

Division of Crop Research

Personal Details



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Research Interest

- Integrated farming system for small and marginal farmers
- Weed management in *jhum* rice for sustainable production
- Rice-wheat cropping system and nutrient management in baby corn

Research Highlights

Memberships / Fellowships

1. Indian Society of Weed Science
2. Journal of Food Legumes
3. Indian Journal of Agronomy

Technology Developed

1. Developed 04 no. of integrated farming system model suitable for < 1 acre (Model 1: Horticulture+Fisheries+ Piggery, Model 2: Agriculture + Horticulture + Fishery+ Duckery, Model 3: Agriculture+ Horticulture + Fishery+ Piggery, Model 4: Agriculture + Horticulture + Fishery+Poultry+ Azolla+Mushroom for small and marginal farmers of Nagaland
2. Standardize the optimum doses and timing of salt application for weed management in *jhum* rice
3. Identified suitable high yielding rice varieties for high altitude condition of Nagaland

Publication Details

Publications including the citation arising from the research work in bibliographical format (list publications in Journals with NAAS Rating of 6.0 or above: 59no. As on September 15, 2022).

S.N.	Details of Publications in the format given above	NAAS Journal ID & Score	No of citations
1.	Kumar Rakesh , Sarkar B, Bhatt BP, Mali SS, Mondal S Mishra JS, Jat RK, Meena RS, Anurag AP, Raman RK. 2021.Comparative assessment of energy flow, carbon auditing and eco-efficiency of	J148	09

	diverse tillage systems for cleaner and sustainable crop production in eastern India. <i>Journal of Cleaner Production</i> 293 :126162.https://doi.org/10.1016/j.jclepro.2021.126162	& 15.30	
2.	Kumar Rakesh , MishraJS, MaliSS, MondalS, MeenaRS, LalR, JhaBK, NaikSK, BiswasAK, HansH, Sundaram PK, Choudhary AK, MonobrullahM, KumarS, KumarS, RamanRK, BhattBP, Kumar U.2022.Comprehensive environmental impact assessment for designing carbon-cum-energy efficient, cleaner, and eco-friendly production system for rice-fallow agroecosystems of South Asia. <i>Journal of Cleaner Production</i> 331 :129973.https://doi.org/10.1016/j.jclepro.2021.129973	J148 & 15.30	08
3.	Kumar Rakesh , Mishra JS, Mondal S, Meena RS, Sundaram PK, Bhatt BP, Pan RS, Lal R, Saurabh K, Chandra N, Samal SK, Hans H, Raman RK.2021. Designing an ecofriendly and carbon-cum-energy efficient production system for the diverse agroecosystem of South Asia. <i>Energy</i> 214 :118860. https://doi.org/10.1016/j.energy.2020.118860	E050 & 13.15	17
4.	Saurabh K, Rao KK, Mishra JS, Kumar Rakesh , Poonia SP, Samal SK, Roy HS, Dubey AK, Choubey AK, Mondal S, Bhatt BP, Verma M, Malik RK.2021. Influence of tillage-based crop establishment and residue management practices on soil quality indices and yield sustainability in rice-wheat cropping system of eastern Indo-Gangetic Plains. <i>Soil&Tillage Research</i> 206 :104841.https://doi.org/10.1016/j.still.2020.104841	S061 & 11.37	20
5.	Mishra JS, PooniaSP, KumarRakesh , DubeyR, KumarV, MondalS, DwivediSK, RaoKK, KumarR, TamtaM, VermaM, SaurabhK, Kumar S, Bhatt BP, Malik RK, McDonald A, Bhaskar S.2021.An impact of agronomic practices of sustainable rice-wheat crop intensification on food security, economic adaptability, and environmental mitigation across eastern Indo-Gangetic Plains. <i>Field Crops Research</i> 267 :108164. https://doi.org/10.1016/j.fcr.2021.108164	F010 & 11.22	09
6.	Mishra JS, Kumar Rakesh , Mondal S, Poonia SP, Rao KK, Dubey R, Raman RK, Dwivedi SK, Kumar R, Saurabh K, Monobrullah M, Kumar S, Bhatt BP, Malik RK,Kumar V,McDonald A,Bhaskar S.2022.Tillage and crop establishment effects on weeds and productivity of a rice-wheat-mungbean rotation. <i>Field Crops Research</i> 284:108577 , https://doi.org/10.1016/j.fcr.2022.108577	F010 & 11.22	-
7.	Samal SK, Rao KK, Poonia SP, Kumar Rakesh , Mishra JS, Prakash V, Mondal S,Dwivedi SK, Bhatt BP, Naik SK, Choubey AK, Kumar V, Malik RK, McDonald A.2017.Evaluation of long-term conservation agriculture and crop intensification in rice–wheat rotation of Indo-Gangetic Plains of South Asia: Carbon dynamics and productivity. <i>European Journal of Agronomy</i> 90 :198–208. https://doi.org/10.1016/j.eja.2017.08.006	E119 & 11.12	67
8.	Kumar Rakesh , Mishra JS, Naik SK, Mondal S, Meena RS, Kumar S, Dubey AK, Makarana G, Jha BK, Mali SS, Biswas AK, Hans H, Choudhary AK, Kumar S, Dubey R, Kumar S, Sundaram PK, Raman	L007	-

	RK, Monobrullah M, Kumar U, Bhatt BP.2022.Impact of crop establishment and residue management on soil properties and productivity in rice-fallow ecosystems in India. <i>Land Degradation and Development</i> :1-15,DOI: 10.1002/ldr.4204	& 10.9 8	
9.	Mondal S, Poonia SP, Mishra JS, Bhatt BP, Rao KK, Saurabh K, Kumar Rakesh , Chakraborty D.2020.Short-term (5 years) impact of conservation agriculture on soil physical properties and organic carbon in a rice-wheat rotation in the Indo-Gangetic plains of Bihar. <i>European Journal of Soil Science</i> 71 :1076–1089, https://doi.org/10.1111/ejss.12879	E142 & 10.9 5	17
10.	Mondal S, Mishra JS, Poonia SP, Kumar Rakesh , Dubey R, Kumar S, Verma M, Rao KK, Ahmed A, Dwivedi S, Bhatt BP, Malik RK, Kumar V, McDonald A.2021.Can yield, soil C and aggregation be improved under long-term conservation agriculture in the eastern Indo-Gangetic plain of India? <i>European Journal of Soil Science</i> 72 :1742–1761, https://doi.org/10.1111/ejss.13092	E142 & 10.9 5	10
11.	Kumar Rakesh , Chatterjee D, Kumawat N, Pandey A, Roy A, Kumar M.2014.Productivity, quality and soil health as influenced by lime in ricebean cultivars in foothills of northeastern India. <i>The Crop Journal</i> 2 (5):338–344. https://doi.org/10.1016/j.cj.2014.06.001	T021 & 10.4 1	25
12.	Kumar Rakesh , Mishra JS, Rao KK, Mondal S, Hazra KK, Choudhary JS, Hans H, Bhatt BP.2020.Crop rotation and tillage management options for sustainable intensification of rice-fallow agro-ecosystem in eastern India. <i>Scientific Reports</i> 10 :11146. https://doi.org/10.1038/s41598-020-67973-9	S027 & 10.3 8	38
13.	Kumar Rakesh , Choudhary JS, Mishra JS, Mondal S, Poonia SP, Monobrullah M, Hans H, Verma M, Kumar U, Bhatt BP, Malik RK, Kumar V, McDonald A.2022.Outburst of pest populations in rice-based cropping systems under conservation agricultural practices in the middle Indo-Gangetic Plains of South Asia. <i>Scientific Reports</i> 12 :3753. https://doi.org/10.1038/s41598-022-07760-w	S027 & 10.3 8	01
14.	Saurabh K, Kumar Rakesh* , Mishra JS, Singh AK, Mondal S, Meena RS, Choudhary JS, Biswas AK, Kumar M, Roy HS, Singh NR, Yadav SK, Upadhyaya A, Hans H, Jeet P, Sundaram PK, Raman RK.2022.Sustainable intensification of rice-fallows with oilseeds and pulses: effects on soil aggregation, organic carbon dynamics and crop productivity in eastern Indo-Gangetic Plains. <i>Sustainability</i> 14 :11056. https://doi.org/10.3390/su141711056	S096 & 9.25	-
15.	Kumar Rakesh , Mishra JS, Rao KK, Bhatt BP, Hazra KK, Hans H, Mondal S.2019.Sustainable intensification of rice fallows of Eastern India with suitable winter crop and appropriate crop establishment technique. <i>Environmental Science and Pollution Research</i> 26 :29409–29423. https://doi.org/10.1007/s11356-019-06063-4	E096 & 10.2 2	28

16.	Kumar Rakesh , Bohra JS. 2014.Effect of NPKS and Zn application on growth, yield, economics, and quality of baby corn. <i>Archives of Agronomy and Soil Science</i> 60 (9):1193–1206. https://doi.org/10.1080/03650340.2013.873122	A281 & 9.09	72
17.	Kumar Rakesh , Kumawat N.2014.Effect of sowing dates, seed rates and integrated nutrition on productivity, profitability, and nutrient uptake of summer mungbean in eastern Himalaya. <i>Archives of Agronomy and Soil Science</i> 60 (9):1207–1227. https://doi.org/10.1080/03650340.2013.874559	A281 & 9.09	28
18.	Chatterjee D, KuotsuR, RaySK, PatraMK, ThirugnanavelA, KumarRakesh , BorahTR, ChowdhuryP, PongenI, SatapathyBS, Deka BC.2021. Preventing soil degradation in shifting cultivation using integrated farming system models. <i>Archives of Agronomy and Soil Science</i> , https://doi.org/10.1080/03650340.2021.1937139	A281 & 9.09	03
19.	Rao KK, SamalSK, PooniaSP, KumarRakesh , MishraJS, BhattBP, DwivediSK, MondalS, ChoubeyAK, KumarS, KumarM, Malik RK, RC Dalal.2021.Conservation agriculture improves soil physical properties and crop productivity: A long-term study in middle Indo-Gangetic Plains of India. <i>Soil Research</i> 60 (6) 442-454, https://doi.org/10.1071/SR20329	S054 & 7.99	05
20.	Mishra JS, Kumar Rakesh ,Rao SS.2017.Performance of sweet sorghum (<i>Sorghum bicolor</i>) cultivars as a source of green fodder under varying levels of nitrogen in semi-arid tropical India. <i>Sugar Tech</i> 19 :532–538. https://doi.org/10.1007/s12355-016-0506-2	S093 & 7.59	22
21.	Kumar Rakesh , Deka BC, Kumar M, Ngachan SV.2015.Productivity, quality and soil health as influenced by organic, inorganic and biofertilizer on field pea in eastern Himalaya. <i>Journal of Plant Nutrition</i> 38 (13):2006–2027. https://doi.org/10.1080/01904167.2014.988355	J440 & 7.71	13
22.	Kumar Rakesh , Deka BC, Kumawat N.2022.Production potential, quality and soil health of newly introduced baby corn as influenced by best management practices in eastern Himalayas. <i>Journal of Plant Nutrition</i> 45 (12):1866-1883, DOI:10.1080/01904167.2022.2027967	J440 & 7.71	-
23.	Raman RK, Singh DK, Sarkar S, Singh J, KumarA, Kumar U, Kumar Rakesh , Akram A, Mukharjee A, Mondal S, Upadhyaya A, Brahmanand PS.2022. Scenario of major fruit crops in flood-prone areas in eastern India: Case study of Bihar. <i>Erwerbs-Obstbau</i> : https://doi.org/10.1007/s10341-022-00738-y	IF 1.21	-
24.	Chatterjee D, Kumar Rakesh , Kuotsu R, Deka BC. 2016.Validation of traditional weed control method through common salt application in the hill region of Nagaland. <i>Current Science</i> 110 (8):1459–1467.	C203 & 7.10	20
25.	Mishra JS, Poonia SP, Choudhary JS, Kumar Rakesh , Monobrullah M, Verma M, Malik RK, Bhatt BP.2019. Rice mealybug (<i>Brevennis reh</i>): A potential threat to rice in a long-term rice-based conservation agriculture system in the middle Indo-Gangetic plain.	C203 &	03

	<i>Current Science</i> 117 (4):566-568.	7.10	
26.	Kumar Rakesh , Chatterjee D, Deka BC, Ngachan SV. 2017.Validation of common salt application on productivity, profitability, nutrient uptake, and soil health of upland rice (<i>Oryza sativa</i> L.) under shifting cultivation area of Nagaland. <i>Indian Journal of Traditional Knowledge</i> 16 (2):341–349.	I100 & 6.76	07
27.	Kumar Rakesh , Deka BC, Kumawat N, Ngachan SV.2014.Effect of integrated nutrition, biofertilizers and zinc application on production potential and profitability of garden pea (<i>Pisum sativum</i> L.) in eastern Himalaya, India. <i>Legume Research</i> 37 (6): 614–620, DOI:10.5958/0976-0571.2014.00685.7	L014 & 6.59	24
28.	Kumar Rakesh , Deka BC, Ngachan SV. 2015.Response of summer mungbean to sowing time, seed rates and integrated nutrient management. <i>Legume Research</i> 38 (3):348–352, DOI:10.5958/0976-0571.2015.00119.8	L014 & 6.59	19
29.	Prakash V, Mishra JS, Kumar Rakesh , Kumar R, Kumar S, Dwivedi SK, Rao KK,Bhatt BP.2017.Thermal utilization and heat use efficiency of sorghum cultivars in middle Indo-Gangetic Plains. <i>Journal of Agrometeorology</i> 19 (1):29–33.	J034 & 6.55	20
30.	Prasad S, Agrawal KK, Kumar Rakesh* , Prakash V.2017.Heat unit requirement of wheat cultivars under varying thermal regimes at Jabalpur. <i>Journal of Agro-meteorology</i> 19 (3):283–285.	J034 & 6.55	06
31.	Prakash V, Singh AK, Kumar Rakesh , Mishra JS, Kumar S, Dwivedi SK, Rao KK, Samal SK, Bhatt BP.2018.Thermal regimes: The key to phenological dynamics and productivity of fababean (<i>Vicia faba</i>). <i>Journal of Agrometeorology</i> 20 (1):36–39.	J034 & 6.55	04
32.	Kumar Rakesh , Nandan R, Kumar V, Prasad S, Singh D.2009.Response of summer mungbean (<i>Vigna radiata</i>) cultivars to sowing time and seed rate. <i>Indian Journal of Agricultural Sciences</i> 79 (4):309–312.	I032 & 6.37	27
33.	Kumar S, Kumar Rakesh* , Om H.2013.Shelf-life of <i>Trichoderma viride</i> in talc and charcoal-based formulations. <i>Indian Journal of Agricultural Sciences</i> 83 (5): 566–569.	I032 & 6.37	13
34.	Kumari A, Singh ON, Kumar Rakesh* .2014.Root growth, crop productivity, nutrient uptake, and economics of dwarf pea (<i>Pisum sativum</i>) as influenced by integrated nutrient management. <i>Indian Journal of Agricultural Sciences</i> 84 (11):1347–1351.	I032 & 6.37	10
35.	Jeet S, Singh JP, Kumar Rakesh* , Om H.2014.Response of nitrogen and sulphur levels on productivity and profitability of QPM hybrid (<i>Zea mays</i>) under dryland condition of Eastern Uttar	I032	12

	Pradesh. <i>Indian Journal of Agricultural Sciences</i> 84 (5):589–594.	& 6.37	
36.	Kumawat N, Singh RP, Kumar Rakesh* , Yadav TP, Om H. 2015. Effect of integrated nutrient management on productivity, nutrient uptake, and economics of rainfed pigeonpea (<i>Cajanus cajan</i>) and blackgram (<i>Vigna mungo</i>) inter-cropping system. <i>Indian Journal of Agricultural Sciences</i> 85 (2):171–176.	I032 & 6.37	29
37.	Bohra JS, Kumar Rakesh* . 2015. Effect of crop establishment methods on productivity, profitability, and energetics of rice (<i>Oryza sativa</i>)-wheat (<i>Triticum aestivum</i>) system. <i>Indian Journal of Agricultural Sciences</i> 85 (2):217–223.	I032 & 6.37	42
38.	Kumar Rakesh , Kumar M, Kumar A, Pandey A. 2015. Productivity, profitability, nutrient uptake, and soil health as influenced by establishment methods and nutrient management practices in transplanted rice (<i>Oryza sativa</i>) under hill ecosystem of Northeast India. <i>Indian Journal of Agricultural Sciences</i> 85 (5): 634–639.	I032 & 6.37	14
39.	Kumar Rakesh , Bohra JS, Kumawat N, Upadhyay PK, Singh AK. 2018. Effect of balanced fertilization on production, quality, energy use efficiency of baby corn (<i>Zea mays</i>) and soil health. <i>Indian Journal of Agricultural Sciences</i> 88 (1):28–34.	I032 & 6.21	17
40.	Yadav RK, Kumawat N, Singh A, Tomar IS, Singh M, Morya J, Kumar Rakesh , Upadhyay PK. 2018. Bio-efficacy of new herbicides on weed dynamics, productivity, and nutrient uptake in maize (<i>Zea mays</i>) under rainfed condition of Jhabua hills. <i>Indian Journal of Agricultural Sciences</i> 88 (7):1123–1128.	I032 & 6.37	08
41.	Kumar Rakesh , Patra MK, Thirugnanavel A, Deka BC, Chatterjee D, Borah TR, Rajesha G, Talang HD, Ray SK, Kumar M, Upadhyay PK. 2018. Comparative evaluation of different integrated farming system models for small and marginal farmers under the eastern Himalayas. <i>Indian Journal of Agricultural Sciences</i> 88 (11):1722–1729.	I032 & 6.37	14
42.	Singh A, Singh Y, Singh R, Upadhyay PK, Kumar Rakesh , Singh RK. 2019. Effect of cultivars and weed management practices on weeds, productivity, and profitability in zero-till direct-seeded rice (<i>Oryza sativa</i>). <i>Indian Journal of Agricultural Sciences</i> 89 (2):353–359.	I032 & 6.37	06
43.	Kumar Rakesh , Mishra JS, Upadhyay PK, Hans H. 2019. Rice fallows in the eastern India: Problems and prospects. <i>Indian Journal of Agricultural Sciences</i> 89 (4):567–577.	I032 & 6.37	33
44.	Prasad S, Agrawal KK, Kumar Rakesh* . 2019. Productivity, profitability, quality and nutrient uptake of heat tolerant wheat (<i>Triticum aestivum</i>) cultivars as influenced by staggered sowing and nutrition levels. <i>Indian Journal of Agricultural Sciences</i> 89 (4): 670–	I032 &	03

	677.	6.37	
45.	Thirugnanavel A, Deka BC, Kumar Rakesh , Rangnamei L, Meyase M.2019. Genetic diversity, correlation and path coefficient analysis of rajma bean (<i>Phaseolus vulgaris</i>) landraces in low altitude of Nagaland. <i>Indian Journal of Agricultural Sciences</i> 89 (4):726–733.	I032 & 6.37	02
46.	Kumar M, Kumar Rakesh* , Rangnamei KL, Das A, Meena KL, Rajkhowa DJ.2019. Crop diversification for enhancing the productivity for food and nutritional security under eastern Himalayas. <i>Indian Journal of Agricultural Sciences</i> 89 (7):1157–1161.	I032 & 6.37	10
47.	Kumar Rakesh* , Mishra JS, Kumar S, Hans H, Bhatt BP, Srivastava AK, Singh S.2019. Production potential, economics, and energetics of rice (<i>Oryza sativa</i>) genotypes as influenced by varying levels of nitrogen. <i>Indian Journal of Agricultural Sciences</i> 89 (11):1846–1849.	I032 & 6.37	04
48.	Kumar Rakesh , Deka BC, Kumawat N, Thirugnanavel A.2020. Effect of integrated nutrition on productivity, profitability, and quality of French bean (<i>Phaseolus vulgaris</i>). <i>Indian Journal of Agricultural Sciences</i> 90 (2): 431–435.	I030 & 6.37	08
49.	Kumar Rakesh , Mishra JS, Kumar S, Rao KK, Hans H, Bhatt BP, Srivastava A K, Singh S.2020. Evaluation of weed competitiveness of direct-seeded rice (<i>Oryza sativa</i>) genotypes under different weed management practices. <i>Indian Journal of Agricultural Sciences</i> 90 (5):914-918.	I032 & 6.37	05
50.	Kumar D, Singh KN, Shamim M, Kumar M, Siqqiqui MW, Srivastava D, Kumar S, Kumar Rakesh , Upadhyay PK.2020. Storage of fungi with rice (<i>Oryza sativa</i>)-PRH10 and their influence on seed quality. <i>Indian Journal of Agricultural Sciences</i> 90 (7): 1250-1253.	I032 & 6.37	01
51.	Kumar Rakesh , Kumawat N, Thirugnanavel A, Deka BC.2021. Paper mill-based integrated nutrition of garden pea in the Eastern Himalayas. <i>Indian Journal of Agricultural Sciences</i> 91 (5):673-677.	I032 & 6.37	-
52.	Kumar S, Kumar A, Kumar Rakesh* , Rajesha G.2021. Study on compatibility of <i>Trichoderma viride</i> with different fungicides. <i>Indian Journal of Agricultural Sciences</i> 91 (12):1788–92	I032 & 6.37	-
53.	Pan RS, Kumar Rakesh* , Bhatt BP, Mishra JS, Singh AK, Naik SK, Shinde R, Mali SS, Sarkar PK, Kumawat N, Singh AK, Kumar U.2022. Production potential and soil health of diversified production system of hill and plateau region of eastern India. <i>Indian Journal of Agricultural Sciences</i> 92 (1):101–104.	I032 & 6.37	-
54.	Kumar Rakesh* , Kumar U, Kumar A, Singh RK, Sundaram PK.2022. Efficiency of different cropping systems for sustaining productivity and profitability in middle Indo-Gangetic Plains. <i>Indian</i>	I032	-

	<i>Journal of Agricultural Sciences</i> 92 (8): 996–1000, https://doi.org/10.56093/ijas.v92i8.117619	& 6.37	
55.	Kumar Rakesh ,Makarana G,Mishra JS,BhattBP.2022.Responseof sorghum (<i>Sorghum bicolor</i>) cultivars to nitrogen in non-traditional areas of Bihar. <i>Indian Journal of Agricultural Sciences</i> 92 (9):1076–1079, https://doi.org/10.56093/ijas.v92i8.109875	I032 & 6.37	-
56.	Choudhary JS, Monobrullah M, Kumar Rakesh* , Raghav DK, Singh AK.2022. Field efficacy of insecticides against chilli thrips (<i>Scirtothrips dorsalis</i>)and their effect on coccinellids. <i>Indian Journal of Agricultural Sciences</i> 92 (10): 1196–120. https://doi.org/10.56093/ijas.v92i10.121815	I032 & 6.37	-
57.	Kumar Rakesh* . 2015.Influence of mulching, liming and farmyard manures on production potential, economics, and quality of maize (<i>Zea mays</i> L.) under rainfed condition of Eastern Himalaya. <i>Bangladesh Journal of Botany</i> 44 (3): 391 –398. DOI: https://doi.org/10.3329/bjb.v44i3.38545	B021 & 6.31	16
58.	Kumar Rakesh* . 2015.Effects of NPKS on growth, yield, and quality of late sown <i>toria</i> varieties (<i>Brassica rapa</i> L. var. <i>toria</i>) under rainfed condition of Northeast India. <i>Bangladesh Journal of Botany</i> 44 (4):521–528.	B021 & 6.31	10
59.	Kumar Rakesh* . 2017.PRODUCTION potential, quality and nutrient uptake of linseed as influenced by fertility levels and seeding rates under the foot hill condition of Nagaland. <i>Bangladesh Journal of Botany</i> 46 (1):67–71.	B021 & 6.31	05

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