



**Associate Professors & Equivalent**

13.	Dr. Bharat Bhushan Vashisht	Soil Physicist
14.	Dr. Meharban Singh Kahlon	Soil Physicist
15.	Dr. Roopinder Singh	Extension specialist

**Assistant Professors & Equivalent**

16.	Dr. Manpreet Singh Mavi	Asstt. Soil Chemist
17.	Dr. Gurmeet Singh Dheri	Asstt. Soil Chemist
18.	Ms. Amanpreet Kaur	Asstt. Asstt. Soil Chemist
19.	Mr. Gurpreet Singh	DES (Patiala)
20.	Dr. Sandeep Sharma	Asstt. Soil Chemist
21.	Dr. Jagdeep Singh	Asstt. Soil Chemist
22.	Dr. Arash Alam Singh Gill	Asstt. Soil Chemist
23.	Dr. (Mrs.) Gayatri Verma	Asstt. Soil Chemist (Gurdaspur)
24.	Dr. Jagdish Singh	Asstt. Professor (Soil Science, Gurdaspur)
25.	Dr. (Mrs.) Neemisha	Asstt. Microbiologist
26.	Dr. (Ms.) Anu Kalia	Asstt. Professor (Nanoscience)
27.	Dr. Kiranjeet	Asstt. Professor (Nanotechnology)
28.	Dr. (Ms.) Gurkirat Kaur	Asstt. Professor (Nanotechnology)
29.	Dr. (Ms.) Madhu Dhingra	Asstt. Plant Pathologist
30.	Dr. (Ms.) Sumita Chandel	Asstt. Soil Chemist
31.	Dr. (Ms.) Rajbir Kaur	DES (Soil Science, Abohar)
32.	Dr. (Ms.) Shehnaz	Asstt. Professor (Soil Science)
33.	Dr. (Ms.) Harsimran Kaur	Asstt. Professor (Soil Science)
34.	Dr. Vivek Sharma	Asstt. Soil Chemist
35.	Dr. (Ms.) Jeevanjot Kaur	Asstt. Soil Chemist
36.	Dr. (Ms.) Gazala Nazir	Asstt. Soil Chemist

**Human Resource Development:**

Particulars of Short Courses / Training program for HRD conducted during XI plan period

S.no.	Name of the Program	Period	No. of Participants		
			Internal	External	Total
1.	Conservation Agriculture and Soil Health	Nov. 1-21, 2017	0	17	17
2.	Natural Resource Management- A Step Towards Doubling Farm Income	Oct. 10– 30, 2018	4	11	15
3.	Assessing soil plant atmosphere continuum (SPAC) for enhanced input use efficiency	Oct. 1- 21, 2019	0	24	24

### **Infrastructure development (equipments etc.):**

During 2018, Rs. 5,00,000/- were sanctioned as non-recurring contingency for the purchase of equipments .

### **Renovation of Lecture Room/Laboratories:**

During 2018, Rs. 2,00,000/- were sanctioned for the renovation of training hall, computer room etc.

### **Library upgraded:**

Library has been upgraded with books worth Rs. 70,000 during 2017 and 2018. Furthermore, an amount of Rs. 35000 has been provided for purchase of books in 2019.

### **Awards/Recognitions:**

#### **National Awards**

<b>Year</b>	<b>Award</b>	<b>Recipient</b>
2017	ICAR-CSSRI Excellence award	Dr. O.P. Choudhary
2018	Professor Manjit Singh Chhinan Distinguished Professor Chair	Dr OP Choudhary
2018	ISSS- Dr J.S.P. Yadav Memorial Award for Excellence in Soil Science	Dr OP Choudhary
2018	IZA-FAI award for Excellence for promoting Zinc in Indian Agriculture for 2018	Dr SS Dhaliwal

#### ***Fellowships***

<b>Year</b>	<b>Award</b>	<b>Recipient</b>
2018	Fellow, Indian Society of Soil Science	Dr. B.S. Brar

### **Publications**

- Arora V K and Kukal S S (2017) Re-appraisal of water use in Punjab agriculture: Implications for rice culture. *Agric Res J* 54: 434-435.
- Bhatt R and Kukal S S (2017) Tillage and establishment method impacts on land and irrigation water productivity of rice-wheat system in northwest India. *Experimental Agriculture* 53: 178-201.
- Bijay-Singh, Varinderpal-Singh, Yadvinder-Singh, Thind, H S, Ajay Kumar, Choudhary O P, Gupta RK and Vashistha M (2017) Site-specific fertilizer nitrogen management using optical sensor in irrigated wheat in the north-western India. *Agric Res* (accepted)
- Chahal, S S, Choudhary O P and Mavi MS (2017) Organic amendments decomposability influences microbial activity in saline soils. *Arch Agron Soil Sci* 1875-1888.
- Chandel Sumita and Hadda M S (2018) Soil quality assessment through minimum data set under different land uses of submontane Punjab. *Communication in Soil Science and Plant Analysis*. doi: 10.1080/00103624.20181425424.
- Choudhary O P, Vashisht B B, Sikka R, Sharma Sandeep and Kahlon M S (2017) *Conservation Agriculture and Soil Health*. Department of Soil Science, Punjab Agricultural University, Ludhiana, India, p. 208.
- Choudhary OP (2017) Long term impact of cyclic use of sodic and canal waters for irrigation on soil properties and crop yields in cotton-wheat rotation in a semi-arid climate. *Agricultural Research* 6 (3): 267-272.

- Dar E A, Brar A S and Singh K B 2017. Water use and productivity of drip irrigated wheat under variable climatic. *Agric Ecosys Environ* 248: 9-19.
- Gangwar M, Kamboj P, Saini P and Kalia A (2017). Assessment of bioactivity of endophytic actinomycetes from some medicinal plants. *Agric Res J* 54:58-64.
- Gupta J, Dubey RK, Kaur N and Choudhary OP (2017) Physiological response of ornamental trees to induced salinity. *Indian Journal of Agricultural Sciences* 87: 700-05.
- Kalia A, Sharma SP and Vashisht VK (2017) Scanning Electron Microscopy study of root tissue of muskmelon: Transferring Fusarium wilt resistance from snapmelon to muskmelon. *J Appl Natural Sci* 9:1317-23.
- Kaur G, Kalia A and Sodhi HS (2017) Selenium bio-fortification of *Pleurotus* species and its effect on yield, phytochemical profiles and protein chemistry of fruiting bodies. *J Food Biochem* 42(2): e12467.
- Kingra P K, Raj-Setia, Simranjeet-Singh, Jatinder-Kaur, Satinder-Kaur, Som Pal Singh, Kukal S S and Pateriya B (2017) *Journal of Agrometeorology* 19: 246-50.
- Kumar Y, Tyagi SK, Vishwakarma RK and Kalia A (2017) Textural, microstructural, and dynamic rheological properties of low-fat meat emulsion containing aloe gel as potential fat replacer. *Intl J Food Props* 20: 1132-1144.
- Mavi MS, Singh G, Singh BP, Sekhon BS, Choudhary, OP, Sagi S and Berry R (2017) Interactive effects of rice-residue biochar and N-fertiliser on soil functions and crop biomass in contrasting soils. *Journal of Soil Science and Plant Nutrition* (accepted)
- Nayyar R, Sharma BK, Kaur A, Kalia A, Sanghera GS, Thind KS, Yadav IS and Sandhu JS (2017) Red rot resistant transgenic sugarcane developed through expression of  $\beta$ -1,3-glucanase gene. *PLoS ONE* 12: e0179723.
- Olesen J, Dong Q, Zotarelli L, Gastelo M, Alva A, Travasso M, Quiroz R, Arora V, Graham W and Porter C (2017) Performance of SUBSTOR-potato model across contrasting growing conditions. *Field Crops Res* 202: 57-76.
- Pahwa K, Ghai N, Kaur J, Singh I, Singh S and Dhingra M (2017) Influence of ethylene and cobalt chloride on photosynthetic parameters and pedicel anatomy of pigeonpea (*Cajanus cajan* L.) genotypes. *Journal of Environmental Biology* 33:367-74.
- Raguvaran R, Manuja BK, Chopra M, Thakur R, Anand T, Kalia A and Manuja A (2017) Sodium alginate and gum acacia hydrogels of ZnO nanoparticles show wound healing effect on fibroblast cells. *Intl J Biol Macromolecules* 96:185-91.
- Rathore N, Gupta R K, Yadvinder-Singh, and Bijay-Singh (2017) Determining critical value of soil Olsen P for direct seeded rice (*Oryza sativa* L.) in a greenhouse study in northwestern India. *Journal of Environmental Biology* 38: 623-29.
- Raymundo, R, S Asseng, R Prasad, U Kleinwechter, J Concha, B Condori, W Bowen, J Wolf, J Olesen, Q Dong, L Zotarelli, M Gastelo, A Alva, M Travasso, R Quiroz, V Arora, W Graham and C Porter. 2017. Performance of the SUBSTOR-potato model across contrasting growing conditions. *Field Crops Research* 202: 57-76.
- Sharma T, Joshi N and Kalia A (2017) Scanning electron microscopic studies of *Beauveria bassiana* against *Lipaphis erysimi* Kalt. *J Appl Natural Sci* 9:461-65.
- Singh A, Kahlon MS and Singh CB (2017) Yield and water productivity of direct dry seeded rice in relation to cultivars and irrigation regimes in north-west India. *Env Ecol* 35:229-36.
- Singh H, Buttar G S, Brar A S and Deol J S 2017. Crop establishment method and irrigation schedule effect on water productivity, quality, economics and energetics of aerobic direct-seeded rice (*Oryza sativa* L.). *Paddy Water Environ* 15: 101-09.
- Sinha I, Buttar G S and Brar A S 2017. Drip irrigation and fertigation improve economics, water and energy productivity of spring sunflower (*Helianthus annuus* L.) in Indian Punjab. *Agric Water Manage* 185: 58-64.
- Sran J, Kukal S S and Sharma S (2017) Distribution and stability of soil aggregates in relation to tree-based cropping systems in submontaneous zone of Punjab. *Journal of the Indian Society of Soil Science* (In Press).
- Sran J, Kukal S S and Sharma S (2017) Soil organic carbon stock in relation to aggregate size and stability under tree-based cropping systems in Typic Ustochrepts. *Agroforestry Systems* DOI:10.1007/s10457-017-0103-8.
- Sran J, Kukal S S and Sharma S (2017) Agroforestry impacts on SOC and aggregate stability in different textured soils in shivalik regions of northwest India. *Indian Journal of Ecology* (In Press).

- Thind H S, Yadvinder-Singh, Sandeep Sharma, Varinderpal-Singh, Sran H S and Bijay-singh. (2017) Phosphorus fertilizing potential of bagasse ash and rice husk ash in wheat-rice system on alkaline loamy sand soil. *J Agricultural Research Cambridge*. 155: 465-74.
- Balwinder-Kaur, Baljit-Singh, Navneet-Kaur and Dhanwinder-Singh (2018) Phytoremediation of cadmium-contaminated soil through multipurpose tree species. *Agroforestry Systems*92: 473–83.
- Benbi DK (2018) Carbon footprint and agricultural sustainability nexus in an intensively cultivated region of Indo-Gangetic Plains. *Science of the Total Env* 644:611-23.
- Benbi D K (2018) Evaluation of a rapid microwave digestion method for determination of total organic carbon in soil. *Communications in Soil Science and Plant Analysis* 49:2103-12.
- Bera T, Sharma Sandeep, Thind H S, Yadvinder-Singh, Sidhu H S and Jat M L (2018) Changes in soil biochemical indicators at different wheat growth stages under conservation based sustainable intensification agriculture practices of rice-wheat system. *Journal of Integrative Agriculture* 17: 1871-80.
- Brar J S, Sikka R, Singh Dhanwinder and Kalia Anu (2018) Effect of nano particles of amendments on dry matter yield and uptake in maize-Indian mustard rotation in soils
- Chahal S S, Choudhary O P and Mavi M S (2018) Microbial activity is constrained by the quality of carbon and nitrogen under long-term saline water irrigation. *Communications in Soil Science and Plant Analysis* 49: 1266-80.
- Chandel Sumita and Hadda M S (2018) Soil quality assessment through minimum data set under different land uses of submontane Punjab. *Communication in Soil Science and Plant Analysis*. doi: 10.1080/00103624.20181425424
- Goyal A, Kalia A and Sodhi H S (2018) Profiling of intra- and extracellular enzymes involved in fructification of *Ganoderma lucidum*. *Intl J Med Mushrooms* 20:1209-21.
- Gupta J, Dubey R K, Kaur N and Choudhary O P (2018) Evaluation of ten sub-tropical ornamental trees for reclaiming salinity-affected lands. *Journal of Forestry Research* (accepted).
- Gupta J, Dubey R K, Kaur N and Choudhary O P (2018) Nutrient accumulation in four ornamental trees under saline stress conditions. *Journal of Plant Nutrition*. doi.org/10.1080/01904167.2018.1459695.
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- irrigated with sewage and tubewell waters. *Agric Res J* 55: 677-684.
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- Jalota S K, Jain A K and Vashisht B B (2018) Minimize water deficit in wheat crop to ameliorate groundwater decline in rice-wheat cropping system. *Agricultural Water Management* 208: 261-67.
- Jhanji S and Dhingra M (2018) Ameliorative effect of thiourea priming on germination characteristics of mungbean (*Vigna radiata L*) under water and salinity stress. *Legume Research* doi:10.18805/LR-3966
- K Kumar, R Sikka , Singh Dhanwinder and Hundal L S (2018) Reverse flow of urban pollutants in sewage irrigated crops in developing countries *Agric Res J* 55 (2) : 187-198.
- Kingra P K, Setia R, Kaur S, Kaur J, Singh S, Singh S P, Kukal S S and Pateriya B (2018) Analysis and mapping of spatio-temporal climate variability in Punjab using classical statistics and geostatistics. *Mausam* 69: 147-160.
- Kumar S, Kumar D, Sekhon K S and Choudhary O P (2018) Influence of levels and methods of boron application on the yield and uptake of boron by cotton in a calcareous soil of Punjab. *Communications in Soil Science and Plant Analysis* 49: 499-514.
- Manpreet Kaur, Sucheta Sharma and Dhanwinder-Singh (2018) Influence of selenium on carbohydrate accumulation in developing wheat grains. *Communications in Soil Science and Plant Analysis* 49: 1650-59.
- Mavi M S, Singh G, Singh B P, Sekhon B S, Choudhary, O P, Sagi S and Berry R (2018) Interactive effects of rice-residue biochar and N-fertilizer on soil functions and crop biomass in contrasting soils. *Journal of Soil Science and Plant Nutrition* 18: 41-59.

- Meenakshi, Sandeep Kumar, Kiran Jeet and Hitesh Sharma (2018) Effect of dopants and defects in graphene nanoribbons on dehydrogenation of MXH<sub>4</sub>, where M= Na, Li and X = Al, B. *Computational and Theoretical Chemistry* 1130: 90-97
- Paul O O, Sekhon B S and Sharma Sandeep (2018) Spatial variability and simulation of soil organic carbon under different land use systems: geo- statistical approach. *Agroforestry Systems* <https://doi.org/10.1007/s10457-018-0244-4>.
- Poeplau C, Don A, Six J, Kaiser M and Benbi D K (2018) Isolating organic carbon fractions with varying turnover rates in temperate agricultural soils – A comprehensive method comparison. *Soil Biology and Biochemistry* 125: 10-26.
- Rani Neeraj, Singh Dhanwinder and Sikka R (2018) Effect of applied chromium and rice husk ash on the bioavailability of lead to Indian mustard (*Brassica juncea*) in Shehnaz, Sikka R and Singh Dhanwinder (2018) Risk assessment of nickel (Ni) spiked soil as influenced by amendments and soil moisture regimes with reference to ageing effect. *Agric Res J* (Accepted)
- Sikka R and Gupta R K (2018) Nitrogen requirement of basmati rice in conjunction with application of potassium. *International Journal of Tropical Agriculture* 36(1): 223-226.
- Sikka R, Deol J S, Kaur J and Singh D (2018) Effect of sowing dates, mulching and seed rates on nutrient uptake and productivity of soybean in sub-humid Punjab, India. *Legume Research* 41: 750-54
- Singh A, Thakur A, Sharma S, Gill P P S and Kalia A (2018) Bio-inoculants enhance growth, nutrient uptake and buddability of citrus plants under protected nursery conditions. *Communications in Soil Science and Plant Analysis* 49:1-16 doi: 10.1080/00103624.2018.152694
- Singh K, Gupta N and Dhingra M (2018) Effect of temperature regimes, seed priming and priming duration on germination and seedling growth in American cotton. *Journal of Environmental Biology* 39: 83-91
- Singh P and Benbi D K (2018) Nutrient management effects on organic carbon pools in a sandy loam soil under rice-wheat cropping. *Archives of Agronomy and Soil Sci* 64: 1879-1891.
- Singh P and Benbi D K (2018) Soil organic carbon pool changes in relation to slope position and land-use in Indian lower Himalayas. *Catena* 166: 171-180.
- Singh P, Choudhary O P and Pritpal Singh (2018) Performance of some wheat cultivars under saline irrigation water in field conditions. *Communications in Soil Science and Plant Analysis* [doi.org/10.1080/00103624.2018.1427258](https://doi.org/10.1080/00103624.2018.1427258).
- Singla D, Taggar M S, Kochar G S and Kalia A (2018) Cellulase production by *Aspergillus fumigatus* using different plant-based agricultural biomass for paddy straw saccharification. *Cellulose Chem Technol* 52: 803-813.
- Sucheta Sharma, Anju Sharma and Dhanwinder-Singh (2018) Effect of sodium selenate on photosynthetic efficiency, antioxidative defence system and micronutrients in maize (*Zea mays*). *Biologia* [doi.org/10.2478/s11756-018-0017-6](https://doi.org/10.2478/s11756-018-0017-6)
- Vashisht B B and Jalota S K (2018) Impact of temperature variability and management interventions on productivity of wheat. *Journal of Agrometeorology* 20: 11-15.
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- Gagandeep Kaur, Manpreet Kaur, Navneet kaur and Kiran Jeet (2019) Effect of varying fuel on the synergistic adsorption and photodegradation potential of Mg<sub>0.6</sub>Zn<sub>0.4</sub>Fe<sub>2</sub>O<sub>4</sub> nanoparticles (arj-2613) *Agricultural Research Journal* (Accepted)
- Himani and Kiran Jeet (2019) Economical and green synthesis of graphene and carbon quantum dots from agricultural waste. *Mater. Res. Express* 6 (8):0850g8-1-10
- Singh CB and Vashisht BB (2019) Effect of sowing time, irrigation, tillage and residue management on productivity of wheat in sub-tropical environment of Northwest India. *J Soil and Water Conservation*. 18(4): (Accepted)
- Singh CB, M S Kahlon and Madhu Dhingra (2019) Effect of irrigation and land configuration on productivity of summer green manure crops and their incorporation on rice yield in Punjab. *J Soil and Water Conservation*. 18(2): 126-135

- **Manuals (Other than Instruction manuals of CAS/CAFTs)**

- Gupta, R. K., Gill, R.S., Shehnaz, Kahlon, M.S. (2019). Elementary Soil Fertility. A Practical Manual, Department of Soil Science, PAU, Ludhiana. P 43.
- Kahlon, M.S., Vashisht, B.B., Jassal, H.S., Singh Kuldip. (2019). Fundamentals of Soil Science. A Practical Manual, Department of Soil Science, PAU, Ludhiana. P 68

- **Any other (Bulletins)**

- Amit Kaul, Bikramjit Singh and Jagdish Singh (2018) “Sarrona Dharti da seena, aao raal k prali nu sambhalan da kariae koi heela” Directorate of Extension Education, Krishi Vigyan Kendra, Pathankot, pp 1-8 (Extension Bulletin)Jat ML, Biswas AK, Pathak H, McDonald A J, Patra A K, Acharya C L, Sharma P C, Chaudhari S K, Choudhary O P, Sikka, A K. ‘The Conservation Agriculture Roadmap for India. Policy Brief’. ICAR and CIMMYT, New Delhi. p.4
- Jat M L, Biswas A K, Pathak H, McDonald A J, Patra A K, Acharya C L, Sharma P C, Chaudhari S K, Rajbir-Singh, Bhaskar S, Sharma R K, Jat H S, Agarwal T, Gathala M K, Suresh-Pal, Sidhu H S, Yadvinder-Singh, Chhokar R S, Keil A, Sharwat Y, Jat R K, Balwinder-Singh, Sharma A R, Parhar C M, Singh V K, Jat S L, Jha B K, Pratibha M, Singh P, Singh R S C, Choudhary O P, Sharma S, Stayanaryana T, Sidhu B S, Gehlawat S, Sen S K, Singh A k and Sikka A K (2018) The Conservation Agriculture Roadmap for India. Policy brief. Indian Council of Agricultural Research (ICAR) and International Maize and Wheat Improvement Center (CIMMYT), New Delhi, India, p. 4. Available at [www.icar.org.in](http://www.icar.org.in), [www.cimmyt.org](http://www.cimmyt.org)
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- Pathania S, Arora PK, Choudhary OP and Kukal SS (2018) ‘Water logging and agriculture: Issues and challenges in South-Western Punjab’. Bull. F/276/E, Punjab Agricultural University, Ludhiana. p.14.

**Book edited**

- Choudhary O P, Vashisht B B, Sikka R, Sharma Sandeep and Kahlon M S (2017) Conservation Agriculture and Soil Health. Department of Soil Science, Punjab Agricultural University, Ludhiana, India, p. 208.
- Sikka, R, Vashisht, BB, Choudhary, OP, Sharma, S and Kahlon, MS (2018) Eds Natural Resource Management – A step towards doubling farm income. ICAR & PAU Publication, Ludhiana. P.220.
- Sikka, R, Vashisht, BB, Choudhary, OP, Sharma, S and Kahlon, MS (2019) Eds Assessing soil plant atmosphere continuum (SPAC) for enhanced input use efficiency ICAR & PAU Publication, Ludhiana. P.201.

**Book chapters**

- Choudhary OP and Bajwa MS (2018) Sodic waters and their management for irrigation. In: (Minhas PS et al., Eds) Agricultural Salinity Management in India. (in print), ICAR-CSSRI Karnal.
- Choudhary OP and Mavi MS (2018) Management of sodic waters in agriculture. In: (Dagar JC et al., Eds) Research Developments in Saline Agriculture-A Compendium. (in print), Springer Nature Singapore Pte Ltd.
- Kalia, A. and Kaur, G. (2018). Biosynthesis of nanoparticles using mushrooms. In: B.P. Singh (ed). Biology of Macrofungi, Fungal Biology, pp. 351-360, Springer Nature, Switzerland AG.
- Goyal, A. and Kalia, A. (2018) Pharmaceutic Prodigy of Ergosterol and Protein Profile of *Ganoderma lucidum*. In: B.P. Singh (ed). Biology of Macrofungi, Fungal Biology,

- pp.227-241, Springer Nature, Switzerland AG.
- Singh, Dhanwinder and Chandel, Sumita (2018) Use of ICP-AES/ICP-MS in Soil plant and water analysis. In: Natural Resource Management-A step towards Doubling Farm income. Editors: Sikka R, Vashisht B B, Kahlon M S. Department of Soil Science, PAU, Ludhiana, Punjab
- Sandhu Sandeep Singh, Singh Jagdish, Kaur Prabhjyot, Gill Kulwinder Kaur (2018) Heat Stress in Field Crops: Impact and Management Approaches. In: Bal S., Mukherjee J., Choudhury B., Dhawan A. (eds) Advances in Crop Environment Interaction. Pp 181-204, Springer, Singapore
- Choudhary, OP and Yadvinder-Singh (2019). Nutrient management in irrigated agriculture - Issues & strategies. In: Preprints of Seminar papers of FAI Annual Seminar 2018 'Making Fertilizer Industry Viable and Vibrant'. pp. 34-56. FAI Publication. Indian Journal of Fertilizers. 15 (3): 236-61.
- J Kaur, GS Gill, K Jeet (2019) Applications of Carbon Nanotubes in Drug Delivery: A Comprehensive Review. Book chapter published in a book entitled "Characterization and Biology of Nanomaterials for Drug Delivery, 1st Edition Nanoscience and Nanotechnology in Drug Delivery edited by Shyam Mohapatra Shivendu Ranjan Nandita Dasgupta Raghvendra KumarSabu Thomas, Publishers: Elsevier ISBN: 9780128140314, pp-113-135.
- Kalia, A. and Kaur, H. (2019). Nanofertilizers: An innovation towards new generation fertilizers for improved NUE and environmental sustainability. In: B. Singh, O.P. Katare and E.B. Souto (eds). Emerging Trends in Nanobiomedicine: Nanoagroceuticals and Nanophytochemicals, Nanobiomedicine Series, pp. 45-61, CRC Press, USA.

### **Popular articles**

- Choudhary, OP. 2018. Butressing the Field. The Tribune, 29th October, 2018.
- Gill RS, Choudhary OP and Varinderpal-Singh (2018) Haari dian faslan lai khadaan di suchaji varton. Changi Kheti, Oct. 2018: 21-22.
- Gill RS, Choudhary OP and Bhatti DS (2018) Nutrient management in rabi crops. Progressive Farming 54(10): 22-23. Chandel, Sumita, Singh Dhanwinder, Dheri, Gurmeet Singh and Joshi, Rtika (2019) Ornamental plants: a potential Eco-friendly way to remediate heavy Metal pollution. Floriculture Today: 40-43.
- Choudhary OP, Gill RS and Mavi MS (2019) Maare panian wale tubewellan thale jhone di than narme di kasht nu tarjih deo. Changi Kheti, March 2019: 9.
- Choudhary OP, Mavi MS and Gill RS (2019) Ground water quality in relation to cotton and rice cultivation in SW Punjab. Progressive Farming 55(03): 22-23.
- Varinderpal-Singh, Jain L and Choudhary OP (2019) Download Urea Guide App for judicious use of urea in field crops. Progressive Farming 55(07): 12-13.



## Financial Statement

### Expenditure under CAFT during 2017-2020

Head	2017-18	2018-19	2019-20*
Operating cost of Training	647854	629794	528309
Recurring Contingency	394418	368132	--
Non-Recurring Contingency	--		--
T.A.	50000	28826	--
Library	5625	34999	--
Equipments	--	497362	--
Works (Minor repairs/renovations)	--	130300	--
Total	1097897	1689413	528309

\* Expenditure so far in 2019-20