

# CENTRE OF ADVANCED FACULTY TRAINING

Department of Plant Pathology, College of Agriculture  
G.B Pant University of Agriculture & Technology  
Pantnagar- 263 145 (Uttarakhand)



## Introduction

The Department of Plant Pathology was created and accredited by the ICAR in 1961. Dr. Y. L. Nene was the first Head of the Department. The Department offers 07 U.G. and 36 P.G. courses. So far over 427 M.Sc. and 249 Ph.D. students have been awarded degrees from the Department. Over the years, the faculty and students have won over 45 national and international awards and have produced over 61 books published by the Indian and reputed international print-houses, besides many text books in Hindi, laboratory manuals, reference books, working sheets on diseases, bulletins, extension pamphlets, etc. The Department possesses a modern teaching and research infrastructure. Its Biocontrol laboratory is a notified referral lab by Central Insecticide Board, Govt. of India for quality testing of biopesticides. ICAR, in 1995, upgraded the department to the status of the Centre of Advanced Studies in Plant Pathology and, in 2009-10, further upgraded to Centre of Advanced Faculty Training. So far 39 trainings have been conducted wherein 810 trainees from 25 states have participated.

## Objectives of CAFT

- To enhance the competence of the faculty to undertake advanced education, research and extension activities in the field of Plant Pathology.
- To update the curriculum and courses of Plant Pathology and to strengthen teaching at UG and PG level.
- To impart trainings to the faculty members/scientists in Plant Pathology of various SAU's and Research Institutes/Centres of the country.
- Create state of the art facilities in teaching, research and extension to address issues related to plant disease management through cutting- edge technologies.

## Faculty

| Faculty                          | Area of specialization  |
|----------------------------------|---|
| <b><u>A. Professors</u></b>      |   |
| Dr. Pradeep Kumar, Director CAFT | Wheat Pathology, Soybean Pathology, Maize Pathology & Fruit Pathology |

|   |   |
|---|---|
| Dr. J. Kumar, Professor & Dean<br>Agriculture | Pathogen population characterization and genetics, molecular plant pathology, rice pathology, small farm disease management, IPM, Bio-control |
| Dr. K.P. Singh                                | Epidemiology & Management of Pulse Diseases, Soybean Pathology and Fruit Pathology  |
| Dr. Yogendra Singh                            | Sorghum diseases and Plant Bacteriology   |
| Dr. R.P. Singh                                | Microbial ecology, fungicides & Vegetable Pathology, Maize Pathology  |
| Dr. K.P.S. Kushwaha                           | Pulse Pathology, Mycology (Mushroom)  |
| Dr. A.K. Tewari                               | Oilseed crops diseases & Bio-control  |
| Dr. Satya Kumar                               | Nematology  |
| <b>B. Associate Professors/SRO</b>            |   |
| Dr. L.B. Yadav                                | Mycology and Pulse Pathology  |
| Dr. (Mrs.) Roopali Sharma                     | Biological control, IPM Technology  |
| Dr. Bijendra Kumar                            | Rice Pathology  |
| Dr. S.K. Mishra                               | Mushroom Biotechnology and Mushroom Biology   |
| Dr. (Mrs.) Shailbala                          | Potato Pathology  |
| <b>C. Assistant Professors/JRO/SMS</b>        |   |
| Dr. (Mrs.) Deepshikha                         | Wheat Pathology   |
| Dr. (Mrs.) Geeta Sharma                       | Mushroom Breeding, its Diseases & spawn production , Sugarcane Pathology  |
| Dr. (Mrs.) Rashmi Tewari                      | Seed Pathology  |
| Dr. (Mrs.) Shilpi Rawat                       | Mushroom  |
| Dr. (Mrs.) Manju Sharma                       | Plant Virology and Biocontrol   |
| <b>D. Honorary Professor</b>                  |   |
| Dr. Sergey Savary                             | Epidemiology  |

## Human Resource Development

Training programme for HRD conducted during 2017-2020

| Sl. No. | Name of the Programme   | Period                        | No. of Participants |          |       |
|---------|---|-------------------------------|---------------------|----------|-------|
|         |   |                               | Internal            | External | Total |
| 1       | Adoption of Suitable Conventional and Biotechnological Approaches for Biotic and Abiotic Stress Management in Crops | February 13 to March 05, 2017 | 03                  | 18       | 21    |

|   |   |                                  |    |    |    |
|---|---|----------------------------------|----|----|----|
| 2 | Technological Advances to Minimize Pre-and Post-Harvest Losses in Agricultural and Horticultural Crops to Enhance Farmer's Income | November 22 to December 12, 2017 | 05 | 15 | 20 |
| 3 | Bio-pesticides for Crop Protection and Improvement: Emerging Technology to Benefit Farmers  | February 02-22, 2018             | 04 | 21 | 26 |
| 4 | Advanced Technology in Plant Health Management and Pest Risk Analysis for Improvisation of Indian Agriculture and Farmers Income  | September 05-25, 2018            | 05 | 18 | 23 |
| 5 | Modern Concepts in Plant Disease Management for Enhancing Quality and Productivity  | February 08-28, 2019             | 04 | 18 | 22 |
| 6 | Crop Diseases & their Management through Manipulation of Soil Health  | December 03-23, 2019             | -- | 16 | 16 |

### **Infrastructure development (equipment, etc.)**

Financial support provided under CAFT for the improvement of infrastructural facilities and other ancillary support has benefited not only the scientists but also the students by improving the teaching standards in the department. Following major equipments were added in the department:

- ELISA Reader
- Protein Purification System
- -80°C Deep Freezer
- Bio-Photometer
- Spectrophotometer
- Ice Flaking Machine
- SDS Page Assembly
- Western Blot Assembly
- Refrigerated Centrifuge
- Trinocular compound and Stereo microscopes
- PCR
- UV trans-illuminator
- Gel electrophoresis unit
- Microprocessor based pH meter
- Digital colony counter
- Mono Quartz Distillation Unit

### **Renovation of lecture room/laboratories**

Following infrastructure has been added/ renovated:

- Upgraded teaching aid for UG/PG students by renovation of Under Graduate and post graduate lecture rooms and laboratories.

- Renovated Ecology of Soil Borne Plant Pathology , Seed Pathology, Nematology, Phytobacteriology, Epidemiology & Disease forecasting laboratories.
- Department created facilities of Polycarbonate greenhouse with control environmental conditions unit and renovated growth chamber for screening of nursery against karnal bunt of wheat for research scholars of Plant Pathology.

## Library upgraded

For the strengthening of the academic activity of the department, various books listed below in addition to several books have been procured under the CAFT during 2017-19.

| Sl. No. | Name of Books   | Authors  |
|---------|---|--|
| 1       | Plant disease epidemiology: Facing challenges of the 21 <sup>st</sup> century | S. Savary, B.M Cooke   |
| 2       | Advances in soil-born plant diseases  | Rob Jenking/ C.K. Jain   |
| 3       | Plant diseases and their management in organic agriculture                    | Maria R. Fickh, Ariena H.C. Van Brugger and Lucius tamm                  |
| 4       | Principles of Plant Health and Quarantine                                     | David L. Ebbels  |
| 5       | Documentary of Agricomycetous Mushrooms of India                              | R.C. Upadhyay, B. Verma, S. Sood, N.S. Atri, T.N. Lakhanpal, V.P. Sharma |
| 6       | An Introduction to Fungi (Fourth Edition)                                     | H.C. Dube  |
| 7       | Fungicide Resistance in Crop Protection Risk and Management                   | Tarlochan S. Thind   |
| 8       | Handbook of Soil Fungi  | A. Nagamani, I.K. Kunwar, C. Manoharachary                               |
| 9       | Disease Ecology: community structure and pathogen dynamics                    | Sharon K. Collinge and Chris Ray   |
| 10      | Plant Pathology: Concepts and Laboratory Exercises (Third Edition)            | Bonnie H. Ownley, Robert N. Trigiano                                     |

## Award/Recognitions

### a. Faculty

- Dr. A.K.Tewari & K.S. Bisht received best poster presentation award at 3<sup>rd</sup> National Brassica Conference “Enhancing Oilseed *Brassica* Production Through Climate-Smart Technologies” held at IARI, Pusa New Delhi from Feb. 16-18, 2017.
- Dr. K.P. Singh awarded Sharda Lele Memorial Lecture Award by Indian Phytopathological Society in 70<sup>th</sup> Annual Meeting & National Symposium held at AAU, Jorhat, Assam from February 15-17, 2018.

- Dr. Geeta Sharma awarded Young Scientist Award for outstanding contribution in the field of Agriculture and allied in Inspiring Women Award Ceremony on world environment day on June 5, 2017 held at Lucknow.
- Dr. Manju Sharma received best research paper award by the Horticultural Society of India on November 6, 2017 for the research article entitled “Development of *Agaricus bisporus* hybrids and their evaluation for higher yield” authored by Drs Manju Sharma, B.C. Suman and Dharmesh Gupta published in *Indian Journal of Horticulture* Vol. No. 73(4): 550-56.
- Dr. K.P.S. Kushwaha, V. Singh, A. Kushwaha and S.K. Mishra received best poster presentation award at National Symposium on “Innovations in Horticulture: Production to Consumption” held at Departments of Vegetable Science and Horticulture, GBPUAT, Pantnagar w.e.f. September 14-15, 2017.
- Megha Suman, Geeta Sharma and Shilpi Rawat 2017 received best oral presentation award at National Symposium on “Innovations in Horticulture: Production to Consumption” held at Departments of Vegetable Science and Horticulture, GBPUAT, Pantnagar w.e.f. September 14-15, 2017.
- Rashmi Tewari received 1<sup>st</sup> prize for poster presentation in technical session crop protection in National Symposium on “Innovations in Horticulture: Production to Consumption” held at Department of Vegetable Science and Horticulture, GBPUA&T, Pantnagar w.e.f. September 14-15, 2017.
- Dr. K.P.S. Kushwaha received KPV Mennon Best Poster award – Commendation certificate during National Symposium of Indian Phytopathological Society organized at AAU Jorhat (Assam) w.e.f. Feb. 15-17, 2018.
- Dr AK Tewari received Best Poster Presentation Award in 1<sup>st</sup> International Conference on Biological Control- Approaches & Application at Bengaluru from Sept.27-29, 2018.
- Dr Roopali Sharma received Best Poster Presentation Award in 1<sup>st</sup> International Conference on Biological Control- Approaches & Application at Bengaluru w.e.f. Sept.27-29, 2018.
- Dr Manju Sharma received Best Poster Presentation Award in 1<sup>st</sup> International Conference on Biological Control- Approaches & Application at Bengaluru from Sept.27-29, 2018.
- Dr Rashmi Tewari recognized as Outstanding Scientist- 2018 by Venus International Foundation, Centre for Advanced Research and Design, Chennai, India.
- Dr Rashmi Tewari received Best Second Poster presentation Award in National conference & IPS-MEZ Annual Meeting at Aligarh Muslim University, Aligarh from 29-30 October, 2018.
- Dr Rashmi Tewari received Best Poster presentation Award in 39<sup>th</sup> Annual Conference and National Symposium organized by Indian Society of Mycology and Plant Pathology and ICAR- Indian Institute of Pulses Research, Kanpur from 16-18<sup>th</sup> November 2018.

- Dr KP Singh has been elected as a member of DST-NRDMS Project review meeting held at GITAM University, Rudaram, Patacheru Mandal, Hyderabad from 11-13 October, 2018.
- Dr. Rashmi Tewari granted an adhoc project on “Development of Natural Product from Plant Origin as Potent Bio-pesticide for Plant Disease Management” funded by Uttarakhand Council of Biotech amounting cost of Rs. 12 Lakh for three years.
- Dr. Geeta Sharma received first prize for the Best presentation award in the International Conference on “Global Initiatives for sustainable development: issues and challenges” w.e.f. June 24-25, 2019 at Bangkok, Thailand.
- Dr. Roopali Sharma received fellow of STA Award 2019 in 9<sup>th</sup> International Conference on Agriculture, Horticulture and Plant Science held at Angel’s Inn Resort, Dharamshala (H.P.), India from 27<sup>th</sup> to 28<sup>th</sup> June, 2019, organized by The Society of Tropical Agriculture (Reg. No. S/1714/2017), New Delhi, India.
- Dr. Yogendra Singh Awarded Fellow of Indian Phytopathological Society (FPSI), 2019.
- Dr. Yogendra Singh Awarded Fellow of Hind Agri-Horticultural Society (FHAS), 2019.
- Dr. Yogendra Singh Received ICAR best AICRP-Sorghum Centre award in recognition of immense contribution in the development of forage sorghum hybrid CSH 24MF in 49<sup>th</sup> AGM of sorghum held at CCSHAU, Hisar w.e.f.28-30 May, 2019.
- Dr. Yogendra Singh Felicitated with Distinguished International Agriculture Scientist Award, 2019 by Hind Agricultural Research and Training Institute associated with Hind Agri-Horticultural Society, Muzaffarnagar (UP), India.
- Dr. Manju Sharma received Young Achievers Award (2019) by Society for Advancement of Human and Nature (SADHNA) on 28th February 2019, at Dr YS Parmar UHF, Nainital, Himachal Pradesh.
- Dr. Manju Sharma received Young Faculty in Agricultural Sciences (Major Area of Study - Plant Pathology) Award in 5th Venus International Faculty Awards - VIFA 2019 by Venus International Foundation, on 6th July-2019 at Chennai, Tamil Nadu.
- Dr. K.P. Singh received IPS, M.J. Narasimhan Medal Award for Best Research Paper published in Indian Phytopathology (2019).
- Dr. K.P. Singh awarded DST- NRDMS project on Conservation of Biodiversity and bio-farming oriented rural livelihood through technological approach-based micro-enterprising among SC/ST farmers to promote ‘Eco-friendly Rural Villages’ in Udamsingh Nagar District of Uttarakhand (period from 2017 – 2019, worth Indian Rupees 25.00 Lakhs at Pantnagar.

## **PATENTS**

- Patent for PANT MUSHROOM COMPOSTING ASSEMBLY (application with number 201811004765 dated 2018/02/08) has been acknowledged by the office of Intellectual property, New Delhi.

- Patent (Application no. 201811029588, dated 07-08-2018) on Biofortification of white oyster mushroom (*Pleurotus Florida*) with iron using sulphide nano particles submitted to Intellectual Property Management Centre, GBPUA&T, Pantnagar.
- Patent (Application No. 201811030300, dated 11-09-2018) on Development of *Trichoderma* Formulation Utilizing Agri-Waste Rice husk Biochar for mass multiplication and long term storage submitted to Intellectual Property Management Centre, GBPUA&T, Pantnagar.
- Patent (Application no. 2018110033470, dated 06-09-18) on A process for effective management of damping off of tomato submitted to Intellectual Property Management Centre, GBPUA&T, Pantnagar.
- Patent (Application No. 201911047129, dated 19.11.2019) on A process for effective management of root knot nematode (*Meloidogyne enterolobii*) of tomato has been acknowledged by the office of Intellectual property, New Delhi.

#### **b. Students**

- Ms. Yogita Bohra received P.R. Verma best M.Sc. Thesis Award.
- Prateeksha Mehra received Best Ph.D thesis award at 3<sup>rd</sup> National Brassica Conference on “Enhancing Oilseed Brassica Production through Climate –Smart Technologies” held at IARI, Pusa New Delhi w.e.f. Feb. 16-18, 2017.
- Mr. Omkar Singh joined as Subject Matter Specialist, KVK, PG College, Gajipur (UP).
- Mr. Abhisekh Gowda selected as Agriculture Officer, State Department of Agriculture, Karnataka.
- Mr. Sourav Kumar Modak selected as Specialist Officer/Assistant Manager, United Bank of India (UBI).
- Ms. Manjari Negi selected as Assistant Agriculture Officer in Govt. of Uttarakhand.
- Ruchi Ttripathi, Rashmi Tiwari and K.Vishunavat 2017 achieved 1<sup>st</sup> prize for best poster presentation award in XIV National Seed Seminar held at New Delhi from January 28-30, 2017.
- Ruchi Ttripathi and K. Vishunavat achieved 1<sup>st</sup> prize for best poster presentation award in National Symposium on “Sustainable Disease Management Approaches and Applications” held at G.B. Pant University of Agriculture & Technology, Pantnagar from 21-23 December, 2017.
- Mr. Sourav Kumar Modak achieved International Best Presentation Award for Oral paper entitled “Potential of *Brassica juncea* as Biofumigant for the management of damping off in Tomato” at 7<sup>th</sup> International Science Congress (ISC-2017) w.e.f. December 8-9, 2017 held at College of Science and Technology, Rinchending, Phuentsholing, Chukkha, Bhutan.

- Ms. Pooja Upadhyay awarded Young Scientist Award at 12th Uttarakhand State Science and Technology (UCOST) Congress held at Dehradun w.e.f. March 07-09, 2018.
- Dr Meenakshi Dwivedi and Ms Sudha Nandni selected as Assistant Professor at Rajendra Prasad Central Agric. Univ., Pusa Bihar.
- Mr Jagadeesh Bathula selected as Assistant Professor, Forestry College and Research Institute, Telangana.
- Mr Amirtha Lingam selected as Agriculture Officer at Deptt. Of Agriculture, Govt. Of Tamil Nadu
- Mr. Omkar Singh selected as Subject Matter Specialist, KVK, PG College, Gajipur (UP).
- Mr. Abhisekh Gowda selected as Agriculture Officer, State Department of Agriculture, Karnataka.
- Mr. Sourav Kumar Modak selected as Specialist Officer/Assistant Manager, United Bank of Indian (WB).
- Ms. Manjari Negi selected as Assistant Agriculture Officer in Govt. of Uttarakhand.
- Ms. Delna Rose selected as Manager Agriculture in ITC Ltd.
- Ms. Hina Kausar selected Trainee Agriculture Advisory Services in IFFCO.
- Dr Nandini Shukla received Appreciation Certificate in XXI National Symposium on “Doubling Farmers’ Income through Agronomic Interventions Under Changing Scenario” at Maharana Pratap University of Agriculture and Technology (MPUAT), Udaipur, Rajasthan from 24–26 October, 2018.
- ManojKumar Chitara has received Best Research Scholar Award-2018 by ATDS Ghaziabad, UP. On the occasion of second international conference on “Advances in Agricultural, Biological and Applied Sciences for sustainable future (ABAS -2018)” held during October 20-22, 2018.
- PoojaUpadhyay has been conferred with Young scientist Award for best oral presentation under the discipline ‘ Agricultural Sciences’ during 12<sup>th</sup>Uttarakhand state science and technology congress 2017-2018 organized by UCOST at VigyanDham Dehradun from March 07-09, 2018.
- Sadhna Chauhan has secured second position for best poster presentation during second International Conference on Advances in Agricultural, Biological and Applied Sciences for Sustainable future (ABAS-2018) organized by ATDS, Ghaziabad, UP at Meerut, Uttar Pradesh during October 20-22, 2018.
- Dr Ruchi Tripathi has received Best Second Poster presentation Award in National conference & IPS-MEZ Annual Meeting from 29-30 October, 2018 at Aligarh Muslim University, Aligarh.



- Dr Ruchi Tripathi has been conferred with PR Verma Award- 2018 for best Ph.D Thesis in 39<sup>th</sup> Annual Conference and National Symposium on Plant and Soil Health Management: New Challenges and Opportunities from 16-18<sup>th</sup> November organized by Indian Society of Mycology and Plant Pathology and ICAR- Indian Institute of Pulses Research, Kanpur Indian Society of Mycology and Plant Pathology, Udaipur (India).
- Dinesh Rai received Best PhD Thesis Award by Samgra Vikas Welfare Society during Scientist award ceremony (2018) held at Baba Saheb Bhimrao Ambedkar University Lucknow from June 5, on 2018.
- Nazia Manzar received International Young Scientist Best Oral Presentation Award in 8<sup>th</sup> International Science Congress organized by International Science Community Association in collaboration with Maharishi Markandeshwar (Deemed to be University) Mullana, Ambala, Haryana from December 8-9, 2018.
- Ms. Priya Singh, M.Sc. student received Best Master Thesis Award-2019 in International Conference of “Global Perspective in Agriculture and Applied Sciences for Food and Environmental Security (GAAFES-2019)” during 1-2 December, 2019 at UGC-HRDC Hall, Kumaun University, Nainital, UK, India.
- Pooja Bhatt (Id No. 50918) received Best Poster award in 4<sup>th</sup> International Convention – Agrivision 2019 held at Jabalpur.
- Aravind. T (Id. No. 52489) received Second Best poster award (2019) in IPS National symposium on Recent Challenges and opportunities in sustainable plant health management held at BHU, Varanasi.

## Publications

### Journals

- A.K. Parihar, Ashwani K. Basandrai, D.R. Saxena, K.P.S. Kushawaha, S. Chandra, K. Sharma, K.D. Singha, Deepak Singh, H.C. Lal and sanjeev gupta 2017. Biplot evaluation of test environments and identification of lentil genotypes with durable resistance to *Fusarium* wilt in India. *Crop and Pasture Science* 68: 1024-1030.
- Akhtar, M.N., Singh, R.P., Kumar, S. and Tewari, R. 2017. Optimization of delivery systems to improve plant growth and to manage wilt and rot of tomato through *Trichoderma harzianum* PBAT-21. *Journal of Mycology and Plant Pathology*, 47(3):275-281.
- Anshul Arya and Geeta Sharma 2017. Evaluation of efficacy of different botanicals against sugarcane Pokkah boeng disease causing fungus *Fusarium moniliforme* var. *subglutinans* Sheldon. *Environment & Ecology* 35 (3D): 2409—2412.
- Arun Kushwaha, Vaibhav Singh, LB Yadav, SK Mishra, Satya Kumar And KPS Kushwaha 2017. Impact of Training on Knowledge Level and Adoption of Mushroom Productio as Additional Source of Income among Tribal's of Uttarakhand. *Trends in Biosciences* 10(22): 4565-4567.

- Azad, CS; Singh, R.P. and Kumar A. 2017. Evaluation of fungicides on management of Dieback and fruit rot disease causing *Alternaria tenuissima* (Kunze ex Pers.) WILTSIRE of Chilli. *Journal and pharmacognosy and phytochemistry*. SP1: 18-25.
- Bhupesh Chandra Kabadwal, Roopali Sharma, Rashmi Tewari and J. Kumar 2017. A Common Minimum Programme for biointensive pest/disease management in small farms of Uttarakhand (India). *Asian Journal of Agricultural Extension, Economics & Sociology*, 16(3): 1-8).
- C. Maharana, L.B. Yadav, S. Sunani, G.S. Panda and Rakesh Sil Sharma 2017. Screening of Chickpea Germplasm Against *Ascochyta rabiei* (Pass.) Labr.(Ascochyta Blight Disease) on Chickpea (*Cicer arietinum* L.) *Trends in Biosciences* 10(1): 337-340.
- C. Maharana, Neha Singh, LB Yadav and KPS Kushwaha 2017. Effects of sowing date on severity og blight caused by *Ascochyta rabiei* (Pass.) Labr. And yield components of three chickpea cultivars in Tarai area of Uttarakhand. *Bulletin of Environment, Pharmacology and Life Science*. 6(1):365-369.
- C. Maharana, Neha Singh, L.B. Yadav and Y. Singh 2017. Effect of seed treatment and foliar spray of Bioagents and fungicides on the disease severity of ascochyta blight of chickpea incited by *Ascochyta Rabiei*. *Agriculture Update* 12 (TECHSEAR-9): 2415-2419.
- Deepika Saxena, A K Tewari, Dinesh Rai 2017. *In vitro* antagonistic assessment of T. Harzianum PBT 23 against plant pathogenic fungi. *Journal of Microbiology and Biotechnology Research*. 4(3):59-65.
- Deepshikha, Kumari, B., Elangbam, P. D., Sharma, G., Rawat, S. and Jaiswal, J. P. 2017. Irradiation as an alternative method for post harvest disease management: An overview. *International Journal of Agriculture, Environment and Biotechnology*. 10(5): 625-633(2).
- Deepshikha; Bimla Kumari and Elangbam Premabati Devi. 2017. Evaluation and standardization of growth stage of wheat against Spot blotch caused by *Bipolaris sorokiniana* *Journal of Environmental Biology*. 38 (2)277-281(1).
- Devanshu Dev, Roopali Sharma, Nitish Ratan Bharadwaj and Bhupesh Chandra Kabadwal. 2017. Isolation and biochemical characterization of *Pseudomonas fluorescence* isolated from rhizosphere of different host plant. *Environment & Ecology*,35(3A):1984-1987.
- Elangbam Premabati Devi, Deepshikha and Bimla Kumari, Ritusha Tewari and Jaiswal J.P. 2017. Screening and molecular characterization for durable rust resistance in wheat germplasm resources. *Environment and Ecology*. 35 (1A): 253-257(1).
- Gairola, K., Tewari, A. K. Ram Bhajan and Pant, U. (2017). Sources of resistance in *Brassica juncea* lines against *Albugo candida*. *Journal of Hill Agriculture* 8 (4): 436-441.

- Geeta Sharma and Satya Kumar 2017. Biodeversity among *Amanita* Sp. In the forest of Ranikhet, Uttarakhand, India. *Environment and Ecology*, 35; 601-605.
- Gupta S.M., Arora, S., Mirza, N., Pande, A., Charu Lata, Puranik, S., Kumar, J., and Kumar, A. 2017. Finger Millet: A certain crop for an uncertain future and a solution to food insecurity and hidden hunger under stressful environments. *Frontiers in Plant Science*, doi.org/10.3389/fpls.2017.00643.
- Gupta, S., Singh, R.P. and Rautela, P. 2017. Effect of soil solarization on soil microbial population under protected and natural cultivation. *Journal of Environmental Bio-Science*. 31(1): 193-196.
- Gupta, S., Singh, R.P. and Rautela, P. 2017. Effect of soil solarization on survival of sclerotia and viability of antagonists under protected and natural cultivation. *Journal of Pharmacognosy and Phytochemistry*. 6(5):387-390.
- Gupta, S., Singh, R.P. and Rautela, P. 2017. Effect of soil solarization on physio chemical properties of soil under protected cultivation. *International Journal of Chemical Studies*. 5(4):2039-2042.
- Gupta, Supriya and Singh, K.P. 2017. Market survey for post harvest diseases and occurrence of mango anthracnose disease in tarai region of Uttarakhand. *J. Env. Bio-Sci*. 31(1): 231-234.
- Gupta, Supriya, Singh, K.P. and Singh, A.K. 2017. Sources of multiple Resistances to foliar diseases of mango. *Journal of Pharmacognosy and Phytochemistry* 6(5): 148-151.
- Kalpana G, Tewari AK. 2017. Evaluation of brassica germplasm for resistance against white rust of Indian mustard. *International J of Environ Agri and Biotechnol*. 2(3):1215-1226.
- Kushwaha, A, Singh V, Yadav LB, Mishra SK, Kumar S, Kushwaha, KPS. 2017. Impact of training on knowledge level and adaptation of mushroom production as additional source of income among tribal's of Uttarakhand. *Trends in Bioscience*.10 (22): 4565-4567.
- Maharana, C., Singh, Neha, Yadav, L.B. and Singh, Y. 2017. Effect of seed treatment and foliar spray of bioagents and fungicides on the disease severity of *Aschochyta* blight of chickpea incited by *Aschochyta rabiei*. *Agric. Update*,12 (TECHSEAR-9): 1-8; DOI:10.15740/HAS/AU/12. TECHSEAR(9)2017/1-8.
- Mamta and Singh, K. P. 2017. Mango floral malformation: Disease rating. *The Bioscan* 12(2): 725-728.
- Mamta and Y. Singh 2017. Management of zonate leaf spot in sorghum through fungicides. *Journal of Hill Agriculture*.8 (2): 240-242.
- Mamta, Singh, K.P. and Yadav, Hirdesh. 2017. Disease assessment key for bacterial black spot of mango. *Journal of Pharmacognosy and Phytochemistry* 6(5): 384-386.

- Mathpal, M and Singh, K.P. 2017. Prevalence and severity of Rhizoctonia aerial blight of soybean in Uttarakhand. *Indian J. Ecology* 44(2):417-419.
- Mishra, B. and Singh, R.P. 2017. Efficacy of Fertilizers and Bioagents against the fungal pathogen *Stemphylium vesicarium* causing foliar blight of onion. *International J. Microbiol. App. Sci.* 6(9): 2925-2932.
- Mishra, B. and Singh, R.P. 2017. Evaluation of biocontrol agents for management of Stemphylium blight of onion. *Journal of Hill Agriculture.* 8(3): 325-328.
- Mishra, B. and Singh, R.P. 2017. Fungicidal Management of Stemphylium blight of onion caused by *Stemphylium versicarium* (Wallr.) Simmons. *Biosciences Biotechnology Research Asia.* 14 (3): 1043-1049.
- Neelam, KPS Kushwaha, Gajendra Singh 2017. Evaluation of systemic and non-systemic fungicides against Rhizoctonia solani causing web blight in urdbean. *Journal of Hill Agriculture* 8(2): 206-209.
- Omkar Singh and Vishwanath 2017. Evaluation of New Formulation of Fungicides for the Management of Sheath Blight of Rice( *Oryza Sativa* L).*J.Env.Bio.Sci.*vol.31(1) 241-245.
- Pandey, Puja, Tewari, A. K. 2017. Selection of host differentials for the identification of *Albugo candida* pathotypes". *Indian Phytopathology* 70 (3):378-380.
- Pandey, V.; Tewari, A. K. and Saxena Deepika 2017. Activities of defensive antioxidant enzymes and biochemical compounds induced by bioagents in Indian mustard against *Alternaria* blight". *Proceedings of the National Academy of Sciences, Biological Sciences (NASB). Biological Sciences.* DOI 10.1007/s40011-017-0888-2:1-12.
- Prasad L, Javeria S, Kumar B and Sharma P. 2017. First record of anthracnose of elephant foot yam caused by *Colletotricum siamense* in India. *New Disease Reports* 36, 21. <http://dx.doi.org/10.5197/j.2044-0588.2017.036.021>.
- Prasad, P. and Kumar, J. 2017. Management of Fusarium wilt of chickpea using Brassicas as biofumigants. *Legume Research*, 40 (1) : 178-182.
- Prateeksha Mehra; A.K.Tewari and Gohar Taj 2017. Studies on cultural, morphological, pathogenic and molecular variability of *Alternaria brassicae*, the causal agent of blight disease of rapeseed-mustard. *Journal of Oilseed Brassica*, 8 (2): 1-11.
- Puja Pandey, KPS Kushwaha and Vinod Upadhyay 2017. Development of crop loss using Linear Regression in pea against downy mildew. *Trends in Biosciences.* 10(41): 8671-8673.
- Puja Pandey, KPS Kushwaha and Vinod Upadhyay 2017. Evaluation of potential fungicides and bioagents for the management of pea downy mildew and yield under field condition. *Int. J. Curr. Microbiol. App. Sci.* 6(12): 1381-1388.

- Rautela, P. and Singh, R.P. 2017. Evaluation of fungicides against Gray mould (*Botrytis cinerea* Pers. Fr.) and Leaf mould [*Fulvia fulva* (Cooke) Cif. (*Cladodsporium fulvum* (Cooke))] of tomato. *International Journal of Chemical Studies*. 5(5):400-404.
- Sharma SN, Mishra SK, Kumar S and Kushwaha KPS 2017. Standardization of cultural conditions *in-vitro* and crop room studies in relation to yield potential of *Lentinula* strains on wheat straw (Accepted JHA124-2017).
- Sharma, D. and Singh, R.P. 2017. Compatibility of different fungicides with *Trichoderma harzianum* Rifai strain PBAT 21. *Pesticide Research Journal* 29(1):42-47.
- Shilpi Rawat 2017. Collection and *in-vitro* optimization of growth factors of *Ganoderma lucidum*. *Journal of Hill agriculture* 8(1) 72-76.
- Singh, K.P., Singh, Amitabh, Prasad, R.K. and Kumar, Jitendra. 2017. Postharvest application of fungicides, antagonists and plant products for controlling storage scab and rots of apple fruits. *Indian Phytopath.* 70 (3) : 315-321.
- Singh, K.P., Singh, Amitabh, Shahi, S.K. and Singh, U.P. 2017. Estimation of phenolic compounds in leaf and fruits of Seabuckthorn (*Hippophae salicifolia* D. Don): Their possible implications in human health. *Medicinal Plants* 9 (3), 184-188.
- Singh, P., Y. Singh and J. Purohit 2017. Biochemical, Physiological and Morphological Characterization of the Bacterial Isolate causing Stalk Rot of Sorghum as *Erwinia chrysanthemi* *Int.J.Curr.Microbiol.App.Sci* (2017) 6(4): 341-346.
- Sujata Singh, Roopali Sharma and Archana Negi. 2017. Induced biochemical changes due to seed treatment by biocontrol agents for controlling sheath blight of rice. *Environment & Ecology*. 35(3B):2061-2065.
- Vinod Upadhyay, K. P. S. Kushwaha and Puja Pandey 2017. Influence of weather parameters on progress of rust disease severity in pea (*Pisum sativum* L.). *Journal of Applied and Natural Science* 9 (3): 1724 -1728.
- Vinod Upadhyay, K.P.S. Kushwaha and Puja Pandey 2017. Evaluation of Pea Germplasms for Rust Disease Resistance. *Journal of Pure and Applied Microbiology*. 11(1), p. 307-314.
- Vinod Upadhyay, K.P.S. Kushwaha and Puja Pandey 2017. Molecular Screening of Pea Germplasm for Rust Disease Resistance using SSR Marker. *Journal of Pure and Applied Microbiology*. 11(1), p. 343-348.
- Geeta Sharma, Jai Singh, Anshul Arya and S.R. Sharma 2017. Biology and Management of Sugarcane Red Rot. *Plant Archives*. 17(2)775-784.
- Elangbam Premabati Devi, Deepshikha and J.P. Jaiswal. 2018. Evaluation of Wheat Germplasms for the Identification of Resistant Sources to Yellow Rust Caused by *Puccinia striiformis* West. *Triticici Int. J. Pure App. Biosci.* 6 (1): 436-441.

- Elangbam Premabati Devi<sup>1</sup>, Deepshikha, J. P. Jaiswal 2018. Revealing of Brown Rust Resistance Genes by Molecular Marker in Wheat: *A Review. Int. J. Pure App. Biosci.* 6 (1): 407-417.
- L Manjunatha, PR Saabale, AK Srivastava, GP Dixit, LB Yadav, Krishna Kumar 2018. Present status on variability and management of *Ascochyta rabiei* infecting chickpea India *Phytopathology*.1-16.
- Vineeta, Vishwanath, Kewalanand and Vandana 2018. Oil constituents of European dill (*Anethum graveolens* L.) Affected by irrigation and FYM Levels and storage conditions. *Journal of Pharmacognosy and Phytochemistry* 2018; SP1: 841-844.
- Kumar B. 2018. Bio-efficacy of Tebuconazole 060 FS (Raxil 060 FS) as Seed Treatment against Karnal bunt, Loose Smut and Flag Smut of Wheat. *The Bioscan.* 13(1): 33-39.
- Harapriya Nayak, Archana Kushwaha, NC Shahi, Khan Chand, KPS Kushwaha, Kalpana Kulshrestha and CS Chopra 2018. Effect of drying parameters on water activity of pink oyster mushroom (*Pleurotus djamor*) powder. *Journal of Pharmacognosy and Phytochemistry.* 7(2): 2288-2292.
- Singh, K.P. and Pandey, R. 2018. Sustainable disease management: Approaches and applications. *Indian J. Natural Sciences* 8 (47): 13694-13703.
- Satya Kumar and Shilpi Rawat. 2018. First Report on the Root-Knot Nematode *Meloidogyne enterolobii* (Yang and Eisenback, 1988) Infecting Guava (*Psidium guajava*) in Udham Singh Nagar of Uttarakhand, India. *Int.J.Curr.Microbiol.App.Sci.* 7(04): 1720-1724.
- Shilpi Rawat 2018. Isolation and evaluation of *Ganoderma lucidum* from Uttarakhand. *International Journal of Current Microbiology and Applied Sciences* 7 (3) 476-476.
- Divya Bhatt and Geeta Sharma 2018. Role of silicon in counteracting abiotic and biotic plant stresses. *Int. J. Chem. Stud.*, 2018; 6(2): 1434-1442.
- Kumar B. 2018. Bio-efficacy of Tebuconazole 060 FS (Raxil 060 FS) as seed treatment against Karnal bunt, loose smut and flag smut of wheat. *The Bioscan.* 13(1): 33-39.
- L Manjunatha, PR Saabale, AK Srivastava, GP Dixit, LB Yadav, Krishna Kumar 2018. Present status on variability and management of *Ascochyta rabiei* infecting chickpea *Indian Phytopathology*. Published online 2march 2018 by Springer.1-16.
- V.M.Raut, Sandeepa Kantikar, Roopali Sharma and Aditya Borawake, 2018. Field evaluation of Milastin-K (*Bacillus subtilis* KTSB 1015 1.5% AS) as a potential plant growth promoting *Rhizobacteria* in okra. *Pestology*, Vol., XLII No.7: 13-24.
- Roopali Sharma, Richa Bhatt, Archana Negi, Bhupesh Chandra Kabdwal, A. K. Tewari, and J. Kumar, 2018. Evaluation of potential biological control agents for the management of sheath blight of rice. *International Journal of Basic and Applied Agricultural Research.* Vol. 16(2):135-141.

- Sharma Manju, Singh Priya, Tewari Anand, Lavania Pranesh. 2018. The Current Status of Begomovirus Research in India: Solemn Threat to Crop Production. *International Journal of Current Microbiology and Applied Sciences* 7(09). 288-299.
- Satya Kumar and Shilpi Rawat. 2018. First Report on the Root-Knot Nematode *Meloidogyne enterolobii* (Yang and Eisenback, 1988) Infecting Guava (*Psidium guajava*) in Udham Singh Nagar of Uttarakhand, India. *Int.J.Curr.Microbiol.App.Sci.* 7(04): 1720-1724.
- Shilpi Rawat 2018. Isolation and evaluation of *Ganoderma lucidum* from Uttarakhand. *International Journal of Current Microbiology and Applied Sciences* 7(3) <https://doi.org/10.20546/ijcmas>.
- Elangbam Premabati Devi, Deepshikha, J. P. Jaiswal. 2018. Revealing of Brown Rust Resistance Genes by Molecular Marker in Wheat: A Review. *Int. J. Pure App. Biosci.* 6 (1): 407-417 (2018).
- Elangbam Premabati Devi, Deepshikha and J.P. Jaiswal 2018. Evaluation of Wheat Germplasms for the Identification of Resistant Sources to Yellow Rust Caused by *Puccinia striiformis* West. *Tritici Int. J. Pure App. Biosci.* 6 (1): 436-441.
- V.M. Raut, Sandeepa Kantikar, Roopali Sharma and Aditya Borawake 2018. Effect of *Bacillus subtilis* KTSB 1015 (Milastin-K) on growth yield and control of early blight disease in tomato (*Lycopersicon esculentum* Mill). *Pestology*, Vol., XLII No.6: 15-24.
- Jai Singh, Geeta Sharma, Chaubey AK and Baghel MS 2018. Evaluation of Different Management Modules for Leaf Curl Disease of Chilli in Kymore Plateau and Satpura Hill Zone of Madhya Pradesh, India. *Int. J. Curr. Microbiol. App. Sci.* 7(01): 2544-2550.
- Megha Suman and Geeta Sharma 2018. Post Harvest studies of *Macrocybe gigantium*, the Giant Mushroom for Increasing Shelf Life. *Int. J. Curr. Microbiol. App. Sci.* 7(7): 2365-2372.
- Anshul arya, Roopali Sharma, Geeta Sharma, B C Kabdwal, Archana negi and Bhavya Mishra 2018. Evaluation of fungal and bacterial antagonists for managing phytopathogen *Fusarium moniliforme* var. *subglutinans* Sheldon causing Pokkah boeng disease of Sugarcane. *Journal of Biological Control* 31(4): 217-222, 2017, DOI: 10.18311/jbc/2017/15456.
- Singh HN, M, Singh B, Kushwaha KPS, Singh YV, Singh J, Ruhela A and Pal VK 2018. Integrated Farming System and Human Resource planning and Management for Livelihood Security and Capacity Building of Tribal farming Community in District Dehradun, *India Agricultural Res & Tech*; 17(1): 001-003.
- A.K Parihar , Ashwani K. Basandrai , K.P.S Kushwaha S. Chandra K. D Sinha R. S. Bal, D. Saxena , Deepak Singh and Sanjeev Gupta 2018. Targeting test environment and rust residence genotype in lentils (*Lens culinary* by using heritability – adjusted biplot analysis. *Crop & Pasture Science*, 69: 1113-1125.

- Singh, P., Y.Singh, Purohit, J. and Maharshi, A 2018.. A comparative evaluation of bioagents and chemicals for the control of stalk rot of Sorghum caused by *Dickeya dadantii*. *Journal of Applied and Natural Science*. 10(3): 1053 -1058.
- Ruchi Tripathi, Rashmi Tewari and Vishunavat, K. 2018. Evaluation of Different Growth Media for *Clavibacter michiganensis* subsp *michiganensis* and Formation of Biofilm like Structures. *Int.J.Curr.Microbiol.App.Sci*. 7(05): 207-216.
- Ruchi Tripathi, K. Vishunavat and Rashmi Tewari 2018. Screening of Tomato Cultivars through Qualitative and Quantitative Evaluation for Bacterial Canker (*Clavibacter michiganensis* subsp *michiganensis*) in Open and Protected Conditions. *International Journal of Plant & Soil Science* 23(1): 1-11
- Ruchi Tripathi, K. Vishunavat and Rashmi Tewari 2018. Distribution and Variability of *Clavibacter michiganensis* subsp *michiganensis* in Tomatoes from Nothern Hill Region of India. *Current Journal of Applied Science and Technology* 29(5): 1-10.
- Prasad, R.K., Singh, K.P. and Gupta, R.K. 2018. Pre leaf fall spray of chemical, cow urine and fungal antagonists on spring ascospore production of the apple scab pathogen, *Venturia inaequalis*. *Int. J. Curr. Microbiol. App. Sci.* 7(8): 575-586.
- Prasad, R.K., Singh, K.P., Gupta, R.K. and Kumar, J. 2018. Prevalence and Severity of Apple Scab in Uttarakhand Hills. *Int. J. Curr. Microbiol. App. Sci.* 7(10): 1166-1184.
- Lavania, Pranesh; Singh, Priya and Sharma, Manju 2018. Research development in begomovirus in legumes: Past chievements, present scenario and future thrust areas. *International Research Journal of Engineering and Technology (IRJET)* 05 (08): 1865-1869.
- Rashmi Yadav, Laxman Prasad , J. Nanjundan , A. K. Tewari , Paramjeet Singh, P. S. Sandhu , Usha Pant , Ram Avtar , J. Radhamani, Sandeep Kumar Mahesh Rao and J. C. Rana 2018. Identification and evaluation of Indian mustard genotypes for white rust resistance and agronomic performance. *Indian J. Genet.*, 78(1): 81-89.
- Vineeta, Vishwanath, Kewalanand and Vandana 2018. Oil constituents of European dill (*Anethum graveolens* L.) Affected by irrigation and FYM Levels and storage conditions. *Journal of Pharmacognosy and Phytochemistry* 2018; SP1: 841-844.
- Singh, K.P. and Pandey, R. 2018. Sustainable disease management: Approaches and applications. *Indian J. Natural Sciences* 8 (47): 13694-13703.
- Shukla,N., Ladi, E., Bohra,Y., Tewari, A.K. and Kumar,J. GenBank: MH593785.1 National Center for Biotechnology Information (NCBI) <https://www.ncbi.nlm.nih.gov/nuccore/1509790102>.
- Ambika Rautela, Nandani Shukla, Abhijeet Ghatak, AK Tewari and J Kumar “ Field evaluation of different copper sources in a consortium of ‘Copper-Chitosan-*Trichoderma*’ for management of late blight disease of tomato” *Journal of Pharmacognosy and Phytochemistry* 2018; 7(4): 1260-1266.



- Erayya Nandani Shukla Kahkashan Arzoo and J. Kumar 2018. Mass screening of *Trichoderma* spp. for their antagonism against some plant pathogenic oomycetes fungi. *Journal of Applied and Natural Science* ;10 (3): 813 – 817.
- Akansha Singh, Nandini Shukla, B.C. Kabadwal, A.K. Tewari and J. Kumar 2018. Review on Plant-*Trichoderma*-Pathogen Interaction. *International Journal of Current Microbiology and Applied Sciences*; 7(2): 2382-2397.
- Erayya, Nandani Shukla, Kahkashan Arzoo and J. Kumar 2018. In vitro screening of *Trichoderma* spp. for their antagonism against soil borne fungi. *Annals of Plant Protection Sciences*. 10.5958/0974-0163.
- Bhatt, D., Kumar, P. 2018. Effect of Media, Temperature and Light Wavelength on the Growth of *Curvularia lunata* Causing Curvularia Leaf Spot of Maize. *International Journal of Current Microbiology and Applied Sciences*. 7(9): 2227-2230.
- Bhavya Mishra and R. P. Singh. 2018. In vitro Studies on the Effect of Insecticides on the Growth of Fungal Pathogen *Stemphylium vesicarium* (Wallr.) Simmons. *International Journal of Bio-resource and Stress Management*. 9(4):527-530.
- Arya A. 2018.Role of epidemiology in plant disease management. *International Journal of Chemical Studies*. 6(1): 1651-1655.
- Arya, A. and Mishra B. 2018.An introduction to Mycovirus. *Agrobios Newsletter*. 16(12): 84-85.
- Arya, A. and Mishra B. 2018.Abiotic stress signalling in plants. *Agrobios Newsletter*. 16(9): 23-24.
- Nandni, S. 2018. Shiitake mushroom and its cultivation technology. *Agrobios Newsletter*. 17 (5):61.
- Nandni, S. 2018. Plantibodies In Plant Pathology: A Futuristic Approach. *Agrobios Newsletter*. 17(6):77.
- Meenakshi Dwivedi and A. K. Tewari 2018. Crop- specific growth promoting effect of native *Trichoderma* species. *Indian Phytopathology*.70 (4): 457-462.
- Akansha Singh, Nandini Shukla, B.C. Kabadwal, A.K. Tewari and J. Kumar 2018. Review on Plant-*Trichoderma*-Pathogen Interaction. *Int. J. Curr. Microbiol. App.Sci* 7(2): 2381-2397.
- A Rautela, N Shukla, A Ghatak, AK Tewari, J Kumar 2018. Field evaluation of different copper sources in a consortium of 'Copper-Chitosan-*Trichoderma*' for management of late blight disease of tomato *Journal of Phrmacognosy and Phytochemistry*. 7(4): 1260-1266.
- Mishra B. and Singh R.P. 2018. Spray scheduling of fungicide Difenconazole 25EC for the management of *Stemphylium* blight of onion (*Allium cepa* L.). *Journal of Applied and Natural Sciences*. 10(3): 971-975.

- Mishra B. and Singh R.P. 2018. In vitro Studies on the Effect of Insecticides on the Growth of Fungal Pathogen *Stemphylium vesicarium* (Wallr.) Simmons. *International Journal of Bio-resource and Stress Management* 2018. 9(4): 527-530.
- Sharma, D. and Y.Singh 2018. Compatibility of Bio-control agents with bactericides for controlling bacterial wilt of tomato. *International J. Chemical Studies*. 6(2): 1173-1178.
- Divya Bhatt and Geeta Sharma 2018. Role of silicon in counteracting abiotic and biotic plant stresses. *Int. J. Chem. Stud.*, 6(2): 1434-1442.
- Singh, R. S., Singh, J., Singh, P., Chitara, M. K., Ram, R. M., Mishra S. and Singh, H. B. 2018. Emerging trends in Agri-nanotechnology fundamental and applied aspects. *CAB international*. 135-165.
- Aravind, T. and Brahmabhatt, A. B. 2018. Management of root and collar rot (*Macrophominaphaseolina*(Tassi) Goid.) of OKRA (*Abelmoschusculentus* (L.) Moench) through bioagents, oil cakes and fungicides. *Journal of Pharmacognosy and Phytochemistry*. 7(4): 631-635.
- Khan, A. I., Chitara, M. K., Yadav, R. and Yadav, R. N. 2018. Nutrient management for Rice-Wheat cropping system using soil test Target yield equation in Sundarpur, Kanchanpur district far westwern development region of Nepal Trends in *Biosciences journal*. 11(4):582-585.
- Vinod Upadhyay, KPS Kushwaha and Puja Pandey 2018. Evaluation of Potential fungicides for the Management of pea rust under field condition *International Journal of Chemical Studies* :6(2):3085-3090.
- Anshul Arya and KPS Kushwaha 2018. Evaluation of chemicals for the Management of lentil wilt, caused by *Fusarium oxysporum* f.sp.lentis. *Journal of Pharmacogony and Photochemistry* 7(5):2320-2323.
- Harapriya Nayak, Archana Kushwaha, NC Shahi, Khan Chand, KPS Kushwaha, Kalpana Kulshrestha and CS Chopra, 2018. Effect of drying parameters on water activity of pink oyster mushroom (*Pleurotus djamor*) powder *Jouranal of Pharmacognosy and Phytochemistry* 7(2):2288-2292.
- Manju Sharma, A. K. Tewari, Roopali Sharma and J Kumar 2018. Field evaluation of potential bio agents against chickpea wilt complex. *Journal of Biological Control*, 32(3): 172-178, 2018, DOI: 10.18311/jbc/2018/21225.
- Megha Suman, Geeta Sharma and Shilpi Rawat 2019. Biochemical analysis and DNA quantification of Giant Mushroom (*Macrocybe gignentium*). *Indian Journal of Ecology* 46(7) 193-195.
- Bhupesh Chandra Kabdwal, Roopali Sharma, Rashmi Tewari, Anand Kumar Tewari, Rajesh Pratap Singh and Jatinder Kumar Dandona, 2019. Field efficacy of different combinations of *Trichoderma harzianum*, *Pseudomonas fluorescens* and arbuscular mycorrhiza fungus against the major diseases of tomato in Uttarakhand (India). *Egyptian Journal of Biological Pest Control*. Vol. 29:1; <https://doi.org/10.1186/s41938-018-0103-7>. (NAAS rating: 6.18)

- Nandani Shukla, Erayya, Archana Negi, Akansha Singh, B. C. Kabdwal, Roopali Sharma and Jatinder Kumar, 2019. Present status and future prospects of bioagents in agriculture. A Review. *International Journal of Current Microbiology and Applied Sciences* 8 (4): 2138-2153. (NAAS rating 5.38).
- PrernaDobhal and Mishra SK. 2019. Cultural Study of Fire-fang Isolates of Mushroom Compost. *International Journal of Pure and Applied Bioscience*.7 (3): 335-340.
- Kumar V, Mishra SK and KaurManjeet 2019. Effect of different media, temperature and pH on radial mycelial growth of *Lentinulaedodes* strain Le-17-04. *Journal of Pharmacognosy and Phytochemistry*.8 (1): 345-348.
- Singh, S. and Y. Singh 2019 Divulging inoculation methods for assessing pathogenicity of *Dickeya dadantii* inciting stalk rot disease of sorghum. *Journal of Pharmacognosy and Phytochemistry*. 8(1): 1409-1413.
- Nazia Manzar and Y. Singh 2019. Integration of Seed Biopriming, Soil and Foliar Application of Formulations of Trichoderma Species for Growth Promotion of Sorghum under Field Condition. *Int.J.Curr.Microbiol.App.Sci*. 8(06): 2648-2654.
- Sharma, D. and Y. Singh 2019. Characterization of *Ralstonia solanacearum* isolates using biochemical, cultural, molecular methods and pathogenicity tests. *Journal of Pharmacognosy and Phytochemistry*. 8(4): 2884-2889.
- Singh, K.P., Aravind, T., Bhatt, P. and Surbhi, K. 2019. Identification of Resistant Sources in Field Evaluation of Soybean (*Glycine max* (L.) Merr.) Genotypes against Pod Blight and Rhizoctonia Aerial Blight. *Int. J. Curr. Microbiol. App. Sci* 8(03): 1823-1827. doi: <https://doi.org/10.20546/ijcmas.2019.803.215>
- Singh, K.P. 2019. Aerobiology, epidemiology and management strategies in apple scab: science and its applications. *Indian Phytopathology* DOI: 10.1007/s42360-019-00162-5
- Shailbala, A. Kumar and S. K. Sharma 2019. Management of Red Rot of sugarcane caused by *Collectotrichum falcatum* went: A review. *International Journal of Chemical Studies*. 7 (3) : 5029 – 5039.
- Upadhay Vinod, Medhi Kuldip, Pandey Puja, Thengal Palash, Kumar Sunil Paul, and Kushwaha K.P.S. 2019. Rust Disease of Pea: A Review. *International Journal of Current Microbiology and Applied Sciences*. 8 (4): 416-434.
- Das Arpita, Gupta Sanjeev, Prihar Ashok K, Singh Deepak, Chand Ramesh, Pratap Aditya, Singha K. D, and Kushwaha K.P.S. 2019. Delineating Genotype x Environment interactions towards durable resistance in Mungbean against *Cercospora* leaf spot (*Cercospora canescens*) using GGE biplot. *Plant breeding*; 00:1-12.

## Books

### English

- Nandani Shukla and J Kumar. 2018. *Trichoderma*: A Potential BCA inducing drought tolerance in crop plants Morphological, Physiological and molecular mechanisms. Lap Lambert Academic Publishing 2018 p.229.

## Hindi

- फूलों के रोग एवं उनका प्रबन्धन. योगेन्द्र सिंह व एस०एन० विश्वकर्मा 2019. प्रकाशन निदेशालय गोबिन्द बल्लभ पंत कृषि एवं प्रौ० वि०वि०, पंतनगर. 173 पृष्ठ।

## Laboratory Manuals

- K.P. Singh, A.K. Singh, Supriya Gupta and Aravind T . 2019. Mango Diseases and their Management. 88pp.
- K.P. Singh, Supriya Gupta and Aravind T. 2019. Plant Disease Epidemiology. Pp 86.

## Any other

## Book chapters

- Kharayat B.S. and Singh Y. 2017. The process of coevolution of plants and their pathogens. In: *The Phytopathogen: Evolution and Adaptation*. Ghatak Abhijeet and Ansar Mohd. (Eds.), Apple Academic Press, USA. , pp. 21-40.
- Gupta, S., Rautela, P., Maharana, C. and Singh, K. P. 2017. Priming Host Defense against Biotic Stress by Arbuscular Mycorrhizal Fungi. In: *Agro-Environmental Sustainability Volume 1: Managing Crop Health*. Singh, J. S. and Seneviratne, Gamini (eds) Springer International Publishing AG, Gewerbestrasse 11, 6330 Cham, Switzerland, ISBN 978-3-319-49723-5, ISBN 978-3-319-49724-2 (eBook) DOI 10.1007/978-3-319-49724-2, pp 255-271.
- Gupta, S. and Singh, K.P. 2017. Microbial management of post harvest diseases of horticultural crops. In: *Biological Control of Crop Diseases: Recent Advances & Perspectives*. Singh, D., Chakraborty, B.N., Pandey, R.N. and Sharma, P. (eds) Today & Tomorrow's Printers and Publishers, New Delhi, pp 185-207.
- Kharayat, B.S. and Singh, Y. 2018. Mycotoxins in Foods: Mycotoxicoses, Detection and Management. In: *Microbial Contaminants and Food Degradation*. Eds. Holban, A.M and Grumezescu, A. M. pp. 395-421. Elsevier Science Publishing Co Inc/ Academic Press.
- Mishra SK and Singh R 2018. Role of mushroom cultivation in sustainable agriculture and entrepreneurship. In: *Sustainable Agriculture for Food Security Concept and Approaches*. (eds. B. Kumar and R Singh) Biotech Books, New Delhi. 190-204. (Proof attached)
- Singh, R.P.; Kumar, P.; Gogoi, R., Kaur, H. 2018. Mass screening techniques for resistance to Banded Leaf and Sheath Blight. pp15-21. In: Hooda, K.S.; Bagaria, P.K.; Khokhar, Mukesh; Kaur, Harleen and Rakshit, Sujay. 2018. Mass screening techniques for resistance to Maize Diseases. ICAR-Indian Institute of Maize Research, PAU Campus, Ludhiana – 141 004, 93pp.
- Singh, R.P., Kumar, P.; Devlash, R. 2018. Mass screening techniques for resistance to Bacterial Stalk Rot. pp56-61. In: Hooda, K.S.; Bagaria, P.K.; Khokhar, Mukesh; Kaur, Harleen and Rakshit, Sujay. 2018. Mass screening techniques for resistance to Maize Diseases. ICAR-Indian Institute of Maize Research, PAU Campus, Ludhiana – 141 004, 93pp.

- Satya Kumar, Bijendra Singh and Shilpi Rawat. 2018. Nematode problems of Uttarakhand. Pp 359-376. In: R.K. Walia and Pranjib Kumar Chakrabarty 2018. Nematodes Problems in India. ICAR- AICRIP (Nematodes), LBS building, IARI, New Delhi, 402pp.
- Kharayat, B.S. and Singh, Y. 2020. *Ralstonia solanacearum*: Pathogen Biology, Host-Pathogen Interaction, and Management of Tomato Wilt Disease. In The Vegetable Pathosystem Ecology, Disease Mechanism and, Management. Eds. Ansar, M and Ghatak, A. pp. 85-123. Apple Academic Press, U.S.A.
- Singh, K. P., Aravind, T., Karibasappa, C.S. and Dev, Devanshu. 2019. Chitin and its derivatives for eco-friendly management of crop pests and diseases. Mujeebur, R.K., Mukhopadhyay, A.N., Pandey, R.N., Thakur, M.P., Singh, D., Siddiqui, M.A., Akram, M. and Haque, Z. (eds) IPS, New Delhi and Today & Tomorrow's Printers and Publishers, New Delhi, pp 163-182.
- Singh, K.P. and Kumar J. 2019. Pest management in fruit crops with special reference to apple. Stanley, J., Mishra, K.K., Subbanna, A.R.N.S., Rajashekara, H. and Pattanayak, A. (eds) ICAR-VPKAS, Venus Printers and Publishers, New Delhi, pp102-115.
- Prasad, D., Singh, K. P. and Aravind, T. 2019. Geranium fungals wilt: Biology, epidemiology and management. In: Diseases of medicinal and aromatic plants and their management. Pandey, R., Misra, A.K., Singh, H.B., Kalra, A. and Singh, D. (eds) IPS, New Delhi and Today & Tomorrow's Printers and Publishers, New Delhi, pp 141-153 (ISBN 81-7019-633-X (India), ISBN 1-55528-450-7 (USA).

### Monographs/Popular Articles

- राम जी मौर्य, बिजेन्द्र कुमार एवं अजय कुमार. 2017. मोटा अनाज, मंडुवा (रागी), झंगोरा (मादिरा/साँवा), काकुन (कौणी/कंगनी), रामदाना (चौलाई, मारसा, चुआ), कुट्टू (उगल, फाफरा). खरीफ फसलों की उन्नत कृषि तकनीकी. किसानोपयोगी प्रसार साहित्य-20, प्रसार शिक्षा निदेशालय, गोविन्द बल्लभ पन्त कृषि एवं प्रौद्योगिक विश्वविद्यालय, पंतनगर। पेज: 15-21।
- गीता शर्मा एवं शिल्पी रावत 2018. सेहत के लिये लाभकारी खाद्य मशरूम की पोषक अव्यव संरचना। किसान भारती। 49(5) 20-30।
- शिल्पी रावत एवं गीता शर्मा 2017. फसल उत्पादन में बीजोपचार का महत्व। किसान भारती। 48(10)12-14।
- Jai Singh and Geeta Sharma 2017. Saghanikaran Padhhti ke antargat ropan vidhi dwara arhar ka vipul utpadan. Kisan Bharti, 48(07), 32-36.
- Jai Singh and Geeta Sharma 2017. Tamatar me samanvit rog prabandhan. Kisan Bharti, 48(09), 26-31.
- Jai Singh and Geeta Sharma 2017. Ropan vidhi dwara arhar ka vipul utpadan. Kisan Bharti, 48(11), 41-44.

- Geeta Sharma and Shilpi Rawat 2017. Mushroom Utpadan- ek Vaikalpic Vyavsay. Kisan Bharti, 49(01), 24-26.
- Geeta Sharma and Shilpi Rawat 2018. Sehat ke liye labhkari Khadya mushroom ki poshak avyav sanrachna. Kisan Bharti, 49(05), 20-23.
- Roopali Sharma, K.S. Mahantesh and Akansha Singh, 2017. Integrated Management of Potato Crop. Indian Farmers Digest. pp. 42-44.
- के०पी०एस० कुशवाहा 2017. उत्तराखण्ड में किसान मशरूम उत्पादन क्यों, कैसे और कब करें। छत्रक-भा.कृ.अनु.प.-खुम्ब अनुसंधान निदेशालय 39-54।
- Singh, M.P.; Singh R.P. and Devi Gayatari 2018. Eco-friendly technologies of pest management in off-season vegetables in hills of Uttarakhand. Indian Farmers' Digest. 51(9): 10-14.
- Bhatnagar A.; Singh, R.P.;Khanna R. and Singh J.K. 2018. Cultivation technology of Pop Corn. Indian Farmers' Digest. 51(8): 29-31.
- Singh, R.P.; Singh, M.P.; Chitara Manoj Kumar 2018. ikWyhgkml esa lfCt;ksa ds izeq[k jksxksa ,oa dhVksa dk izcU/ku- In: Proceedings of State Level Workshop cum Seminar on Precision Horticulture for doubling Farmers' Income held on March 9, 2018 organized by NCPAAH and PFDC, GBPUAT, Pantnagar, pp 57-62.
- Geeta Sharma and Jai Singh 2018. Khadya evam Vishale mushrooms- Pahchan evam Upchar. Kisan Bharti, 49(12), 23-26.
- शिल्पी रावत, गीता शर्मा एवं के के शर्मा 2018 आधुनिक कृषि क्षेत्र में कृषि रसायनों के बढ़ते दुष्प्रभाव Hindi Krishi Jagran.com <https://hindi.krishijagran.com/editorial/increasing-side-effects-of-agricultural-chemicals>
- गीता शर्मा एवं शिल्पी रावत 2018 धान के प्रमुख रोगों की पहचान व उपचार। किसान भारती : वर्ष 49 अंक -10, माह- जुलाई, पृष्ठ संख्या -08।
- गीता शर्मा एवं शिल्पी रावत 2018। सेहत के लिए लाभकारी खाद्य मशरूम की पोशक अवयव संरचना। किसान भारती: अंक-05, माह- फरवरी, पृष्ठ संख्या 20-23।
- रूपाली शर्मा, जय सिंह एवं शुभम भट्ट, 2018 ब्रोकली की फसल का समेकित प्रबन्धन। किसान भारती नवम्बर, पृष्ठ 18-20।
- मदन पाल सिंह, गायत्री देवी एवं राजेश प्रताप सिंह 2018 प्याज एवं लहसुन के प्रमुख कीट एवं रोगों का समेकित प्रबन्धन। किसान भारती, नवम्बर, पृष्ठ 23-26।
- Singh, Y. and Sharma, D. 2018. Role of Livestock in Food Security and Sustainable Development. *Indian Farmers' Digest* 51 (7): 24-25.
- Singh, Y. and Singh, S. 2018. Cultivation of Pearl Millet. *Indian Farmers' Digest* 51 (8): 22-24.

- Singh, Y. and Singh, S. 2018. Bajra main Lagne Wale Pramukh Rog Evam Unka Niyanttran. Kisan Bharti. 49 (11):04-07.
- R.K. Sahu and Prarthana Jagoori 2018. Red Rot disease of Sugarcane and Approaches for the Management. *Indian Farmers' Digest* will be published in the Month of December.
- R.K. Sahu and Prarthana Jagoori 2018. Pokkah Boeng: An Imminet Emerging Disease of Sugarcane in Uttarakhand. *Indian Farmers' Digest* will be published in the Month of December.
- R.K. Sahu and Prarthana Jagoori 2018. Ratoon Stunting Disease (RSD): An important bacterial disease of Sugarcane. *Indian Farmers Digest* will be published in the Month of December.
- चना के ऐस्कोकाइटा अंगमारी रोग एवं समेकित प्रबन्धन एल. बी. यादव एवं के. पी. एस. कुशवाहा
- के. पी. एस. कुशवाहा एवं एल.बी. यादव चना के बोट्राइटिस धूसर फफूँद रोग का समेकित प्रबन्धन
- मिश्रा, एन. के.; सिंह, के. पी.; मिश्रा के. के. एवं मिश्रा डी. एस. 2018. नीबू वर्गीय फलों की उन्नत बागवानी हेतु वार्षिक कार्यक्रम गो० ब० प० कृ० एवं प्रौ० वि० वि०, पन्तनगर.
- सिंह, के. पी. 2018. सब्जी उत्पादको को वॉट बीजों के किट. 24 मार्च, अमर उजाला, 2018
- सिंह, के. पी. 2018. सब्जी उत्पादकों को बांटे बीजों के किट. 16 मई, 2018, दैनिक जागरण.
- सिंह, के. पी. 2018. वैज्ञानिक तरीके से खेती करने पर होगा लाभ. 16 मई. अमर उजाला.
- सिंह, के. पी. 2018. जी. बी. पन्त वि. वि. में किसानों को बांटे मिनी किट. 24 मार्च, हिन्दुस्तान.
- सिंह, के. पी. 2018. किसानों को सब्जी उत्पादन के लिए प्रेरित किया. 24 मार्च, अमर उजाला.
- राम जी मौर्य, बिजेन्द्र कुमार एवं अजय कुमार. 2019. मोटा अनाज, मंडुवा (रागी), झंगोरा (मादिरा/साँवा), काकून (कौणी/कंगनी), रामदाना (चौलाई, मारसा, चुआ), कुट्टू (उगल, फाफरा). खरीफ फसलों की उन्नत कृषि तकनीकी. किसानोपयोगी प्रसार साहित्य-20, प्रसार शिक्षा निदेशालय, गोविन्द बल्लभ पन्त कृषि एवं प्रौद्योगिक विश्वविद्यालय, पंतनगर-263145, ऊधम सिंह नगर, उत्तराखण्ड. पेज: 15-21.

- बिजेन्द्र कुमार, अजय कुमार एवं बी. एस. कार्की. 2019. मोटा अनाज, मंडुवा (रागी), झंगोरा (मादिरा/साँवा), काकुन (कौणी/कंगनी), रामदाना (चौलाई, मारसा, चुआ), कुट्टू (उगल, फाफरा). खरीफ फसलों की उन्नत कृषि तकनीकी. किसानोपयोगी प्रसार साहित्य-20, प्रसार शिक्षा निदेशालय, गोविन्द बल्लभ पन्त कृषि एवं प्रौद्योगिक विश्वविद्यालय, पंतनगर-263145, ऊधम सिंह नगर, उत्तराखण्ड. पेज: 15-21.
- बिजेन्द्र कुमार, अजय कुमार एवं बी.एस. कार्की. 2019. मोटा अनाज: मंडुवा, झंगोरा, काकुन, चीना, रामदाना, कुट्टू, राइसबीन, गहत. किसान डायरी 2019-21. Extension Literature. प्रसार शिक्षा निदेशालय, गोविन्द बल्लभ पन्त कृषि एवं प्रौद्योगिक विश्वविद्यालय, पंतनगर-263145, ऊधम सिंह नगर, उत्तराखण्ड. पेज: 48-52.
- बिजेन्द्र कुमार, अजय कुमार एवं बी.एस. कार्की. 2020. मोटा अनाज: मंडुवा, झंगोरा, काकुन, चीना, रामदाना, कुट्टू, राइसबीन, गहत. किसान डायरी 2019-21. Extension Literature. प्रसार शिक्षा निदेशालय, गोविन्द बल्लभ पन्त कृषि एवं प्रौद्योगिक विश्वविद्यालय, पंतनगर-263145, ऊधम सिंह नगर, उत्तराखण्ड. पेज: 48-52.
- बिजेन्द्र कुमार, अजय कुमार एवं बी.एस. कार्की. 2020. मोटा अनाज: मंडुवा, झंगोरा, काकुन, चीना, रामदाना, कुट्टू, राइसबीन, गहत. किसान डायरी 2019-21. Extension Literature. प्रसार शिक्षा निदेशालय, गोविन्द बल्लभ पन्त कृषि एवं प्रौद्योगिक विश्वविद्यालय, पंतनगर-263145, ऊधम सिंह नगर, उत्तराखण्ड. पेज: 48-52.
- एस0एन0 तिवारी, पी0 सी0 पाण्डे, इन्द्रदेव पाण्डेय एवं बिजेन्द्र कुमार, 2019. खाद्यान्न फसलें: धान. किसान डायरी 2019-21. Extension Literature. प्रसार शिक्षा निदेशालय, गोविन्द बल्लभ पन्त कृषि एवं प्रौद्योगिक विश्वविद्यालय, पंतनगर-263145, ऊधम सिंह नगर, उत्तराखण्ड. पेज: 15-20.
- एस0एन0 तिवारी, पी0 सी0 पाण्डे, इन्द्रदेव पाण्डेय एवं बिजेन्द्र कुमार, 2020. खाद्यान्न फसलें: धान. किसान डायरी 2019-21. Extension Literature. प्रसार शिक्षा निदेशालय, गोविन्द बल्लभ पन्त कृषि एवं प्रौद्योगिक विश्वविद्यालय, पंतनगर-263145, ऊधम सिंह नगर, उत्तराखण्ड. पेज: 15-20.
- Kumar B. 2019. Rice Diseases: Symptoms and Management. *Indian Farmers' Digest*. Aug 2019, pp-20-22.

## Proceedings

- Vishunavat, K. 2017. Effect of Abiotic factors in Seed Production and Seed Quality. In Proceedings of 34<sup>th</sup> Training on "Adoption of suitable conventional and biotechnological approaches for biotic and abiotic stress management in crops" w.e.f. February 13 to March 05, 2017 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 22-30.
- Vishwanath 2017. Integrated Approach for Biotic and Abiotic Stress Management in Rice. In Proceedings of 34<sup>th</sup> Training on "Adoption of suitable conventional and biotechnological approaches for biotic and abiotic stress management in crops" w.e.f. February 13 to March 05, 2017 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 66-73.



- Tewari, A.K. 2017. Problems and Remedies for the Success of *Trichoderma* as Biocontrol Agent. In Proceedings of 34<sup>th</sup> Training on “Adoption of suitable conventional and biotechnological approaches for biotic and abiotic stress management in crops” w.e.f. February 13 to March 05, 2017 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 74-77.
- Tewari, A.K. 2017. Basic Concept for the Diagnosis of Biotic and Abiotic Problems. In Proceedings of 34<sup>th</sup> Training on “Adoption of suitable conventional and biotechnological approaches for biotic and abiotic stress management in crops” w.e.f. February 13 to March 05, 2017 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 91-99.
- Singh, K.P. 2017. Statistical Modeling and Forecasting of Scab Affecting Apple: An Overview. In Proceedings of 34<sup>th</sup> Training on “Adoption of suitable conventional and biotechnological approaches for biotic and abiotic stress management in crops” w.e.f. February 13 to March 05, 2017 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 100-106.
- Sharma, Roopali; Negi, Archana and Singh Akansha 2017. Isolation, Identification and Mass Production Techniques of *Trichoderma* & *Pseudomonas* sp. as Biocontrol Agents. In Proceedings of 34<sup>th</sup> Training on “Adoption of suitable conventional and biotechnological approaches for biotic and abiotic stress management in crops” w.e.f. February 13 to March 05, 2017 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 183-188.
- R.P. Singh 2018. Management of Diseases and insect pests of Vegetables in poly house. In proceedings of State Level Workshop cum Seminar on “Precision Horticulture for doubling the income of farmers” on 09-03-2018 held at GBPUAT, Pantnagar. Pp 57-62.
- Singh, K. P. 2017. Innovative strategies for the control of apple scab in Central Himalayas. Proceeding in International Conference on “Emerging trends in integrated pests and disease management for quality food production” from July 25–27, 2017 held at The Waterfront Hotel, Kuching, Malaysia. P60.
- Geeta Sharma, Shilpi Rawat and A.K. Pandey 2017. Sustainable Mushroom Production in Uttarakhand for Farmer’s income Generation. In XXXI Convocation Souvenir “Strategies for Enhancing Farmers Income in Uttarakhand on Nov 16, 2017 held at GBPUAT, Pantnagar. Pp 236-239.
- KPS Kushwaha 2017. Mushroom—A profitable option for small farmers. In XXXI Convocation Souvenir “Strategies for Enhancing Farmers Income in Uttarakhand on Nov 16, 2017 held at GBPUAT, Pantnagar. p224-227.
- SK Mishra and KPS Kushwaha 2017. Role of mushroom cultivation in firming of farmer’s income. In XXXI Convocation Souvenir “Strategies for Enhancing Farmers Income in Uttarakhand on Nov 16, 2017 held at GBPUAT, Pantnagar. p228-235.
- Geeta Sharma 2017. Minimizing Pre-Harvest Disease Scenario of Sugarcane 149-154. In Proceedings of CAFT Training on “Technological Advances to Minimize Pre- and PostHarvest Losses in Agricultural and Horticultural Crops to Enhance Farmer’s Income” w.e.f. November 22 to December 12, 2017 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar. 149-154.

- Vishunavat, K. 2017. Mycotoxins: Detection, Management, Public Health and Agricultural Trade. In Proceedings of 35<sup>th</sup> Training on “Technological Advances to Minimize Pre-and Post-Harvest Losses in Agricultural and Horticultural Crops to Enhance Farmer’s Income” w.e.f. November 22 to December 12, 2017 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 23-35.
- Vishunavat, K. 2017. Epidemiological Approaches for Management of Seed-borne Diseases through Seed Technology. In Proceedings of 35<sup>th</sup> Training on “Technological Advances to Minimize Pre-and Post-Harvest Losses in Agricultural and Horticultural Crops to Enhance Farmer’s Income” w.e.f. November 22 to December 12, 2017 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 118-124.
- Roopali Sharma 2017. Technological advances in delivery of microbial antagonists for bio control of plant diseases. In Proceedings of 35<sup>th</sup> Training on “Technological Advances to Minimize Pre-and Post-Harvest Losses in Agricultural and Horticultural Crops to Enhance Farmer’s Income” w.e.f. November 22 to December 12, 2017 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 178-183.
- Roopali Sharma. 2017. Mass Production of Biocontrol Agents. In Proceedings of 35<sup>th</sup> Training on “Technological Advances to Minimize Pre-and Post-Harvest Losses in Agricultural and Horticultural Crops to Enhance Farmer’s Income” w.e.f. November 22 to December 12, 2017 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 228-231.
- Singh, K. P. 2018. Aerobiology, epidemiology and management strategies in apple scab-Science and its applications. Proceeding in 70<sup>th</sup> Annual meeting & National Symposium from February 15-17, 2018 held at AAU, Jorhat, Assam p 21.
- KPS Kushwaha and Arun Kushwaha 2018. Mushroom cultivation for nature conservation and enhancing farmer’s income. In proceedings of All India Seminar Hi-tech cultivation of vegetables and flowers. pp 131-137.
- Geeta Sharma, Delna Rose and Hina Kausar 2018. Biopesticides and Plant Disease Management with Particular Reference to Sugarcane. In Proceedings of CAFT Training on “Bio-pesticides for Crop Protection and Improvement: Emerging Technology to Benefit Farmers” w.e.f. February 02-22, 2018 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, 52-66.
- Vishunavat, K. 2018. Biodeterioration of Seed in Storage and Its Control by Microbial Antagonists. In Proceedings of 36<sup>th</sup> Training on “Bio-pesticides for Crop Protection and Improvement: Emerging Technology to Benefit Farmers” w.e.f. February 02-22, 2018 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 23-32.
- Vishunavat, K. 2018. Prospective of Plant Quarantine in Plant Biosecurity and Biosafety. In Proceedings of 36<sup>th</sup> Training on “Bio-pesticides for Crop Protection and Improvement: Emerging Technology to Benefit Farmers” w.e.f. February 02-22, 2018 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp 78-84.

- Tewari Rashmi 2018. Plant Extracts/oil for the management of plant diseases. In Proceedings of 36<sup>th</sup> Training on “Bio-pesticides for Crop Protection and Improvement: Emerging Technology to Benefit Farmers” w.e.f. February 02-22, 2018 held at Centre of Advanced Faculty Training in Plant Pathology, GBPUA&T, Pantnagar, pp103-106.
- Sharma Manju. 2019. Recent Tools and Techniques for the Detection of Plant Viruses. Proceedings of the 38<sup>th</sup> Training on Modern Concepts in Plant Disease Management for Enhancing Quality and Productivity. Pp. 83-89.
- Roopali Sharma. 2019. Methods of Screening of Biocontrol Agents against Fungal Pathogens. In Proceedings of the 39<sup>th</sup> Training on “Crop Diseases and their Management through Manipulation of Soil Health”. December 03-23, 2019. 207-210pp.
- Roopali Sharma. 2019. Mass Production of Biocontrol Agents. *In* Proceedings of the 39<sup>th</sup> Training on “Crop Diseases and their Management through Manipulation of Soil Health”. December 03-23, 2019. 211-214pp.

## Financial Statement

### Expenditure under CAFT during 2017-2020

| Head                       | 2016-17             | 2017-18             | 2018-19             | 2019-20<br>(Sanction) |
|----------------------------|---------------------|---------------------|---------------------|-----------------------|
| Operating cost of Training | 7,50,000.00         | 10,36,529.00        | 12,59,341.00        | 13,13,000.00          |
| Recurring Contingency      | 3,15,140.00         | 3,91,830.00         | 3,90,835.00         | 4,00,000.00           |
| Works/NR                   | ---                 | ---                 | 3,00,000.00         | ---                   |
| T.A. & DA                  | 40,329.00           | 12,572.00           | 30,411.00           | 50,000.00             |
| Library                    | ---                 | 34,975.00           | 34,994.00           | 35,000.00             |
| <b>Total</b>               | <b>11,05,469.00</b> | <b>14,75,906.00</b> | <b>20,15,581.00</b> | <b>17,98,000.00</b>   |