❖ Received Dr. T. D. Biswas Memorial Lecture Award for the year 2011 by Indian Society Soil Science, New Delhi
- ❖ Received Dr. Motiramani Memorial Lecture Award for the year 2012 by Indian Society
- ❖ Soil Science, New Delhi
- ❖ Received Dr. S C Agarwal Memorial Lecture Award for the year 2015 by Botany Department, Lucknow University, Lucknow

Top Ten publications:

1. Singh, P., **Shukla, A. K.**, Behera S. K., Tiwari, P. K., Das, S. and Tripathi, A. **(2019)**. Categorization of diverse wheat genotypes for zinc efficiency based on higher yield and uptake efficiency. ***Journal of Soil Science and Plant Nutrition*** DOI:10.1007/s42729.
2. Singh, P., **Shukla, A. K.**, Behera, S. K. and Tiwari, P. K. (2019). Zinc application enhances super oxide dismutase and carbonic anhydrase activities in zinc efficient and inefficient wheat genotypes. ***Journal of Soil Science and Plant Nutrition*** 19(3): 477-487. DOI: 10.1007/s42729-019-00038-7.
3. **Shukla, A. K**., Sinha, N. K., Tiwari, P. K., Prakash, C., Behera, S. K., Babu, P. S., Patnaik, M. C., Somasundaram, J., Singh, P., Dwivedi, B. S., Datta, S. P., Meena, M. C., Tripathi, R., Nayak, A. K., Kumar A., Shukla, K., Siddiqui, S., Patra, A. K. **(2018)**. Evaluation of spatial distribution and regional zone delineation for micronutrients in a semi-arid deccan plateau region of India. ***Land Degradation and Development*** 29(8): 2449-2459. DOI: 10.1002/ldr.2992.
4. **Shukla, A. K.,** Sinha, N. K., Tiwari, P. K., Prakash, C., Behera S. K., Lenka, N. K., Singh, V. K., Dwivedi, B. S., Majumdar, K., Kumar, A., Srivastava, P. C., Pachauri, S. P., Meena, M. C., Lakaria, B. L. and Siddiqui, S. **(2017)**. Spatial distribution and management zones for sulfur and micronutrients in Shiwalik Himalayan region of India ***Land Degradation and Development*** 28 (3): 959–969.
5. **Shukla, A. K**., Behera, S. K., Lenka, N. K., Tiwari, P. K., Prakash, C., Malik, R. S., Sinha, N. K., Singh, V. K., Patra, A. K., Chaudhary, S. K. (**2016)**. Spatial variability of soil micronutrients in the intensively cultivated Trans-Gangetic Plains of India. ***Soil and Tillage Research*** 163: 282-289.
6. Tripathi, R, **Shukla, A. K.,** Shahid, M., Nayak, D. P., Mohanty, S., Raja, S. R., Lal, B., Gautam, P., Bhattacharyya, P., Panda, B.B, Kumar, A., Jambhulkar, N. N. and Nayak, A. K. **(2016)**. Soil quality in mangrove ecosystem deteriorates due to rice cultivation. ***Ecological Engineering*** 90: 163-169.
7. Behera, S. K. and **Shukla, A. K. (2015).** Spatial distribution of surface soil acidity, electrical conductivity, soil organic carbon content and exchangeable potassium, calcium and magnesium in some cropped acid soils of India. ***Land Degradation and Development*** 26(1): 71-79.
8. Shahid, M., **Shukla A. K.**, Bhattacharyya, P., Tripathi, R., Mohanty, S, Kumar, A., Lal, B., Gautam, P., Raja, R., Panda, B. B., Das, B. and Nayak, A. K. **(2015).** Micronutrients (Fe, Mn, Zn and Cu) balance under long-term application of fertilizer and manure in a tropical rice-rice system. ***Journal of Soils and Sediments*** 16 (3), 737–747.
9. **Shukla, A. K.**, Ladha, J. K., Singh, V. K., Dwivedi, B. S., Balasubramanian, V., Gupta, R. K., Sharma, S. K., Singh, Y., Pathak, H., Pandey, P. S. and Padre, A. T. **(2004)**. Calibrating the leaf colour chart for nitrogen management in different genotypes of rice and wheat in a systems perspective. ***Agronomy Journal*** 96:1606-1621.
10. Dwivedi, B. S., **Shukla, A. K.,** Singh, V. K. and Yadav, R. L. **(2003)**. Improving nitrogen and phosphorus use efficiencies through inclusion of forage cowpea in the rice-wheat systems in the Indo-Gangetic plains of India. ***Field Crops Research***84: 399-418.