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2. Date of Birth:	**31st December, 1977**	
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6. ACADEMIC CAREER AND PROFESSIONAL ATTAINMENTS

Degree	University/ Institution	Year	Specialization	Distinction, if any
B.Sc.	Institute of Agricultural Sciences, BHU, Varanasi 221 005, UP	2002	**Agriculture**	-
M.Sc.	College of Agriculture, GBPUA&T, Pantnagar, 263 145, Uttarakhand	2004	**Horticulture (Pomology)**	-
Ph.D.	Division of Fruits and Horticultural Technology, ICAR- IARI, Pusa, 110 012, New Delhi	2007	**Horticulture (Pomology)**	-
Post Doctoral	-	-	**-**	-
ICAR-JRF **CSIR -JRF** **CSIR -SRF**	ICAR, New Delhi CSIR-UGC, New Delhi CSIR-UGC, New Delhi	2002 2003 2006	**Horticulture** **Life Sciences** **Life Sciences**	All India Rank-0004

Total length of Service: ……17 Years and 2 Months

Position held	Institution	Period of involvement	Years and months
Scientist on Probation	ICAR-NAARM, Hyderabad, A.P.	7th January, 2008-14th May, 2008	5 months and 7 days
Scientist (Horticulture-Fruit Sciences)	ICAR-CAZRI, Jodhpur , Rajasthan	15th May, 2008 - 27th August, 2008	3 month and 12 days
	ICAR-CIAH, Bikaner, Rajasthan	28th August, 2008- 10th April, 2011	2 years, 6 month
	ICAR-NRC on Litchi, Muzaffarpur, Bihar	11th April, 2011-6th January, 2012	8 month and 27 days
Scientist SS (Hort.-Fruit Sci.)		7th January, 2012-6th January, 2017	5 years
Senior Scientist (Hort.-Fruit Sci.)		7th January, 2017- 6th January, 2020	3 years
--Do…. RGP: 9000 (Level 13A)		7th January, 2020- 31st March 2022	2 year and 3 months
	ICAR-CISH, Lucknow, UP	1st April, 2022 – 6th January, 2023	9 months
Principal Scientist (Hort.-Fruit Sciences) (Level 14)		7th January, 2023- till date	2 year and 6 months

7. Details of the Research Experience

i. Project handled (in-House/ External Funded) as PI and Co-PI

EXTERNALLY FUNDED RESEARCH PROJECTS

Duration	As PI/Co-PI	Title of the Research Projects	Name of the Funding agency	Cost of the Project	Years completed
1st February, 2012-2nd December, 2013	Project Associate equivalent to **Co-PI**	***UNEP-GEF/TFT Project*** *– 'Conservation and Sustainable Use of Cultivated and Wild Tropical Fruit Diversity: Promoting Sustainable Livelihoods, Food Security and Ecosystem Services'*	**Bioversity International, Rome**	₹ **47.50 Lakhs**	1 year and 10 months
3rd December, 2013 – 31st March 2015	Site Co-ordinator equivalent to **PI**				1 years and 4 months
31st May 2013-31st March 2014	CCPI equivalent to **PI** for the centre	*'Strengthening of Digital Library and Information Management under NARS* (**e-GRANTH**)'	**ICAR-NAIP, New Delhi**	₹ **14.33 Lakhs**	10 months
1st February, 2013 – 31st March 2017	**Co-PI**	*'National Database on Mango'*	**Dept. of Biotechnology, (GOI), New Delhi**	₹ **26.38 Lakhs**	4 year and 1 months
1st November, 2016-30th June, 2017	**Co-PI**	**Farmer's FIRST Project** (*Improved livelihood through good Practices in agricultural production system*)	**SMD, Agriculture Extension, ICAR HQ, New Delhi**	₹ **45.40 Lakhs**	8 Months
1st July, 2017-31st March, 2020	**PI**			₹ **115.00 Lakhs**	2 Year 9 Months
1st January, 2020-31st March 2022	Nodal Officer equivalent to **PI**	Project: "***Litchi Unnati***" (in collaboration of *Dehaat*, an start-up in Agriculture)	**Coca Cola India Private Limited (CCIPL), Gurugram, India**	₹ **49.50 Lakhs**	2 Year 3 Months
1st January, 2021-31st March 2022	**PI**	*'Doubling Litchi Production by Integrating Good Management Practices'*	**ATMA, Muzaffarpur (Dept. of Agriculture, Govt. of Bihar)**	₹ **2.25 Lakhs**	1 Year 3 Months
1st October, 2022-till date	**PI**	*Evaluation of diversity and decline of indigenous seedling mango of Bihar and study for its conservation strategy*	**Bihar State Biodiversity Board, Patna (Govt. of Bihar)**	₹ **16.65 Lakhs**	Contd.
1st October, 2024-till date	**PI**	*Evaluation of Diversity of Underutilized fruits of Bihar and Study for its Conservation and Utilization Strategy*		₹ **16.77 Lakhs**	
1st September 2023	**PI**	*'Addressing Climate-Nutrient-Water Nexus Challenges for Mango Value Chains in UP'* (i.e. **Project: Unnati Mango)**	**World Bank, UP Chapter, Lucknow**	₹ **71.84 Lakhs**	Under Consideration
1st September, 2024	**PI**	*Evaluation, Conservation and utilization of diverse underutilized fruit crops of Chhattisgarh*	**CGMFPFED**, Raipur (Chhattisgarh)	₹ **51.48 Lakhs**	
1st December 2023	**PI**	*Development of DUS Guidelines for Karonda (Carissa Carandas L.)*	PPV&FRA, New Delhi, India	₹ **19.91 Lakhs**	Contd.
1st July, 2025	**PI**	*Validation of DUS Descriptors of Bael (Aegle marmelos Correa)*		₹ **6.50 lakh (per year)**	
		Characterization of aonla varieties for developing DUS test guidelines		₹ **6.20 lakh (per year)**	
		AICRP on Bael (*Aegle marmelos* Correa)	AICRP on Arid Zone Fruits, ICAR-CIAH, Bikaner,	₹ **2.20 lakh (per year)**	

			Rajasthan		

IN-HOUSE RESEARCH PROJECTS

Title of the Research Project	Level of Association (PI/Co-PI)	Period	
		From	To
Collection, Conservation and Evaluation of Mango, Guava and Jamun cultivars under hot arid conditions' (at ICAR-CIAH, Bikaner)	**PI**	01/09/2008	10/04/2011
Post-Harvest management and value addition in arid horticultural crops' (at ICAR-CIAH, Bikaner)	**PI**	01/09/2008	10/04/2011
'Standardization of maturity standards, harvesting and post-harvest handling techniques for litchi fruits'(at ICAR-NRCL, Muzaffarpur)	**PI**	01/09/2011	31/03/2012
Influence of polyamines on pheno-physiological attributes and fruit quality of litchi' (at ICAR-NRCL, Muzaffarpur)	**Co-PI**	01/10/2015	30/06/2018
Investigation and establishing the physiological and biochemical relations for improved litchi production' (at ICAR-NRCL, Muzaffarpur)		01/04/2012	31/03/2019
Improvement of aonla and bael for higher yield and neutraceutical value (at ICAR-CISH, Lucknow)	**PI**	1st July, 2025	Contd.
Development and Utilisation of Genomic Resources for Characterization of Aonla, Bael and Jamun (at ICAR-CISH, Lucknow)	**Co-PI**	1st April, 2024	
Evaluation of effect of Training System and PBZ application on precocity, productivity and orchard efficiency of Jamun (at ICAR-CISH, Lucknow)			
Flagship Project-2: '*Shoot physiology in relation to flowering and fruiting in litchi*' (at ICAR-NRCL, Muzaffarpur)	**PI**	01/04/2012	31/03/2022
Inter Institutional Project: *'Studying methylene cyclo-propyl glycine content in Litchi (Litchi chinensis* Sonn.*) fruits'* (With ICAR-NRC on Grapes, Pune)	**Co-PI**	01/04/2017	31/03/2018
Inter Institutional Project: *Mechanization of Selected operations in Litchi Cultivation* (with ICAR-CIAE, Bhopal, MP)		01/11/2019	31/03/2022

8. RESEARCH PUBLICATIONS:

Sl. No.	**Publications (with** name of author(s), year of publication, title, name of the journal, volume No. and page Nos. relevant to your field of specialisation)
1.	**Singh, Sanjay Kumar.**, Singh, Sanjay Kumar and Sharma, Ram Roshan. (2010). Effects of pruning intensity on the biochemical status of shoot buds in three different mango (*Mangifera indica* L.) cultivars planted at high density. *J. Hort. Sci. Biotech.*, **85** (6): 483–490.
2.	**Singh, Sanjay Kumar**, Singh. S.K., Sharma, R.R. and Srivastav, M. (2009). 'Effect of pruning on morpho-physiological parameters and microclimate under high density planting of mango (*Mangifera indica* L.) *Indian J. Agricultural Sciences,* **79**(8):632-635.
3.	**Singh, Sanjay Kumar**, Malhotra, S K., Bhargava, R., Singh, R, S. and Shukla, Anil .Kumar. (2017). Morphological and physiological characterization of guava (*Psidium guajava*) under hot-arid zone of Rajasthan. *Indian J. Agricultural Sciences.* **87**(4):491-495.
4.	Malhotra, S. K, **Singh, Sanjay Kumar** and Nath, Vishal (2018). Physiology of flowering in litchi (*Litchi chinensis*): A review. *Indian J. Agricultural Sciences,* **88** (9): 1319–30.
5.	Marboh, E. S., **Singh Sanjay Kumar**, Pandey, Swapnil, Vishal Nath, Gupta A. K. and Pongener, A. (2017). Fruit cracking in litchi (*Litchi chinensis*): An overview. *Indian J. Agricultural Sciences,* **87**(1):3-11.
6.	Panwar, Rashmi, **Singh, Sanjay Kumar**., Singh, C.P. and Singh, P.K. (2007). Mango fruit yield and quality improvement through fertigation along with mulch. *Indian J. Agricultural Sciences*, **77**(10):680-684
7.	Pandey, Swapnil, Singh, J., **Singh, Sanjay Kumar** and Mourya, I. B. (2015). Influence of growing environment on growth, yield and chemical composition of strawberry (Fragaria × ananassa) fruits under open vs naturally ventilated polyhouse conditions. *Indian J. Agricultural Sciences*, **85**(12):1540-45.
8.	**Singh, Sanjay K**., Singh, C.P. and Panwar, R. (2009). Response of fertigation and plastic mulch on growth characteristics of young 'Dashehari' mango. *Indian J. Hort.*, **66**(3):390-392

9.	**Singh, Sanjay Kr.**, Singh. S.K., Srivastav, M., Sharma, R.R. and Patel, V.B. (2010). Influence of pruning intensities on leaf nutrient composition in some mango (*Mangifera indica* L.) cultivars planted under high density. *Indian J. Hort.*, **67**(1):16-20.
10.	**Singh, Sanjay Kumar**., Singh, S.K., Shrama, R.R. and Patel, V.B. (2010). Influence of pruning intensity on flowering, fruit yields and floral malformation in three mango cultivars planted under high density. *Indian J. Hort*. **67**(Special Issue): 84-89
11.	**Singh, Sanjay Kumar**, Singh, R.S. and Awasthi, O.P. (2013). Influence of pre- and post-harvest treatments on shelf-life and quality attributes of *ber* fruits. *Indian J. Hort.*, **70** (4): 610-614.
12.	**Singh, Sanjay Kumar**, Pandey, Ankit K., and Singh, Prabhakar (2019). Gaseous exchange, biochemical parameters and yield as affected by application techniques and doses of Paclobutrazol in litchi tree. *Indian J. Hort.* **76**(2): 265-272.
13.	**Singh, Sanjay Kumar**, Singh, Awtar, Nath Vishal, Parthasarathy, V A, Sthapit B, Rajan, S and Vinoth, S. (2015). Genetic Diversity in Seedling Populations of Mango. *Indian J. Plant Genet. Resour.* **28**(1): 123-131.
14.	**Singh, Sanjay Kumar**, Nath, Vishal, Rajan, S. and Pandey, S.D. (2019). Surveying mango diversity and its custodian farmers in the states of Bihar and Jharkhand, India. *Indian J. Plant Genet. Resour.* 32(2):200-206
15.	**Singh, Sanjay Kumar.**, Singh. S.K. and Sharma, R.R. (2009)). Endogenous phytohormones after pruning in three mango cultivars planted under high density. *Indian J. Plant Physiology*, **14**(4):392-396.
16.	Gajanana, T.M., Dinesh, M.R., Rajan, S., Vasudeva, R., **Singh, Sanjay Kumar,** Lamers, Hugo A.H., Parthasarathy, V.A. Sthapit, B and V Ramanatha Rao (2015). Motivation for On-farm Conservation of Mango (*Mangifera indica*) Diversity in India: A Case Study. *Indian J. Plant Genet. Resour.* **28**(1):1-6.
17.	Vasudeva R., Sthapit B., Salma I., Changtragoon S., Arsanti I.W., Gerten D., Dum-ampai, N., Rajan, S., Dinesh, M.R., Singh, I.P., **Singh, Sanjay Kumar,** Reddy, BMC, Parthasarathy, VA and V Ramanatha Rao (2015). Use Values and Cultural Importance of Major Tropical Fruit Trees: An Analysis from 24 Village Sites Across South and South East Asia. *Indian J. Plant Genet. Resour.* **28**(1):17-30
18.	Gajanana, TM, Rajan, S, Singh, I P, Dinesh, MR, Vasudeva R, **Singh, Sanjay Kumar**, Lamers, H., Parthasarathy, VA, Sthapit, B. and Ramanatha Rao V. (2015). Fruit Diversity Fair and On-farm Conservation: An Indian Experience. *Indian J. Plant Genet. Resour.* **28**(1): 80-86.
19.	Dinesh, M.R., Rajan S., **Singh, Sanjay Kumar**, Singh IP, Ravishankar, KV, Reddy, BMC, Parthasarathy, VA, Sthapit B., Ramanatha Rao V and BS Sandya (2015). Heirloom/ Seedling Mango Varieties of India: Potentialities and Future. *Indian J. Plant Genet. Resour.* **28**(1):139-151
20.	Kumari, P., **Singh, Sanjay Kumar** and Vyas, S. (2021). Influence of Bearing regulated Chemicals and girdling on leaf chlorophyll, sugars and leaf nutrient status in litchi cv. China. *Eco. Env & Cons*. **27**(3):1208-1214 (as **corresponding author**)
21.	Kumari, P., **Singh, Sanjay Kumar**, and Vyas, S. (2021). Effect of flowering regulating chemicals and girdling on winter flushing, yield and fruit quality in Litchi cv. China. *J. Tropical Agriculture*, **59**(1):31-37 (as **corresponding author**)
22.	**Singh, Sanjay Kumar**, Srivastava, K., Pandey, S.D., Gupta, Alok Kumar and Nath, V. (2019). Assessment of motivation factor for conservation of mango diversity and IPM practices. *Multilogic in Science*, (Special issue):15-20.
23.	Srivastav, K., Patel, R.K., Kumar, Sujeet and **Singh, Sanjay Kumar** (2021). Management options for litchi fruit & shoot borer, *Conopomorpha sinensis*: Prospects and challenges. *Ann. Pl. Protec. Sci*.28(1):46-50.
24.	Nath, V., Singh, Jyoti, Pandey, S. K., **Singh, Sanjay Kumar**, Marboh, E.S., Pandey, S. and Tiwari, G.S. (2020). Influence of plant spacing and system of planting on tree physiology, yield and quality of litchi cv. Shahi. *International J. Innovative Horticulture*. **9**(1):62-68.
25.	Kumar, A., **Singh, Sanjay Kumar**, Pandey, S. D., Patel, R.K., Srivastava, K. and Nath, V. (2020). Regulation of bearing potential for sustainable production and quality improvement of litchi in Indian sub continent. *Acta Hortic*. 1293:41-46.
26.	**Singh, Sanjay Kumar**, Pandey, S.D., Purbey, S.K., Kumar, A. and Nath, V. (2020). Does litchi flowering vary with cultivars: still an enigma? *Acta Hortic*. 1293:91-98.

27.	Srivastava, K., Patel, R.K., Pandey, S.D., Kumar, A., **Singh, Sanjay Kumar**, and Nath, V. (2020). Management of litchi fruit and shoot borer, *Conopomorpha sinensis* using organic pesticides. *Acta Hortic*. 1293: 213-218.
28.	**Singh, Sanjay Kumar**; Kumari, Pragya; Vyas, S. and Nath, Vishal (2021). Influence of chemicals and girdling on tree physiology and fruiting of litchi. *Indian J. Hort***. 78**(3): 261-267.
29.	Nath, V., Lal, N., **Singh, Sanjay Kumar**, Pandey, S., and Prakash, K. (2022). Seventy-five years of research and development in Litchi. *International J. Innovative Hort*. **11**(1):47-61.
30.	**Singh, Sanjay Kumar**; Pandey, S.D.; Kumar, P. and Nath, V. (2023). Optimizing poultry integration in litchi orchards: A comprehensive evaluation of Vanaraja, Shipra and Kadaknath chicken for dual-purpose sustainability and economic viability. *Indian J. Poultry Science*. **58**(2): 129−137.
31.	Lal, Narayan, Singh, A., **Singh, Sanjay Kumar**, Kumar, A., Pandey, S. D., and Nath, V. (2023). Morphological diversity in litchi based on phenological traits. *Indian J. Hort*. **80**(1):30-36.
32.	Bhardwaj, V., Kumari, Vandana and **Singh, Sanjay Kumar** (2023). Women's Empowerment and Gender Equality in Agricultural value chains: Evidence from Bundelkhand Region of India. *International J. Innovation Engineering Res. Manag.* **10**(6): 69-78
33.	Sharma, S., Oulkar, D., Pongener, P., **Singh, Sanjay K**., Pandey, S.D., Nath, V., Das, B., Kole, K. and Banerjee, K. (2024). Determination of α-methylenecyclopropylglycine in Shahi and China litchi cultivars at three different maturity stages: A quantitative study using liquid chromatography tandem mass spectrometry. *Food Chem.* **462**: 140971.
34.	Suman, Swati; Kumar, M. and **Singh, Sanjay Kumar** (2024). Influence of Weather Parameters on Abundance of Litchi Fruit Borer (*Conopomorpha sinensis*, Bradely). *International J. Env. Climate Change*, **14**(10): 345-351
35.	Dwivedi, S.K., Mishra, D., Gupta, A.K., Dayal, V., Kumar, D., **Singh, Sanjay Kumar**, Saroj, P.L. and Soni, S.K. (2024). Jelly seed disorder in mango: A comprehensive review of current status and future directions. *Applied Fruit Sci.,* **66**:1659–1668.
36.	Poojan, Shiv, Dwivedi, S.K., Pandey, D., **Singh, Sanjay Kumar**, Siddiqui, S., Pandey, H., Singh, J., Pandey, K. and Rajni Rajan (2024). Physiological characterization of bael genotypes of sub-tropical region of India for cold hardiness and fruit quality. *Genetic Resources and Crop Evolution,* **72**:4089–4105 (as C**orresponding author**)
37.	Srivastava, K., Patel, R.K., Divekar, A.P., Kumar, S. and **Singh, Sanjay Kumar** (2024). IPM modules against litchi fruit and shoot borer, *Conopomorpha sinensis* Bradley using safer and newer insecticides. *Pest Management in Horticultural Ecosystems*. **30**(2): 320-325. https://doi.org/10.5958/0974-4541.2024.00053.9.
38.	Kumar, S., Srivastava, K., Patel, R.K., Divekar, A.P. and **Singh, Sanjay Kumar** (2024). Seasonal occurrence and management of litchi fruit and shoot borer, Conopomorpha sinensis (Bradley). *Pest Management in Horticultural Ecosystems*. **30**(2): 276-282. https://doi.org/10.5958/0974-4541.2024.00051.6.
39.	Kumari, S., Sahni, R.K., Kumar, M., Kumar, A. and **Singh, Sanjay Kumar** (2025). Development and evaluation of hand-injector for bark-eating caterpillar (*Indarbela quadrinotata; Indarbela tetraonis*) control in litchi crop. *J. Applied Hort. 27(1):72-74.* https://doi.org/10.37855/jah.2025.v27i01.14
40.	Muthukumar, M.; Bajpai, Anju; Soni S. K.; **Singh, Sanjay Kumar**; Bajpai, Y.; Kumar, S. and Laxmi (2025). Identifying the causal agent of floral malformation as *Fusarium* complex using metagenomic and metabolomic approaches. *Physio. Mol. Plant Path*., **136** (102556): 1-11 https://doi.org/10.1016/j.pmpp.2024.102556.
41.	Pandey, A.K.; Sahay, S.; Ahmed, F.; Siddiqui,W.; Shivpoojan and **Singh, Sanjay Kumar** (2025). Comparative response of potassium, calcium, magnesium salts and abscisic acid on yield and quality of litchi fruit cv. Deshi. *Indian J. Hort*. 82(1): (in press) (as **corresponding author**)
42.	Pandey, D., **Singh, Sanjay Kumar**, Shukla S. and Shiv Poojan (2025). Fruit quality of aonla (*Emblica officinalis* Gaertn.) cultivars and new accessions. *International J. Plant and Environment*. **11**(1):197-204 (as **corresponding author**)
43.	Pandey D, Poojan S., Shukla S., Pandey H., **Singh Sanjay Kumar** (2025). Morpho-biochemical characterization of aonla (*Emblica officinalis* Gaertn.) genotypes under alkaline soil conditions in sub-tropical regions of

	India. *Plant Genetic Resources: Characterization and Utilization*: 1-10. https://doi.org/10.1017/S1479262125000073.
44.	Pandey, D., Shiv Poojan, Shukla, S.K., Singh, S. K. and Trivedi, A.K. (2025). Genetic diversity, morpho-physiological traits and antioxidant potential of Bael (*Aegle marmelos*) in North India. *Plant Genetic Resources:* Characterization and Utilization. 1–5. https://doi.org/10.1017/ S1479262125000103.

9. Processes/Patents/Products/Technologies and Books etc.

I: Processes, Patents, Varieties, Products and Technologies

Variety of Bael	❖ CISH-B-4 (tolerant to frost and High TSS i.e. > 40 ^{0}B) identified at institute level.
Technology with patent	❖ Co-developer for the technology (hand injector to combat litchi stem borer) in collaboration with ICAR-CIAE, Bhopal, India.
Identification of Custodian Farmers	❖ **Profile of 12 custodian farmers of mango and pummelo have been documented from Pusa Site, Bihar.** ❖ **140 custodian farmers of mango have been identified from thirty-four districts of Bihar and 8 districts of Jharkhand who are having >10 varieties in their orchard.**
Formation of Self Help Group	❖ **40 SHGs** (mostly women) was formed in 5 community villages for value addition/processing of various fruits and vegetables, multiplication and distribution of elite plant materials and sale of pummelo in distant market.
Registration of mango variety	❖ The duly filled proforma of **Farmer's Variety on mango** (16 + 11 in No.) and **Pummelo** (10 in No.) identified at Pusa Site, Bihar has been submitted to PPV&FRA, New Delhi.
Documentation of Traditional Knowledge	❖ Three **TKs (Traditional Knowledge)** was documented as '*Conservation of pummelo in home stead through Chhat Puja*', '*Multi fruits home stead garden*' and '*multi-variety mango orchard'*.
Technology for regular flowering in litchi	❖ Light thinning of braches after harvest, application of paclobutrazol through TSLP methods or spray of KNO_3 (2 %) or practicing girdling during September month, manual de-flushing during December month and withheld of irrigation during November to January month led to assured flowering in Litchi cv. China.
Value Added Products (Arid Fruits)	❖ The candy and preserve of 'Thornless' 'Sendhura' and 'Banarasi' Ber are better. ❖ 'Krishna' aonla was best suited for preserve making like Ber cv. Seb (large size and almost round) ❖ For candy making, NA-06 and NA-10 Aonla were best due to their small sizes. ❖ 'Gola' variety of Ber is better Jam (organoleptic value 9.5/10) and for squash making due to better quality pulp (uniformity and consistency). ❖ Among 12 tested Date palm cultivars, for dry dates making 'Zahidi', Khadrawy', and 'Chipchap' were best under oven drying and 'Khalas' in open [shaded] condition. ❖ Harvesting of Aonla fruits in November led to highest retention of Vitamin C (387.50 and 339.58 mg/100g pulp in NA-10' and 'Chakaiya', respectively) content, total sugars and reducing sugars. Vitamin C content reduced by 50-60 % when fruits are harvested in early December.
Pickles of seedling mango	❖ M*ango* pickles (dry and wet) prepared by four self help groups (SHGs) has been promoted as a premier product of seedling mangoes and two community of Jagdishpur and Mahamada was displayed at Mango diversity fair held on 3rd June, 2014 at IIHR Bangaluru. Now 1.50 quintals are made by 3 SHGs and sold to the local market after proper labelling.
Library Management through KOHA	❖ *Debian 7.3.1* and *Koha LS 3.14* has been installed and customization of KOHA-OPAC was completed. Standalone Server (Proliant ML 350 G6) from M/s Techlan, M. G. Road, Harideopur, Kolkata, was installed at the centre. ❖ Data entered against Books (1675 + 10 Statistical CDs) and Journals (1105 in No.) of NRCL Library was taken for Centralized Koha Implementation at ICAR-IARI, New Delhi
Video documentary	❖ Two number of 15 min documentary [**video films**] (one each in English and Hindi) was made on *'Role of community in conservation of mango/pummel diversity including indigenous methods of pickle preparation by the women SHGs* ❖ *One* documentary [**video films**] (in Hindi) was made on *'Success stories on backyard poultry, duckery, Mushroom production and replacement of old variety with new one in rice and wheat'* **under Farmer FIRST Programme.**
Technology popularized	• Malinagar community is getting better price for pummelo fruits in south Indian market (in Hyderabad during '*Chhatt*' Festival).

(without patent)	• Six diversity orchards have been established, more than 100 plant of elite germplasm were prepared by community to enhance genetic resources for resource generation and lively hood security. • The litchi orchards can be benefited if we rear *desi* poultry (*Vanaraja, Kadaknath*) in rejuvenated orchard or established orchard of litchi at high density. • Due to rearing of birds in litchi orchard, we have reduced the cost on plant protection measured up to 1/3rd and fertilizer application to the tune of half of RDF (as N, P and K content of orchard soil improved by over 20 % than the normal orchard). Further, the weed's population has also been drastically reduced. We can ensure organic produce in terms of fruits of litchi. • Low-cost bamboo shelter for *Japanese quail* Farming for Landless Women farmers has been commercialized for two blocks of *East Champaran* district of Bihar. • For litchi, the rectangular system of planting with spacing of 8 m × 4 m under hedge row system is best for the farmers to harvest higher yield of 18-20 tons per ha against 8-10 tons per ha in normal square system of planting (i.e. 8 × 8 m or 10 × 10 m).
Clusters formation of litchi orchardists	❖ 6 clusters of litchi orchardists in the districts of Muzaffarpur, Samastipur, Vaishali and East Champaran, Bihar has been developed towards increasing the productivity of litchi cv. Shahi and China, ❖ Subsequently, 12 high-density orchards have been established and revitalization of 25 orchards is completed.

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GUIDING PG RESEARCH

1. Co-Guide for **M. Sc.** (Horticulture-Fruit Science)) student, Mr. Ankit Kumar Pandey, enrolled with IGKVV, Raipur (Chhattisgarh)
2. Co-Guide for **Ph. D.** (Botany) student, Mr. Pragya Kumari, enrolled with Govt. Holkar Science College, Indore (Devi Ahilyabai University, Indore) M. P.
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9. Co-Guide for **Ph. D.** (Horticulture) student Ms. Yazhini E., enrolled with A.N.D. University of Agriculture and Technology, Kumarganj, Ayodhya – 224 229 UP.
10. Co-Guide for **M.Sc.** (Horticulture) student Ms. Phurba Dolma Sherpa (Id. No. H-16035/24), enrolled with A.N.D. University of Agriculture and Technology, Kumarganj, Ayodhya – 224 229 UP.

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4. Life Member of **Society for Development of Arid Horticulture**, ICAR-CIAH, Bikaner, Rajasthan (since April, 2018)
5. Life Member of **Society for Advancement of Research on Pomegranate**, Solapur, Maharashtra (Since 2015)
6. Life Member of **Indian Society of Plant Genetic Resources**, ICAR-NBPGR, Pusa, New Delhi. (since April, 2019)

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27. **सिंह, संजय कुमार**, एवं सिद्धार्थ कुमार (२०२४). करोंदा के किस्मों का प्रजनन : वर्तमान परिदृश्य एवं भविष्य की संभावनाएं . उद्यान रश्मि, **२०**(१): ५७-६३
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FULL LENGTH PAPERS IN PROCEEDINGS

1) Nath, Vishal, **Singh, Sanjay Kumar** and Purbey, S. K. (2012). Management for improvement of nutritive value of litchi and its processed product. *In:* Proceeding of "*Global Conference on Horticulture for Food, Nutrition and Livelihood options"* (28th – 31st, May 2012), OUA&T, Bhubaneswar. Odisha.
2) Nath Vishal, Pandey, S.D., Patel, R.K. and **Singh, Sanjay Kumar** (2014). "Overview of Hi-tech Litchi cultivation in India *In:*"*National Workshop cum Seminar on recent plasticulture, approaches towards precision Horticulture"* (February 22-23rd, 2014), Organised by PFDC, GBPUA&T Pantnagar and NCPAH, Ministry of Ag. GOI at Pantnagar, UA. 1-20pp
3) Nath, Vishal and **Singh, Sanjay Kumar** (2014). Physiology of Flowering in Litchi in Relation to Shoot Maturity. *In*: Souvenir of National Seminar-cum-Workshop on Physiology of Flowering in Perennial Fruit Crops. (Eds. Ravishankar *et. al.*).The Society for Development of Subtropical Horticulture (SDSH), ICAR-Central Institute for Subtropical Horticulture, Rehmankhera, Lucknow - 226 101, Uttar Pradesh
4) **Singh, Sanjay Kumar**, Kumar, A., Purbey, S.K., and Sharma, S. (2015). Improving flowering and fruit quality in litchi by applying PGRs and chemical regulators. *In*: Awareness Programme on off-Season litchi cultivation in South India (December, 10th 2015) at CHES (IIHR), Chettali, Kodagu, Karnataka, 52-58 pp
5) **Singh, Sanjay Kumar**, Nath, V. and Tripathi, M. (2016). Diversification of Horticulture as Mitigating measures for Climate Change. *In: Souvenir cum Lead/Abstract Proceeding Book of National Conference Emerging Challenges and Opportunities in Agriculture, Social, Plant, Environment, Co-Operatives & Technology* (ECOASPECT-2016) (10-11th September, 2016).Genesis Urban And Rural Development Society (Guard), Telangana.35-41pp
6) Parthasarathy, V.A., **Singh, Sanjay Kumar** and Sthapit, B. (2016). Heirloom Varieties: Ornaments of Horticulture. *In:* Souvenir cum Abstract Book on *National Conference on Fruit Breeding in Tropical and Subtropical-An Indian Perspective.* (Eds. Shankaran *et. al,*). ICAR-Indian Institute of Horticultural Research, Bengaluru 560 089 (27-29th April, 2016), 11-17 pp
7) **Singh, Sanjay Kumar,** Marboh, E.S. and Kumari, Pragya (2019). *"Physiology of Abiotic Stress affecting productivity of Mango, Litchi and Citrus" In*: Souvenir cum Abstracts of *"National Conference on Integrated Plant Health Management in Fruit Crops" (Eds. Srivastava et al., 2019),* ICAR-NRCL, Muzaffarpur, Bihar, 101-104p

SPECIAL ATTAINMENT

Role/Responsibilities	• Title of The programme	Duration	Sponsoring Agencies
Course Co-ordinator	• *Biotechnological approach for the enhanced production of nutraceuticals in fruits and vegetables of arid zone'*	15 days (February 14 – 27, 2011)	ICAR-NAIP, New Delhi
Course Co-ordinator	• *'Bioassay, production protocol and quality control for Trichoderma based bio-pesticide'*	**Short Course** (10 days)	ICAR, New Delhi
Course Co-ordinator	• *Understanding Flowering Mechanism and Management of Bearing in Sub-tropical Fruit Crops'*	**Winter School** (1-21st December, 2017)	ICAR-New Delhi
Co-ordinator	• *Dairy Entrepreneurship and Livestock Management*'	**3 days** (1-3rd July, 2019)	**FFP, ICAR-RCER, Patna**
Co-ordinator	• Training on '*Smart Horticultural Practices for Quality Litchi Production'* at ICAR-NRCL, Muzaffarpur	**5 days** (3-7th December, 2019)	Director (Horticulture), Shimla, HP
Training Co-ordinator, Skill India	• Vermicompost Producer" (AGR/Q1203)	**30 days** (22 February – 21st March, 2020)	ASCI, Gurugram, India
	• Beekeepers" (AGR/Q5301)	**30 days** (02-30th March, 2020)	ASCI, Gurugram, India
Co-Chairman of Technical *Session in National Conference*	• Theme 5: *Horticulture, Forestry, Biological Science and Secondary Agriculture* <u>*In:*</u> *National Conference on Livelihood and Food Security* (LFS-2018) (27-28 January, 2018), Bihar Veterinary College, Patna • Technical *Session VII (Public private partnership in Plant Health Research, Bio safety, Skill Enhancement and low-cost plant production* <u>*In*</u>*: "National Conference on Integrated Plant Health Management in Fruit Crops"* held at *Gyan Samvardhan Kendra*, ASM Foundation, Pusa/ ICAR-NRCL, Muzaffarpur (4th September, 2019)		
Convener of a *"National Conference*	• *"National Conference on Integrated Plant Health Management in Fruit Crops"* held at *Gyan Samvardhan Kendra*, ASM Foundation, Pusa, Bihar and ICAR-NRCL, Muzaffarpur (3-4th September, 2019)		
Member Secretary	• Research Advisory Committee (RAC); *Institute Research Council* (IRC), (at **ICAR-NRCL**) (4 Years) • PME Cell, ICAR-NRCL, Muzaffarpur; *Committee for EFC/SFC for 12th Plan* and *13th Plan* • Committee for publication of *Vision **2030, Vision 2050***, ICAR-NRCL, Muzaffarpur, Bihar		
Editors of Centre's Publications	• Lead Editor, NRCL Annual Reports - 2010-11, 2011-12, 2012-13, 2013-14 and 2015-16, ICAR-*NRCL Newsletter,* 2015, 2016; Vision 2030, 2050, Co-Editors, ICAR-NRCL Annual Reports, 2016-17, 2017-18, 2018-19; Newsletter 2017, 2018, NRCL, *Year Planner*-Training Programme and Services *2016-17.*		
Infrastructure Developed	• Established Tree Physiology Laboratory, procured High Speed ultra-centrifuge, CIRAS-PP System and U-HPLC in CIF, ICAR-NRCL, Muzaffarpur		
Nodal Officer	• **PMS, PIMS-ICAR, HYPM, PMS-ICAR** and **PERMISNET-II** (at **ICAR-NRCL, Muzaffarpur**) (01/07/2011-Till date) • *Swachhata Compaign* (ICAR-CISH, Lucknow) for 2022-25		
Co-Nodal Officer, RFD	• **Co-Nodal Officer**, RFD Committee (at **ICAR-NRCL, Muzaffarpur**) (01/07/2013-31.03.2019)		
Invited/Lead Talks	• 12 in No.		
Organizing Secretary	• "**National Webinar** on *"Post Pandemic Management in Fruits Crops'* held at ICAR-NRCL, Muzaffarpur (3rd September, 2020)		
Talk on Dur Darshan, Prasar Bharti, GOI	• 7 (Six on DD Bihar, One on *DD Kisan*, One on *DD, Patna* and One on *ETV, Bihar Jharkhand*)		
Co-ordinator	• **13 number of 5 days Training Programme** sponsored by ATMA of Four Districts (East Champaran, Muzaffarpur, Samastipur, Sitamarhi, Vaishali) of Bihar, and 4 district of Gorakhpur Division, UP		

10. Awards/ Fellowships/Recognitions and important assignment at National Level

i. Fellowships and Honours/ Awards by National Science Academies/ Societies

(a) **Fellow Award-2013** by Confederation of Horticulture Association of India (CHAI), New Delhi

(b) JSIL Fellowship Award 2019 by Confederation of Horticulture Association of India (CHAI), New Delhi

INTERNATIONAL EXPOSURE:

Visited Vietnam, Thailand and Malaysia and presented two oral presentations during VIth International Symposium on Lychee, Longan and Other Sapindaceous Fruits

Invited as Distinguish Speaker at *World Congress on Advances in Plant Science and Plant Biology-2025* (31st March, - 1st April, 2025) held at Amsterdam, Netherland.

ii. Honours/Awards by Central Govt. Organisations/ Institutes e. g. ICAR, DST, DBT

ICAR-JRF (2002) in Horticulture (AIR-0004) awarded by ICAR, New Delhi

CSIR –JRF (2003) in Life Science, awarded by CSIR, New Delhi and CSIR –SRF (2006) by CSIR, New Delhi

iii. Young Scientist Awards/Associate ship by the National Science Academies:-

Awarded Overall Young Agricultural Scientist Award 2021 during *National Conference on India's Challenge-Contemporary Farming to Smart Farming* (8-9th April, 2021) (**Virtual**) at University Institute of Agricultural Sciences, Chandigarh University, Gharuan, Mohali (Punjab) 140 413, India

iv. Best Research Paper Award

Best Poster Award' for paper entitled '*Flushing Pattern and Physiology of Flowering in Litchi*' [theme area: Reducing cost of Production] by The Horticultural Society of India, New Delhi during 7th Indian Horticulture Congress-2016, (*an International Meet*), ICAR-IARI, New Delhi (*15th -18th November, 2016*)

Best Oral Presentation Award for paper entitled '*Growth and physiology affected Growth and physiology of flowering affected by paclobutrazol and potassium nitrate in litchi (Litchi chinensis Sonn.) trees' In: National Conference on Challenges and Options in Litchi Production and Utilization*, (6-7th June, 2017), ICAR-NRCL, Muzaffarpur

Best Oral Presentation Award for paper entitled *"Analysis of Plant Protection Measures followed by mango orchardists of Bihar and Jharkhand" In: "National Conference on Integrated Plant Health Management in Fruit Crops"* held at *Gyan Samvardhan Kendra*, ASM Foundation, Pusa, Bihar and ICAR-NRCL, Muzaffarpur (4th September, 2019)

Best Oral Presentation Award for paper entitled *'Environmental regulation and chemical induction of litchi (Litchi chinensis Sonn.) flowering' In:* ***Progressive Horticulture Conclave*** *(PHC)-2019 on Futuristic Technologies in Horticulture* (8-10th December, 2019), ICAR-Indian Institute of Sugarcane Research, Lucknow, UP

Best Oral Presentation Award (as co-author) on paper entitled '*Impact of COVID-19 on Litchi Production and Marketing*' *In:* National WEBCON on Agricultural production & support system managing Covid-19 pandemic: Experience sharing and Strategies (May 6th – 8th, 2020) CSAU&T, Kanpur U.P.

Best Oral Presentation Award for paper entitled "*The endogenous hormonal status of litchi shoots decide transition from vegetative to reproductive phases*" *In:* National Seminar on "*Fruit production in Eastern Tropical Region of India: Challenges and Opportunity*" (24-26th March 2022) at CHES, (ICAR-IIHR, Bengaluru) , Bhubaneswar, Odisha.

Best Oral Presentation Award for Paper entitled "Uniqueness in Diversity of Bael (*Aegle marmelos* Corr.) in Subtropical region of India". *In:* International Seminar on Exotic and Underutilized Horticultural Crops: Priorities & Emerging Trends" (October 17 - 19, 2023) at ICAR-Indian Institute of Horticultural Research, Bengaluru, Karnataka

11. Profile in brief

Having research experience of 17 years, I am working on breeding of Bael, Aonla, Karonda and Seedling mango for subtropical regions. Earlier worked on tree physiology of mango, guava and litchi. The improvement of mango and pummelo, post-harvest aspects of arid zones fruits and role of endogenous hormonal changes during flowering/vegetative phase in guava, litchi and mango were other research areas. I also handled DBT sponsored-*National Database on Mango* Project (for Bihar and Jharkhand), UNEP-GEF/TFT sponsored project for Mango and Pummelo, and Farmer's FIRST Programme (*Improved livelihood through good practices in an agricultural production system*) and NAIP Sponsored e-GRANTH project (*Strengthening of Digital Library and Information Management under NARS*). I was instrumental in handling Coca Cola India Private Limited (CCIPL), Gurugram, India sponsored '*Litchi Unnati*" project in collaboration of *Dehaat* for Bihar state.

At ICAR-Central Institute for Subtropical Horticulture, Lucknow, India, I am looking after the research on "*Evaluation of diversity and decline of indigenous seedling mango of Bihar and study for its conservation strategy*". I am taking care of research project on '*Improvement in Aonla, Karonda, Jackfruit and Bael for higher yield and neutraceutical value*'. I am also working on development of DUS guidelines for *Bael*, *Aonla* and *Karonda*. Another project entitled '*Evaluation of diversity of underutilized fruits of bihar and study for its conservation and utilization strategy*' sponsored by Bihar State Biodiversity Project, Patna is also being supervised by me.

Received Fellow Award-2013 and JSIL Fellowship Award 2019 from Confederation of Horticulture Association of India, New Delhi and *Overall Young Agricultural Scientist Award 2021* conferred by University Institute of Agricultural Sciences, Chandigarh University, Mohali, India. I also got *Appreciation Certificate* conferred by MIT-WPU, Pune, India during ***India's first National Scientists Round Table Conference*** -2024.

I have published >42 research papers, 50 popular articles, 60 book chapters, 7 books and awarded with 6 best oral presentations, 1 best poster paper and visited country like Vietnam, Malaysia and Thailand and participated in > 40 International and National Conferences/Symposia/Seminars/Workshops.

(Sanjay Kumar Singh)
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