

Biodata

1. **Name and designation** : Dr. A.K. Nayak
Principal Scientist & Head



2. **Date and place of birth** : 18-04-1969; Narsinghpur, Odisha
3. **Postal and telecommunication address** : ICAR-National Rice Research Institute, Bidyadharpur, Cuttack-753006; Odisha, India.
4. **Telephone, Fax, email etc.** : +91671-2367768-783 (Extension: 2212) (O), +919777591282 (M), Fax- +91671-2367663
E-mail: aknayak20@yahoo.com

5. **Educational qualification beginning with the first- degree or equivalent (in a tabular form):**

S. No.	Degree	Name of the University/ Institution	Year
1	Graduation, B.Sc. (Agriculture)	OUAT, Bhubaneswar	1991
2	Masters, M.Sc. (Soil Science & Agril. Chemistry)	BHU, Varanasi	1993
3	Ph.D, (Soil Science & Agril. Chemistry)	BHU, Varanasi	1997

6. **Employment record:**

Designation	Nature of work	Organi- zation	Institution & Place of posting	Period (From-To)	Actual Duration (Years & Months)
Director (Acting)	Research Management	ICAR	ICAR-NRRI, Cuttack	17.11.2015 to 31.07.2016	8 months
Head (Crop Production)	Research & Extension	ICAR	CRRI, Cuttack	09-10-2014 to till date	-

Principal Scientist	Research & Extension	ICAR	CRRI, Cuttack	21-05-2010 to till date	-
Principal Scientist	Research & Extension	ICAR	PDFSR, Modipuram, Meerut	25-8-2009 to 20-5-2010	8 months 25 days
Sr. Scientist	Research & Extension	ICAR	CSSRI, RRS, Lucknow	5-7-2005 to 24-8-2009	4 years 1 months 19 days
Scientist Sr.Scale	Research & Extension	ICAR	CSSRI, RRS, Lucknow	14-03-2004 to 5-7-2005	1 years 4 months
Scientist Sr.Scale	Research & Extension	ICAR	CSSRI, RRS, Bharuch	27-04-2003 - 14-03-04	11 months
Scientist Sr.Scale	Research & Extension	ICAR	CSSRI, RRS, Anand	05-07-2000 to 26-04-2003	2 yrs 9 months
Scientist	Research & Extension	ICAR	CSSRI, RRS, Anand	05-07-1996 to 04-07-2000	4 years

Publications:

Total Research Publications	: 184
Books	: 11
Book chapters	: 41
Popular article and other report	: 52
Technical bulletin/folder	: 42

Recent publications (2020-17)

1. Bhattacharyya, P., Neogi, S., Dash, P.K., Padhy, S.R., Roy, K.S. and **Nayak, A.K.**, 2020. Partitioning of total soil respiration into root, rhizosphere and basal-soil CO₂ fluxes in contrasting rice production systems. *Soil Research*, pp.__(NAAS-7.57)
2. Kumar, U., **Nayak, A.K.**, Sahoo, S., Kumar, A., Kaviraj, M. and Shahid, M., 2020. Combined effects of elevated CO₂, nitrogenous fertilizer and water deficit stress on diazotrophic community in sub-humid tropical paddy soil. *Applied Soil Ecology*. (NAAS-9.4)
3. Bhaduri, D., Chakraborty, K., **Nayak, A.K.**, Shahid, M., Tripathi, R., Behera, R., Singh, S. and Srivastava, A.K, 2020. Alteration in plant spacing improves submergence tolerance in sub1 and non- Sub1 rice (cv. IR64) by better light interception and effective carbohydrate utilization under stress. *Functional Plant Biology*. (NAAS-8.33) <https://doi.org/10.1071/FP19364>.
4. Padhy, S.R., Bhattacharyya, P., Dash, P.K., Roy, K.S., Neogi, S., Baig, M.J., Swain, P., **Nayak, A.K.** and Mahapatra, T., 2020. Enhanced labile carbon flow in soil-microbes-plant-atmospheric continuum in rice under elevated CO₂ and temperature leads to positive climate change feed-back. *Applied Soil Ecology*, 155, p.103657. <https://doi.org/10.1016/j.apsoil.2020.103657>. (NAAS-9.4)

5. Lal, B., Gautam, P., Panda, B.B., Tripathi, R., Shahid, M., Bihari, P., Guru, P.K., Singh, T., Meena, R.L. and **Nayak, A.K.**, 2020. Identification of energy and carbon efficient cropping system for ecological sustainability of rice fallow. *Ecological Indicators*, 115, p.106431. <https://doi.org/10.1016/j.ecolind.2020.106431>. (NAAS-10.49)
6. Shukla, A.K., Behera, S.K., Singh, V.K., Prakash, C., Sachan, A.K., Dhaliwal, S.S., Srivastava, P.C., Pachauri, S.P., Tripathi, A., Pathak, J., **Nayak, A.K.**, Kumar, A., Tripathi, R., Dwivedi, B.S., Datta, S.P., Meena, M.C., Das, S., Trivedi, V., 2020. Pre-monsoon spatial distribution of available micronutrients and sulphur in surface soils and their management zones in Indian Indo-Gangetic Plain. *PLoS ONE*, 15(6): e0234053. <https://doi.org/10.1371/journal.pone.0234053>. (NAAS-8.77)
7. Mohanty, S., **Nayak, A.K.**, Swain, C.K., Dhal, B.R., Kumar, A., Kumar, U., Tripathi, R., Shahid, M. and Behera, K.K., 2020. Impact of integrated nutrient management options on GHG emission, N loss and N use efficiency of low land rice. *Soil and Tillage Research*, 200, p.104616. <https://doi.org/10.1016/j.still.2020.104616>. (NAAS-10.68)
8. Chatterjee, S., Swain, C.K., **Nayak, A.K.**, Chatterjee, D., Bhattacharyya, P., Mahapatra, S.S., Debnath, M., Tripathi, R., Guru, P.K. and Dhal, B., 2020. Partitioning of eddy covariance-measured net ecosystem exchange of CO₂ in tropical lowland paddy. *Paddy and Water Environment*. <https://doi.org/10.1007/s10333-020-00806-7>. (NAAS- 7.26)
9. Rahman, M.M., Shehzad, M.T., **Nayak, A.K.**, Sharma, S., Yeasmin, M., Samanta, S., Correll, R. and Naidu, R., 2020. Health risks from trace elements in muscles of some commonly available fish in Australia and India. *Environmental Science and Pollution Research*, pp.1-13. <https://doi.org/10.1007/s11356-020-08600-y>. (NAAS-8.91)
10. Chatterjee, D., Swain C.K., Chatterjee, S., Bhattacharyya, P., Tripathi, R., Lal, B., Gautam, P., Shahid, M., Dash P.K., Dhal, B. and **Nayak, A.K.**, 2020. Is energy balance in a tropical lowland rice perfectly closed? *Atmosfera*. <https://www.revistascca.unam.mx/atm/index.php/atm/article/view/52734>. (NAAS-NF)
11. Kumar, U., Behera, S., Saha, S., Das, D., Guru, P.K., Kaviraj, M., Munda, S., Adak, T. and **Nayak, A.K.**, 2020. Non-target effect of bispyribac sodium on soil microbial community in paddy soil. *Ecotoxicology and Environmental Safety*, 189, p.110019. <https://doi.org/10.1016/j.ecoenv.2019.110019>. (NAAS-10.53)
12. Khanam, R., Kumar, A., **Nayak, A.K.**, Shahid, M., Tripathi, R., Vijaykumar, S., Bhaduri, D., Kumar, U., Mohanty, S., Paneerselvam, P., Chatterjee, D., Satapathy, B.S. and Pathak, H., 2020. Metal(loid)s (As, Hg, Se, Pb, and Cd) in Paddy soil: Bioavailability and potential risk to human health. *Science of the Total Environment*, 699, p.134330. <https://doi.org/10.1016/j.scitotenv.2019.134330>. (NAAS-10.61)
13. Padhy, S.R., Bhattacharyya, P., **Nayak, A.K.**, Dash, P.K., Roy, K.S., Baig, M.J. and Mahapatra, T., 2020. Key Metabolic Pathways of Sulfur Metabolism and Bacterial Diversity under Elevated CO₂ and Temperature in Lowland Rice: A Metagenomic Approach. *Geomicrobiology Journal*, 37(1), pp.13-21. <https://doi.org/10.1080/01490451.2019.1657992>. (NAAS-6.4)
14. Lal, B., Gautam, P., **Nayak, A.K.**, Maharana, S., Tripathi, R., Shahid, M., Baig, M.J., Raja, R., Kato, Y., Kumar Srivastava, A. and Singh, S., 2020. Tolerant varieties and exogenous application of nutrients can effectively manage drought stress in rice. *Archives of Agronomy and Soil Science*, 66(1), pp.13-32.

- <https://doi.org/10.1080/03650340.2019.1587749>. (NAAS-8.5)
15. Priyadarshini, P., Tripathi, R., Puree, C., Dhal, B., Shahid, M., Lal, B., Gautam, P., Mohanty, S., Kumar, U., Munda, S., Kumar, A., Panda, B.B., Bhattacharyya, P., Shukla, A.K., and **Nayak, A.K.**, 2020. Distribution of N-mineralizing Enzymes in Soil Aggregate Fractions over 46 Years Application of Inorganic and Organic Fertilizers in a Tropical Rice-Rice System. *Journal of the Indian Society of Soil Science*, 67(3), pp.341-350. <http://dx.doi.org/10.5958/0974-0228.2019.00037.9>. (NAAS-5.23)
 16. Mohanty, S., **Nayak, A.K.**, Swain, C.K., Dhal, B., Kumar, A., Tripathi, R., Shahid, M., Lal, B., Gautam, P., Dash, G.K. and Swain, P., 2020. Silicon enhances yield and N use efficiency of tropical low land rice. *Agronomy Journal*, 112(2), pp.1-14. <https://doi.org/10.1002/agj2.20087>. (NAAS-7.9)
 17. Bhattacharyya, P., Bhaduri, D., Adak, T., Munda, S., Satapathy, B., Dash, P.K., Padhy, S.R., Pattanayak, A., Routray, S., Chakraborti, M., Baig, M.J., Mukherjee, **A.K.**, **Nayak, A.K.** and Pathak, H., 2020. Characterization of rice straw from major cultivars for best alternative industrial uses to cutoff the menace of straw burning. *Industrial Crops and Products*, 143, p.111919. <https://doi.org/10.1016/j.indcrop.2019.111919>. (NAAS-9.85)
 18. Panneerselvam, P., Kumar, U., Senapati, A., Parameswaran, C., Anandan, A., Kumar, A., Jahan, A., Padhy, S.R. and **Nayak, A.K.**, 2020. Influence of elevated CO₂ on arbuscular mycorrhizal fungal community elucidated using IlluminaMiSeq platform in sub-humid tropical paddy soil. *Applied Soil Ecology*, 145, p.103344. <https://doi.org/10.1016/j.apsoil.2019.08.006>. (NAAS-9.4)
 19. Panneerselvam, P., Sahoo, S., Senapati, A., Kumar, U., Mitra, D., Parameswaran, C., Anandan, A., Kumar, A., Jahan, A. and **Nayak, A.K.**, 2019. Understanding interaction effect of arbuscularmycorrhizal fungi in rice under elevated carbon dioxide conditions. *Journal of basic microbiology*, 59(12), pp.1217-1228. <https://doi.org/10.1002/jobm.201900294>. (NAAS-6.3)
 20. **Nayak, A.K.**, Shahid, M., Nayak, A.D., Dhal, B., Moharana, K.C., Mondal, B., Tripathi, R., Mohapatra, S.D., Bhattacharyya, P., Jambhulkar, N.N., Shukla, A.K., Fitton, N., Smith, P. and Pathak, H., 2019. Assessment of ecosystem services of rice farms in eastern India. *Ecological Processes*, 8(1), p.35. <https://doi.org/10.1186/s13717-019-0189-1>. (NAAS-NF)
 21. Dash, P.K., Bhattacharyya, P., Roy, K.S., Neogi, S. and **Nayak, A.K.**, 2019. Environmental constraints' sensitivity of soil organic carbon decomposition to temperature, management practices and climate change. *Ecological Indicators*, 107, p.105644. <https://doi.org/10.1016/j.ecolind.2019.105644>. (NAAS-9.4)
 22. Dash, P.K., Bhattacharyya, P., Shahid, M., Roy, P.S., Padhy, S.R., Swain, C.K., Kumar, U., Kumar, A., Gautam, P., Lal, B., Panneerselvam, P. and **Nayak, A.K.**, 2019. Structural diversity and efficacy of culturable cellulose decomposing bacteria isolated from rice-pulse resource conservation practices. *Journal of basic microbiology*, 59(10), pp.963-978. <https://doi.org/10.1002/jobm.201900275>. (NAAS-6.3)
 23. Gautam, P., Lal, B., **Nayak, A.K.**, Tripathi, R., Shahid, M., Meena, B.P., Singh, S. and Srivastava, A.K., 2019. Nutrient management and submergence-tolerant varieties antecedently enhances the productivity and profitability of rice in flood-prone regions. *Journal of Plant Nutrition*, 42(16), pp.1913-1927. <https://doi.org/10.1080/01904167.2019.1649697>. (NAAS-6.57)

24. Sharma, S., Rout, K.K., Khanda, C.M., Tripathi, R., Shahid, M., **Nayak, A.**, Satpathy, S., Banik, N.C., Iftikar, W., Parida, N., Kumar, V., Mishra, A., Castillo, R.L., Velasco, T. and Buresh, R.J., 2019. Field-specific nutrient management using Rice Crop Manager decision support tool in Odisha, India. *Field crops research*, 241, p.107578. <https://doi.org/10.1016/j.fcr.2019.107578>. (NAAS-10)
25. Chatterjee, D., **Nayak, A.K.**, Vijayakumar, S., Debnath, M., Chatterjee, S., Swain, C.K., Bihari, P., Mohanty, S., Tripathi, R., Shahid, M., Kumar, A. and Pathak, H., 2019. Water vapor flux in tropical lowland rice. *Environmental monitoring and assessment*, 191(9), p.550. <https://doi.org/10.1007/s10661-019-7709-4>. (NAAS-6.9)
26. Lal, B., Gautam, P., **Nayak, A.K.**, Panda, B.B., Bihari, P., Tripathi, R., Shahid, M., Guru, P.K., Chatterjee, D., Kumar, U. and Meena, B.P., 2019. Energy and carbon budgeting of tillage for environmentally clean and resilient soil health of rice-maize cropping system. *Journal of cleaner production*, 226, pp.815-830. <https://doi.org/10.1016/j.jclepro.2019.04.041>. (NAAS-11.65)
27. Kumar, U., Kaviraj, M., Panneerselvam, P., Priya, H., Chakraborty, K., Swain, P., Chatterjee, S.N., Sharma, S.G., Nayak, P.K. and **Nayak, A.K.**, 2019. Ascorbic acid formulation for survivability and diazotrophic efficacy of *Azotobacter chroococcum* Avi2 (MCC 3432) under hydrogen peroxide stress and its role in plant-growth promotion in rice (*Oryza sativa* L.). *Plant Physiology and Biochemistry*, 139, pp.419-427. <https://doi.org/10.1016/j.plaphy.2019.04.003>. (NAAS-8.7)
28. **Nayak, A.K.**, Rahman, M.M., Naidu, R., Dhal, B., Swain, C.K., Nayak, A.D., Tripathi, R., Shahid, M., Islam, M.R. and Pathak, H., 2019. Current and emerging methodologies for estimating carbon sequestration in agricultural soils: A review. *Science of the Total Environment*, 665, pp.890-912. <https://doi.org/10.1016/j.scitotenv.2019.02.125>. (NAAS-10.61)
29. Kumar, U., **Nayak, A.K.**, Panneerselvam, P., Kumar, A., Mohanty, S., Shahid, M., Sahoo, A., Kaviraj, M., Priya, H., Jambhulkar, N.N., Dash, P.K., Mohapatra, S.D. and Nayak, P.K., 2019. Cyanobiont diversity in six *Azolla* spp. and relation to Azolla-nutrient profiling. *Planta*, 249(5), pp.1435-1447. <https://doi.org/10.1007/s00425-019-03093-7>. (NAAS-9.25)
30. Chatterjee, D., Tripathi, R., Chatterjee, S., Debnath, M., Shahid, M., Bhattacharyya, P., Swain, C.K., Tripathy, R., Bhattacharya, B.K. and **Nayak, A.K.**, 2019. Characterization of land surface energy fluxes in a tropical lowland rice paddy. *Theoretical and applied climatology*, 136(1-2), pp.157-168. <https://doi.org/10.1007/s00704-018-2472-y>. (NAAS-8.32)
31. Gautam, P., Lal, B., **Nayak, A.K.**, Raja, R., Panda, B.B., Tripathi, R., Shahid, M., Kumar, U., Baig, M.J., Chatterjee, D. and Swain, C.K., 2019. Inter-relationship between intercepted radiation and rice yield influenced by transplanting time, method, and variety. *International journal of biometeorology*, 63(3), pp.337-349. <https://doi.org/10.1007/s00484-018-01667-w>. (NAAS-8.8)
32. Kumar, A., **Nayak, A.K.**, Das, B.S., Panigrahi, N., Dasgupta, P., Mohanty, S., Kumar, U., Panneerselvam, P. and Pathak, H., 2019. Effects of water deficit stress on agronomic and physiological responses of rice and greenhouse gas emission from rice soil under elevated atmospheric CO₂. *Science of the Total Environment*, 650, pp.2032-2050. <https://doi.org/10.1016/j.scitotenv.2018.09.332>. (NAAS-10.61)
33. Tripathi, R., Moharana, K.C., Nayak, A.D., Dhal, B., Shahid, M., Mondal, B.,

- Mohapatra, S.D., Bhattacharyya, P., Fitton, N., Smith, P., Shukla, A.K., Pathak, H. and **Nayak, A.K.**, 2019. Ecosystem services in different agro-climatic zones in eastern India: impact of land use and land cover change. *Environmental monitoring and assessment*, 191(2), p.98. <https://doi.org/10.1007/s10661-019-7224-7>. (NAAS-7.8)
34. Das, M., Dash, P.K., Bhattacharyya, P., Munda, S., Padhi, S.R., Padhi, P.P., Das, M. and **Nayak, A.K.**, 2019. Energy saving in relation to soil carbon pools and enzymatic activities under different conservation tillages and nutrient management in tropical rice. *Indian Journal of Soil Conservation*, 47(2), pp.172-179. <http://www.indianjournals.com/ijor.aspx?target=ijor:ijsc&volume=47&issue=2&article=009>. (NAAS-5.20)
35. Panda, D., **Nayak, A.K.** and Mohanty, S., 2019. Nitrogen management in rice. *Oryza*, 56(5), pp.125-135. <https://doi.org/10.35709/ory.2019.56.spl.5>. (NAAS-4.44)
36. Mohapatra, S.D., Tripathi, R., Kumar, A., Kar, S., Mohapatra, M., Shahid, M., Raghu, S., Gowda, B.G., **Nayak, A.K.** and Pathak, H., 2019. Eco-smart pest management in rice farming: prospects and challenges. *Oryza*, 56, pp.143-155. <https://doi.org/10.35709/ory.2019.56.spl.7>. (NAAS-4.44)
37. Pattanaik, I., Mishra, V.N. and **Nayak, A.K.**, 2019. Effect of customized leaf colour chart and different doses of Neem coated urea on the nitrogen use efficiency and yield of rice. *International Journal of Chemical Studies*, 7(2), pp.311-312. <http://www.chemijournal.com/archives/2019/vol7issue2/PartF/7-1-611-644.pdf>. (NAAS- 5.31)
38. Kumar, A., **Nayak, A.K.**, Pani, D.R. and Das, B.S., 2019. Application of Phosphorus, Iron, and Silicon Reduces Yield Loss in Rice Exposed to Water Deficit Stress. *Agronomy Journal*, 111(3), pp.1488-1497. <https://doi.org/10.2134/agronj2018.09.0608>. (NAAS-7.9)
39. Tripathi, R., **Nayak, A.K.**, Dhal, B., Shahid, M., Lal, B., Gautam, P., Mohanty, S., Panda, B.B., Sahoo, R.N. and K., 2019. Assessing soil spatial variability and delineating site-specific management zones for a coastal saline land in eastern India. *Archives of Agronomy and Soil Science*, 65(13), pp.1775-1787. <https://doi.org/10.1080/03650340.2019.1578345>. (NAAS-8.5)
40. Padhy, S.R., Nayak, S., Dash, P.K., Das, M., Roy, K.S., **Nayak, A.K.**, Neogi, S. and Bhattacharyya, P., 2018. Elevated carbon dioxide and temperature imparted intrinsic drought tolerance in aerobic rice system through enhanced exopolysaccharide production and rhizospheric activation. *Agriculture, Ecosystems & Environment*, 268, pp.52-60. <https://doi.org/10.1016/j.agee.2018.08.009>. (NAAS-9.54)
41. Swain, C.K., Bhattacharyya, P., **Nayak, A.K.**, Singh, N.R., Neogi, S., Chatterjee, D. and Pathak, H., 2018. Dynamics of net ecosystem methane exchanges on temporal scale in tropical lowland rice. *Atmospheric environment*, 191, pp.291-301. <https://doi.org/10.1016/j.atmosenv.2018.08.011>. (NAAS-9.71)
42. Munda, S., Bhaduri, D., Mohanty, S., Chatterjee, D., Tripathi, R., Shahid, M., Kumar, U., Bhattacharyya, P., Kumar, A., Adak, T., Jangde, H.K. and **Nayak, A.K.**, 2018. Dynamics of soil organic carbon mineralization and C fractions in paddy soil on application of rice husk biochar. *Biomass and bioenergy*, 115, pp.1-9. <https://doi.org/10.1016/j.biombioe.2018.04.002>. (NAAS-9.36)
43. Shahid, M., **Nayak, A.K.**, Tripathi, R., Katara, J.L., Bihari, P., Lal, B. and Gautam, P., 2018. Boron application improves yield of rice cultivars under high temperature stress

- during vegetative and reproductive stages. *International journal of biometeorology*, 62(8), pp.1375-1387. <https://doi.org/10.1007/s00484-018-1537-z>. (NAAS-8.58)
44. Kumar, U., **Nayak, A.K.**, Shahid, M., Gupta, V.V., Panneerselvam, P., Mohanty, S., Kaviraj, M., Kumar, A., Chatterjee, D., Lal, B., Gautam, P., Tripathi, R. and Panda, B.B., 2018. Continuous application of inorganic and organic fertilizers over 47 years in paddy soil alters the bacterial community structure and its influence on rice production. *Agriculture, ecosystems & environment*, 262, pp.65-75. <https://doi.org/10.1016/j.agee.2018.04.016>. (NAAS-9.54)
 45. Swain, C.K., **Nayak, A.K.**, Bhattacharyya, P., Chatterjee, D., Chatterjee, S., Tripathi, R., Singh, N.R. and Dhal, B., 2018. Greenhouse gas emissions and energy exchange in wet and dry season rice: eddy covariance-based approach. *Environmental monitoring and assessment*, 190(7), p.423. <https://doi.org/10.1007/s10661-018-6805-1>. (NAAS-7.8)
 46. Das, D., **Nayak, A.K.**, Thilagam, V.K., Chatterjee, D., Shahid, M., Tripathi, R., Mohanty, S., Kumar, A., Lal, B., Gautam, P. and Panda, B.B., 2018. Measuring potassium fractions is not sufficient to assess the long-term impact of fertilization and manuring on soil's potassium supplying capacity. *Journal of Soils and Sediments*, 18(5), pp.1806-1820. <https://doi.org/10.1007/s11368-018-1922-6>. (NAAS-8.63)
 47. Mohanty, S., Swain, C.K., Tripathi, R., Sethi, S.K., Bhattacharyya, P., Kumar, A., Raja, R., Shahid, M., Panda, B.B., Lal, B., Gautam, P., Munda, S. and **Nayak, A.K.**, 2018. Nitrate leaching, nitrous oxide emission and N use efficiency of aerobic rice under different N application strategy. *Archives of Agronomy and Soil Science*, 64(4), pp.465-479. <http://dx.doi.org/10.1080/03650340.2017.1359414>. (NAAS-8.1)
 48. Chatterjee, D., Mohanty, S., Guru, P.K., Swain, C.K., Tripathi, R., Shahid, M., Kumar, U., Kumar, A., Bhattacharyya, P., Gautam, P., Lal, B., Dash, P.K. and **Nayak, A.K.**, 2018. Comparative assessment of urea briquette applicators on greenhouse gas emission, nitrogen loss and soil enzymatic activities in tropical lowland rice. *Agriculture, ecosystems & environment*, 252, pp.178-190. <http://dx.doi.org/10.1016/j.agee.2017.10.013>. (NAAS-9.54)
 49. Dash, P.K., Bhattacharyya, P. and **Nayak, A.K.**, 2018. Soil carbon dynamics and enzymatic activities under different resource conservation technologies in rice-green gram cropping system. *ORYZA-An International Journal on Rice*, 55(2), pp.292-301. 10.5958/2249-5266.2018.00036.X. (NAAS-4.44)
 50. Chattopadhyay, K., **Nayak, A.K.**, Marndi, B.C., Poonam, A., Chakraborty, K. and Sarkar, R.K., 2018. Novel screening protocol for precise phenotyping of salt-tolerance at reproductive stage in rice. *Physiology and molecular biology of plants*, 24(6), pp.1047-1058. <https://doi.org/10.1007/s12298-018-0591-7>. (NAAS-7.15)
 51. Guru, P.K., Patel, S.P., **Nayak, A.K.**, Kumar, A., Lal, B. and Gautam, P., 2018. Development and evaluation of power operated weeder in rice. *ORYZA-An International Journal on Rice*, 55(2), pp.317-323. 10.5958/2249-5266.2018.00039.5. (NAAS-4.44)

52. Shukla, A.K., Sinha, N.K., Tiwari, P.K., Prakash, C., Behera, S.K., SurendraBabu, P., Patnaik, M.C., Somasundaram, J., Singh, P., Dwivedi, B.S., Datta, S.P., Meena, M.C., Tripathi, R., **Nayak, A.K.**, Shukla, K., Siddiqui S. and Patra, A.K., 2018. Evaluation of spatial distribution and regional zone delineation for micronutrients in a semiarid Deccan Plateau Region of India. *Land Degradation & Development*, 29(8), pp.2449-2459. <https://doi.org/10.1002/ldr.2992>. (NAAS-13.27)
53. Swain, C.K., Bhattacharyya, P., **Nayak, A.K.**, Singh, N.R., Chatterjee, D., Dash, P.K., Neogi, S. and Pathak, H., 2018. Temporal variation of energy fluxes during dry season in tropical lowland rice. *MAPAN*, 33(3), pp.241-251. <https://doi.org/10.1007/s12647-018-0260-x>. (Impact Factor-1.3)
54. Nayak, P.K., **Nayak, A.K.**, Panda, B.B., Lal, B., Gautam, P., Poonam, A., Shahid, M., Tripathi, R., Kumar, U., Mohapatra, S.D. and Jambhulkar, N.N., 2018. Ecological mechanism and diversity in rice based integrated farming system. *Ecological indicators*, 91, pp.359-375. <https://doi.org/10.1016/j.ecolind.2018.04.025>. (NAAS-9.98)
55. **Nayak, A.K.**, Khanam, R., Shahid, M. and Shukla, A.K., 2018. Role of Micronutrients in Biotic and Abiotic Stress Management in Plants. *Indian Journal of Fertilisers*, 14(4), pp.58-64. (NAAS-2.8)
56. Khanum, R., Bhaduri, D. and **Nayak, A.K.**, 2018. Crop diversification: an important way-out for Doubling farmer's income. *Indian Farming*, 68(1), pp.31-32. (NAAS-NF)
57. Lal, B., Gautam, P., **Nayak, A.K.**, Raja, R., Shahid, M., Tripathi, R., Singh, S., Septiningsih, E.M. and Ismail, A.M., 2018. Agronomic manipulations can enhance the productivity of anaerobic tolerant rice sown in flooded soils in rainfed areas. *Field Crops Research*, 220, pp.105-116. <https://doi.org/10.1016/j.fcr.2016.08.026>. (NAAS-9.13)
58. Dash, P.K., Bhattacharyya, P., Shahid, M., Roy, K.S., Swain, C.K., Tripathi, R. and **Nayak, A.K.**, 2017. Low carbon resource conservation techniques for energy savings, carbon gain and lowering GHGs emission in lowland transplanted rice. *Soil and Tillage Research*, 174, pp.45-57. <http://dx.doi.org/10.1016/j.still.2017.06.001>. (NAAS-9.82)
59. Kumar, A., **Nayak, A.K.**, Sah, R.P., Sanghamitra, P. and Das, B.S., 2017. Effects of elevated CO₂ concentration on water productivity and antioxidant enzyme activities of rice (*Oryza sativa* L.) under water deficit stress. *Field Crops Research*, 212, pp.61-72. <http://dx.doi.org/10.1016/j.fcr.2017.06.020>. (NAAS-9.13)
60. Gautam, P., Lal, B., Tripathi, R., Baig, M.J., Shahid, M., Maharana, S., Bihari, P. and **Nayak, A.K.**, 2017. Impact of seedling age and nitrogen application on submergence tolerance of Sub1 and non-Sub1 cultivars of Rice (*Oryza sativa* L.). *Journal of Plant Growth Regulation*, 36(3), pp.629-642. <https://doi.org/10.1007/s00344-016-9661-7>. (NAAS-8.05)
61. Gautam, P., Lal, B., Raja, R., Panda, B.B., Tripathi, R., Shahid, M., Mohanty, S., Maharana, S. and **Nayak, A.K.**, 2017. Submergence induced tiller mortality and yield reduction in rice can be minimized through post-submergence nitrogen

- application. *Proceedings of the National Academy of Sciences, India Section B: Biological Sciences*, 87(3), pp.953-963. <https://doi.org/10.1007/s40011-015-0671-1>. (NAAS-NF)
62. Mishra, V.K., Srivastava, S., Jha, S.K., Sharma, D.K., Damodaran, T., Singh, Y.P. and **Nayak, A.K.**, 2017. Temperature induced changes in wheat (*Triticumaestivum*) growth and yield under salt affected environment of Indo-Gangetic Plains. *Arid Land Research and Management*, 31(3), pp.253-268. <https://doi.org/10.1080/15324982.2017.1298684>. (NAAS-6.97)
63. Mohanty, S., Swain, C.K., Sethi, S.K., Dalai, P.C., Bhattachrayya, P., Kumar, A., Tripathi, R., Shahid, M., Panda, B.B., Kumar, U., Lal, B., Gautam, P., Munda, S. and **Nayak, A.K.**, 2017. Crop establishment and nitrogen management affect greenhouse gas emission and biological activity in tropical rice production. *Ecological Engineering*, 104, pp.80-98. <https://doi.org/10.1016/j.ecoleng.2017.03.014>. (NAAS-9.02)
64. Shahid, M., **Nayak, A.K.**, Puree, C., Tripathi, R., Lal, B., Gautam, P., Bhattacharyya, P., Mohanty, S., Kumar, A., Panda, B.B., Kumar, U. and Shukla, A.K., 2017. Carbon and nitrogen fractions and stocks under 41 years of chemical and organic fertilization in a sub-humid tropical rice soil. *Soil and Tillage Research*, 170, pp.136-146. <http://dx.doi.org/10.1016/j.still.2017.03.008>. (NAAS-9.82)
65. Tripathi, R., **Nayak, A.K.**, Raja, R., Shahid, M., Mohanty, S., Lal, B., Gautam, P., Panda, B.B., Kumar, A. and Sahoo, R.N., 2017. Site-specific nitrogen management in rice using remote sensing and geostatistics. *Communications in Soil Science and Plant Analysis*, 48(10), pp.1154-1166. <https://doi.org/10.1080/00103624.2017.1341907>. (NAAS-6.54)
66. Bhattacharyya, P., Roy, K.S., **Nayak, A.K.**, Shahid, M., Lal, B., Gautam, P. and Mohapatra, T., 2017. Metagenomic assessment of methane production-oxidation and nitrogen metabolism of long term manured systems in lowland rice paddy. *Science of The Total Environment*, 586, pp.1245-1253. <https://doi.org/10.1016/j.scitotenv.2017.02.120>. (NAAS-10.61)
67. Kumar, A., **Nayak, A.K.**, Pani, D.R. and Das, B.S., 2017. Physiological and morphological responses of four different rice cultivars to soil water potential based deficit irrigation management strategies. *Field Crops Research*, 205, pp.78-94. <http://dx.doi.org/10.1016/j.fcr.2017.01.026>. (NAAS-9.13)
68. Kumar, U., Shahid, M., Tripathi, R., Mohanty, S., Kumar, A., Bhattacharyya, P., Lal, B., Gautam, P., Raja, R., Panda, B.B., Jambhulkar, N.N., Shukla, A.K. and **Nayak, A.K.**, 2017. Variation of functional diversity of soil microbial community in sub-humid tropical rice-rice cropping system under long-term organic and inorganic fertilization. *Ecological Indicators*, 73, pp.536-543. <http://dx.doi.org/10.1016/j.ecolind.2016.10.014>. (NAAS-9.98)

69. Singh, Y.P., **Nayak, A.K.**, Gautam, R.K., Singh, R.K. and Mishra, V.K., 2017. Evaluation of Rice Varieties /Genotypes for Salt Tolerance through Farmers Participatory Approach. *Journal of Soil Salinity and Water Quality*, 16, pp.72-77. (NAAS-4.94)
70. Singh, Y.P., **Nayak, A.K.**,Gautam, R.K., Singh, R.K. and Mishra, V.K., 2017. Assessment of Technical Efficiency of Rice Production in Sodic Lands of Indo-Gangetic Plains. *Journal of Soil Salinity and Water Quality*, 9(1), pp.136-144. <https://www.researchgate.net/publication/319036526>. (NAAS-4.94)
71. Shahid, M., Shukla, A.K., **Nayak, A.K.**, Tripathi, R., Meher, J., Lal, B. and Gautam, P., 2017. Root activity and antioxidant enzyme activities of rice cultivars under different iron toxicity mitigation options. *Journal of the Indian Society of Soil Science*, 65(3), pp.341-348. 10.5958/0974-0228.2017.00040.8. (NAAS-5.23)
72. Mazumdar, S.P., Ghosh, D. and **Nayak, A.K.**, 2017. Soil aggregation and distribution of carbon in a sandy loam soil of Trans Gangetic plains under integrated nutrient management practices in rice-wheat cropping system. *Indian Journal of Soil Conservation*, 45(1), pp.45-51. <http://www.indianjournals.com/ijor.aspx?target=ijor:ijsc&volume=45&issue=1&article=006>. (NAAS-5.2)
73. Lal, B., Gautam, P., Panda, B.B., Raja, R., Singh, T., Tripathi, R., Shahid, M. and Nayak, A.K., 2017. Crop and varietal diversification of rainfed rice based cropping systems for higher productivity and profitability in Eastern India. *PLoS ONE*, 12(4): e0175709. <https://doi.org/10.1371/journal.pone.0175709>. (NAAS-8.77)

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7. Recognitions & Awards/Special Attainments & Achievements of Practical Importance

Fellowship (s)

Award(s)/ Fellowship

1. **Fellow of the Indian Society of Soil Science**, 2019
2. **Fellow of Association of Rice Research Workers**, 2019
3. **Endeavour Executive Fellow** awarded by Australian Govt., 2018
4. **IPNI FAI** award for best research for managing and balanced use of input in achieving maximum yield by FAI & IPNI, 2016.
5. **Fellow of National Academy of Agricultural Science (NAAS)**, 2015
6. **ISSS-Dr. J.S.P. Yadav Memorial Award** for Excellence in Soil Science awarded by Indian Society of Soil Science (ISSS), New Delhi, 2013

7. **Best worker Award** in Principal Scientist Category awarded by National Rice Research Institute, Cuttack (Institutional), 2013
8. **Hari Om Ashram Trust Award** for Outstanding Team research Award in Natural Resource Management awarded by ICAR, New Delhi, 2012
9. **Fellow of Indo-U.S. Norman E. Borlaug International Agricultural Science & Technology** in the field of Water Management awarded by USDA-FAS and ICAR, 2008
10. **UGC Junior Research Fellowship** during PhD awarded by University Grant Commission (National), New Delhi, 1994
11. **B. H. U. Medal** for standing first in Soil Science and agricultural Chemistry at the M. Sc. (Ag.) awarded by Banaras Hindu University, Varanasi, 1993

Other Distinction(s):

1. Editor in Chief of the Journal “ **Oryza**”
2. Associate Editor of “**Applied and Environmental Soil Science**”
3. Member, **Institute management committee** (IMC) meeting of ICAR-CIFA, Bhubaneswar.
4. Member, **Institute management committee** (IMC) of ICAR-NRRI.
5. Member, **Institute Management Committee** (IMC) of ICAR-CRIJAF, Barrackpore, Kolkata.
6. Member, **Research Advisory Committee** of the ICAR-NBSSLUP, Nagpur 2016-19.
7. Member, **Institute Biosafety Committee** of ILS, Bhubaneswar for the year 2017.

Foreign Visit:

1. **BARC Centre, Dhaka, Bangladesh**, 20-23rd April, 2005 as member, Planning and review committee of CPW&F project No. NP 7 to present the work plan of CSSRI on “Development of technologies to harness the productivity potential of salt affected areas of the Indo-Gangetic, Mekong and Nile River Basins”, First Annual Review and Planning Meeting (Funded by International Rice Research Institute, Philippines and CPW&F).
2. **SWERI, ARC, Egypt** on the subject “Salinity control”. (Under Indo-Egypt work plan on salinity control, visited Soil, Water and Environment Research Institute at Cairo, Egypt and Agricultural Research Station at Sakha at Kafr El-Sheikh Governorate), September 01-14, 2008.
3. Indo-U.S. Norman E. Borlaug International Agricultural Science & Technology Fellowship (Worked at **IOWA State University, USA** for 1 month 12 days in the field of Water Management in the Department of Biosystems Engineering.), October 11-November 23, 2008.
4. **Chiang Mai, Thailand**, January 5-7, 2009 to present Invited Paper on “Phosphorus leaching to the tile drain and soil P test in long term swine manure applied in corn and soybean rotation system” in International SWAT and Water Quality Conference.

5. **China**, from 26 - 29th October, 2016 for project meeting along with the different sessions of GLP-2016 proved to be very effective in planning the future work plan in delivering food security in low land areas (DEVIL) and gave an insight of new methodologies and approach.
6. **South Africa**, from 26th November-2nd December, 2017, to annual meeting of project “Delivering food security on limited land” in South Africa during 26th November to 2nd December, 2017.
7. **Australia**, from 15th July-1st October, 2018 on Endeavour Executive Fellowship programme.
8. **Brazil**, from 5th - 7th November, 2018 to attend meeting gave one opportunity to meet the project partners and listen their views and progress in the area of research work planned jointly.
9. **Norway**, from 26th to 31st May 2019 to attend meeting gave one opportunity to meet the project partners and listen their views and progress in the area of research work planned jointly.
10. **Brunei**, from 14th to 18th October 2019 to take part in the Fifth Asean – India Ministerial Meeting on Agriculture and Forestry.
11. **Malaysia**, from 3rd to 8th November 2019 to attended the Crawford Fund 4th Master Class in Agricultural Research Leadership and Management.
12. **Tanzania**, from 8th December to 17th December 2019 as one of the NRRI team members working in RESILIENCE project to take part in the Rice Outreach and Knowledge Exchange Programme and exposure visit for scientists.

Date: 22nd June 2020

Place: ICAR-NRRI, Cuttack

(A. K. Nayak)