ICAR-National Agricultural Higher Education Project

Project Report (up to December 31, 2023)

Component 1b: Centre for Advanced Agricultural Science and Technology (CAAST)

CSK Himachal Pradesh Agriculture University, Palampur Himachal Pradesh

Protected Agriculture and Natural Farming

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Name of the AU: CSK Himachal Pradesh Agricultural University Palampur
Project Title: Protected Agriculture and Natural Farming

Executive Summary:

University Ranking and Accreditation

- **The University received accreditation during 2024 from the ICAR with an 'A' grade, valid until 2028.**

- **The University achieved 8th place among Agricultural Universities and 12th place among Agricultural Universities and ICAR institutes together in the 2023-24 rankings**. Its ranking by ICAR has upgraded, rising from 23rd place in 2017-18 to 14th place in 2022-23 among all agricultural and allied science institutes, and reaching 10th place among all state Agricultural Universities in the country. Recently, it has secured the 8th position among Agricultural Universities and 12th position among Agricultural Universities and ICAR institutes.

Research Accomplishments

- Thirteen varieties, including nine varieties of vegetable crops and four cereal crops were notified by Central Variety Release Committee (CVRC) at national level. Six varieties notified by Protection of Plant Varieties and Farmers right (PPVFR) and 2 Garden Pea genotypes registered at National Bureau of Plant Genetic Resources (NBPGR). Four New Hybrids each of Cauliflower and Chilli, one variety each of Tomato, Cucumber, Capsicum, Cherry tomato, Lettuce, Snow Pea and Garden Pea for Protected Agriculture (PA) and Natural Farming (NF) developed are showing superior performance for yield and are presently under multi locational trials.
- Garden pea variety Him Palam Matar-1 identified under AICRP and is notified recently by CVRC (May 2023) for Zone-I of the country. Twelve private sector companies signed MoA for license of seed multiplication.

- Varieties notified during **2022** for cultivation in Himachal Pradesh during Project period
    - Garden pea var. Him Palam Matar-1 (mid-season)
    - Snow pea var. Him Palam Meethi Phali-2
    - Chilli var. Him Palam Mirch-1

- Chilli Var. Him Palam Mirch-2
- Cucumber variety Him Palam Kheera 1
- Cherry tomato variety Him Palam Cherry Yellow
- Radish variety Him Palam Mooli-1

- Four CMS (Cytoplasmic Male Sterile) lines were synthecized in mid-late/late group of cauliflower following back cross breeding namely, DPCafCMS-1, DPCaf CMS-2, DPCafCMS-3 and DPCafCMS-4 (CMS) which were involved in heterosis breeding programme. Three hybrid combinations namely, DPCafH-1 (DPCafCMS-1 × DPCaf-18), DPCafH-3 (DPCafCMS-1 × DPCafW131) and DPCafH-5 (DPCafCMS-1 × DPCaf-S121) were developed and identified as superior for marketable curd yield and other attributes under protected conditions both under conventional farming (CF) and natural farming (NF) over the years. Entries of two hybrids DPCafH-3 and DPCafH-5 are put in multilocaion testing through IET (2023-24) under AICRP on Vegetable Crops. The marketable curd yield was 50 % of the CF in NF that points out towards avoiding hybrids under NF.
- Four genetic male sterile (GMS) lines DPChMS 9-2, DPChMS 11-2, DPChMS 26-1, and DPChMS 29-2 were developed following the pedigree method by transferring male sterility gene into bacterial wilt resistant varieties, namely, 'Surajmukhi' and 'Anugraha'. These GMS lines have been involved in heterosis breeding program to synthesize desirable F1 hybrids. A total of 40 F1s were synthesized involving four GMS lines and 10 testers.
- Five promising cross combinations, DPChMS 9-2× DPCh 40 (DPCHYB 2), DPChMS 29-2 × VVG (DPCHYB 4), DPChMS 29-2 × DPCh 10 (DPCHYB 5), DPChMS 29-2× DPCh 40 (DPCHYB 6) and DPChMS 26-1×DPCh10 (DPCHYB 10) were identified and selected for further multi location trials under open and protected environment. These hybrids showed low fruit yield under NF that was 65% of the CF.
- The varieties of chilli, cauliflower and garden pea responded better under INM (FYM+ synthetic fertilizers) followed by organic farming while NF showed the lowest yields in chilli and garden pea.
- Evaluation of hybrids for stability, DPCHYB 10, DPCHYB 5, DPCHYB 12 and DPCHYB 8 were the top ranked hybrids for green, red ripe and dry fruit yield per plant. 'Which won where' polygon view of GGE biplot model showed that the top green fruit yielding genotype DPCHYB 5 was the most responsive in E1, while DPCHYB 10 was the winning genotype for rest of the environments. Similarly, for marketable red ripe and dry fruit

yield per plant, top high yielding genotype DPCHYB 10 was the most predominant in E6, E7, E5, E4, E2 and E3 and DPCHYB 8 in E1. Three primers namely, CAM 855, CAM 647 and HPMSE 004 were highly polymorphic and clearly validated the hybridity of 12 hybrids with respect to their respective male and female parents e.g., CAM 647 for DPCHYB 2, DPCHYB 7, DPCHYB 8 and DPCHYB 12, HPMSE 004 for DPCHYB 3, DPCHYB 4, DPCHYB 6 and DPCHYB 10, and CAM 855 for DPCHYB 1, DPCHYB 5, DPCHYB 9 and DPCHYB 11.

- The genetic diversity analysis using both morphological and molecular markers in chilli during 2020 revealed substantial differences between 36 genotypes and helped to identify diverse genotypes viz., DPCH-13-1', 'DPCH-501', 'DPCH-39-12', 'DPCH-33-2', 'DPCH-104-1', 'Him Palam Mirch-2', DPCH-29-12', 'DPCH-US-1', 'DPCH-32-21', 'DPCH-38-121', 'DPCH-38-122', '2019/CHIVAR-6', 'DPCH-38-22' and 'DPCH-28-13' which would be involved in chilli improvement programme to isolate transgressive segregants or their direct use as varieties.
- In another study during summer 2022, based on molecular studies, 52 chilli genotypes categorized into different groups, sub groups and sub-sub groups using NTSYS, DARwin tree, principal coordinate and structure analysis that clearly depict diversity among these genotypes. The molecular and morphological markers showed diversity among 48.1% of genotypes which can be used as potential parents in heterosis breeding and in hybridization program to isolate transgressive segregants. KTPL-19 and Kashmiri chilli performed better for fresh and red ripe fruit yield along with other desirable traits among paprika types. Among chilli genotypes, 'DPCh 501 followed by 'DPCh-9' and 'Punjab Sindhuri were the most promising for fresh green fruit yield while 'DPCh-9' for red ripe fruit yield.
- The real time automated systems, solar empanelled system of 5 kilo watt established to reduce energy cost. Small, medium and large natural ventilated polyhouses including plant growth chamber were also installed/modified as demonstration units for PG students research and demonstrations. During 2020-23, about 4 lakhs nursery seedlings of tomato, capsicum etc., were produced and sold which helps in revenue generation.
- In Protected Agriculture, integrated nutrient management technologies worked out for vegetable crops with best performance of Palam Tomato Hybrid-1, Bell pepper hybrid Mekong and Cucumber hybrid Him Palam Khira-1 under Natural Farming conditions.
- Among the filler crops under protected conditions, newly developed garden pea line DPP-SP-6 followed by Him Palam Matar-1 under NF & CF evaluated and recommended. Snow

pea variety Him Palam Meethi Phali-1 produced the maximum yield followed by Him Palam Meethi Phali-2 which was better than check Meethi Phali under both NF and CF.

- The natural farming technologies under natural resource environment revealed that drenching with Jeevamrit 10% at weekly intervals and soil application of vermicompost @ 12.5 t/ha + Jeevamrit at 7 days interval recorded highest yield (610.75 q/ha) of tomato (Palam Tomato Hybrid-1) under naturally ventilated polyhouse conditions.
- In Capsicum var Him Palam Super, highest fruit yield (358 q/ha) was recorded with Vermicompost @ 10t/ha + Biofertilizer (Azospirillum+ PSB (Phosphorus Solubilizing Bacteria)) + Jeevamrit 10% sprays at 5 days interval+ other sprays as per Subhash Palekar Natural Farming (SPNF).
- Inter cropping of okra with soybean, with SPNF recommendation + Jeevamrit sprays at 7 days interval recommended. Okra var. Palam Komal under Integrated farming treatment *i.e.* vermicompost @ 5 t/ha + 50% recommended NPK fertilizer 37.5:25:27.5 registered highest yield (104.7 q/ha).
- *Ghanjeevamrit* @ 1 tonne/ha as basal + Jeevamrit sprays (10%) at 14 days interval produced highest yield (685q/ha) of cucumber var Damini. Application of *Ghanjeevamrit* @ 1 tonne /ha + Jeevamrit (10%) sprays at 14 days interval recorded highest yield of peas var. PB-89 under naturally ventilated polyhouse conditions. Application of integrated treatment of vermicompost @ 5t/ha + 50% recommended NPK fertilizer 25:30:30 resulted in higher production of peas var HPM-1.
- The cereals and millets varieties evaluated and screened under NF indicated HPR 2720, HPR 1068 and HPR 1156 of Paddy, Sainj local and Jwalapur local of maize, VL 324, followed by VL 149 of finger millets were significantly superior for yield.
- The non-basmati pyramid line HPL19 SPS-2 yielding 42.8 qt/ha and basmati type T8SPS-5 yielding 22.56 qt/ha identified as potential lines for cultivation under NF conditions.
- Out of Eighteen genotypes of wheat, MCTLH-21, Kanku, MCTLH-22 and HPWO-4 were significantly superior to that of other genotypes under natural farming conditions.
- Among nine varieties of barley evaluated, BHS-380, HBL-316 and HBL-113 were found to be top yielders.
- In case of lentil, HPLO-2 and DKL-57 were found to be significantly superior among other genotypes under natural farming conditions.

- The bioformulations, biofertilizers and compost/liquid manures produced for on-farm use and revenue generation. In general, about 195.19kg biofertilizers, 62MT of vermicompost, 4.8 MT of *Ghanjeevamrit*, 15 MT of Jeevamrit and 2.5 MT of biopesticides were prepared during 2020-2023 that earned revenue of approx. Rs 10 lakh.
- Soil health monitoring with respect to physico-chemical & biological parameters revealed enhanced soil quality under natural farming conditions.
- Standardized the gravity fed based discharge flow rate of drip irrigation system by following organic and IPNS NPK drip fertigation schedules under protected environment. The bio fertigation schedule *viz.,* compost tea and vermiwash@ 7.5 ml /sqm at weekly interval under surface and sub surface drip irrigation system standardized for tomato, cucumber and marigold in protected environment.
- Rain-water model for open or protected conditions with gravity fed drip irrigation developed.
- Novel approaches for the management of insect, mite and nematode pests of important vegetable crops namely, tomato and parthenocarpic cucumber were evaluated. These comprised plant nutrition management with emphasis on nitrogen and potassium application (N and P 100% and K 150% of RDF), bio efficacy evaluation of biorational and natural products in pest management, incorporation of parasitoid, *Encarsia formosa* for the management of greenhouse whitefly under protected environment and standardised mass rearing of predator, *Chrysoperla zastrowi sillemi* under laboratory conditions.
- For the management of root knot nematode, soil drenching of a bioagent, *Bacillus amyloliquefaciens* and a new chemical fluopyram 400 SC (Velum Prime) were found promising in reducing nematode galls and increasing yield in cucumber.
- Thirty-five *Trichoderma* species and twelve bacterial isolates were isolated from the rhizospheres of tomato, capsicum and cole crops. *Trichoderma* isolates TI-6 and TI-9 and Bacterial isolate five were found to be the most effective against *Ralstonia solanacearum*.
- Fortification of manures with bio-agents and evaluation of different delivery systems showed promising results in managing soil-borne diseases in tomato and capsicum. Similarly, eco-friendly disease management techniques using bioagents, botanicals and organic inputs for recommendations against different diseases under protected agriculture.

- Consortium of Microbes-Bioformulation (20 isolates- phosphorus solubilizing ability, 51 isolates- siderophore producing ability and 63 isolates- ability to grow on nitrogen free medium) promoted germination (70-75%) and yields (30-45%)
- The different samples of dung (Cow, Buffalo and Churi) were evaluated and results revealed highest total viable counts (>300 crore cfu/gram) in indigenous breeds (Sahiwal, Red Sindhi, Himachali Pahari) of cattle in comparison to Jersey and crossbred (184.5 crore cfu/gram). The coliform counts were also less in indigenous breeds of cattle in comparison to Jersey and crossbred. *E. coli* was detected in indigenous animals only.
- Phytotron facility equipped with controlled temperature, photoperiod and humidity is being used for speed breeding and maintenance for sustainable utilization for the indigenous germplasm of wheat, mash, red rice, maize and potential crops like amaranth, buckwheat, Chenopodium millets and kalazeera from different parts of HP.
- The shelf life of fresh produce from natural farming extended upto 2 weeks with packaging materials (polystyrene and laminates), ethylene and oxygen absorbers sachets the shelf life further extended to three weeks. Twelve value added products standardized for commercialization and store upto six months from NF.
- A total number of ten ready to eat raw vegetables from different farms, local markets and CSKHPKV farms (cabbage, radish, carrot, coriander leaves, lobia, okra, cucumber, capsicum, chilli, chilli (grown under natural farming), maize, tomato, radish, pea pods out of which 10% showed *Balantidium coli*, 70% *coliforms* and 20% *E. coli*.
- The economics and cost of cultivation was worked out for protected crops and soybean, gram, wheat and maize under Natural Farming and Protected Agriculture

Academic Achievements

- **Foreign Visit of University Students/Scientists: 12 faculty and 43 Post Graduate** students have undertaken trainings in International Institutes for professional excellence.
- **Exposure Visit at National Level Institutes to PG Students/Faculty:** National Trainings in the Institutes of Excellence benefitted more than **90 PG students besides 6** inhouse trainings benefitted **2567 PG students and 194 faculty** members.
- **Two** (2) students (MSc Entomology and MSc Plant Pathology) bagged scholarship in Foreign Universities (Clemson University USA and Montana State University, USA)

- Fourteen (14) research publications and eight(8) review articles by faculty and PG students after intervention in >7 NAAS rated Journals emanated from CAAST work only. More than 92 research / review articles were published by the faculty associated with CAAST project.
- Seventy-Eight (78) PG students (42 MSc, 36PhD) are pursuing their thesis on thematic area out of which fifty-five theses have been submitted.
- Sixteen (16) MoU's were signed by the University with National Institutes/ Private Industries of repute for increased visibility through CAAST. About 54 MOUs signed after implementation of the CAAST Project with National and International institutes by the University 2019 to 2023
- About 155 students qualified different national level competitive examinations like JRF, SRF, NET, AIEEA examination, GATE management test and other entrance examinations conducted by different institutes/universities.
- Outlay of the externally funded new research projects is 35.94 crore
- Career Development Centre developed to provide services such as academic and carrier coaching /mentoring/counselling etc. and conducted NAARM workshop and 5 lectures to students
- Three Certificate courses were developed and vetted from experts, and conducted for PG students of Enmology, Palnt pathology, Vegetbake Science etc viz., Commercial Hybrid Seed Production of Vegetable Crops, Protected Cultivation of Vegetable Crops, Pest management under Protected Cultivation. 80 PG students got certificate course under CAAST, NAHEP banner during 2023-24
- National Talent Scholarship-UG: 2021-22 : 59 students (30 girls)
- National Talent Scholarship-PG: 2021-22 : 52

Modern Infrastructure for Research & Teaching

Under capital cost 6.50 crores state of art infastructure developed on thematic areas of project

- Phytotron Facility, Hydroponic facility, High tech Planting Material Production Unit, Plant growth Chamber, Naturally Ventillated Polyhouse, Virtual Classroom, AR/VR
- Lab/classroom renovations: 64 lakhs

- Farm machinery and laboratory equipment added :109 Nos
- Renovation and installation of natural ventilated polyhouses: 16 Nos.
- Library Books purchased: 120 No (4.65 lakhs)
- Electric driven vehicles: 04
- Installation of solar panels on rooftops of major buildings: 1000 kWp
- MS team licenced for online teaching

Background:

India's pursuit of becoming a developed nation and addressing food security challenges hinges on the transformation of its agricultural practices. The shift towards high-tech and sustainable agriculture is essential for achieving self-sufficiency, alleviating malnutrition, and eradicating hunger. The conventional use of chemical-based farming methods has been identified as a major contributor to land degradation, resource depletion, and financial burdens on agricultural communities, particularly in the plains (Jaisingh 2000; Dahiya 2001; Ray 2001). In response to these challenges, protected cultivation and organic agriculture have emerged as promising alternatives on the global stage. These practices offer economically and ecologically prudent solutions, breaking the cycle of debt and resource degradation for farmers. Consumer demand for food free from toxic residues further propels the adoption of protected organic methods, especially beneficial for small-scale farmers engaged in less capital-intensive farming (Vandana 2004).

The concept of food security, ensuring all individuals have consistent access to safe and nutritious food for a healthy life, is pivotal. Developed nations rely significantly on developing countries like India, which accounts for 30-50 percent of their organic food product requirements. Seizing this opportunity becomes crucial for India to tap into these markets. Shifting the focus to the state of Himachal Pradesh, where agriculture is the predominant occupation, the sector plays a vital role in the state's economy. With 89.96 percent of the population residing in rural areas, the dependency on agriculture and horticulture is evident. These sectors directly employ about 62 percent of the state's total workforce. Himachal Pradesh privileges diverse agro-climatic conditions, ranging from sub-tropical to temperate, making agriculture the primary source of state income. Approximately 10 percent of the Gross State Domestic Product (GSDP) is derived from agriculture

and allied sectors. However, the distribution of land holdings indicates that the majority, 87.95 percent, belong to small and marginal farmers, highlighting the need for sustainable and inclusive agricultural practices.

In the pursuit of livelihood and entrepreneurship opportunities in Himachal Pradesh, vegetable crops emerge as a promising avenue. However, the region faces challenges such as unpredictable climatic factors, particularly rainfall patterns affecting crop production. The use of synthetic chemical pesticides to control biotic constraints like insect-pests and diseases has become common among vegetable growers, leading to resistance, ecological imbalances, and environmental pollution. Given the adverse effects of synthetic pesticides on health and the environment, there is an urgent need to transition to alternative pest control methods. This shift aligns with evolving trade regulations and heightened public awareness regarding environmental quality. As Himachal Pradesh grapples with these challenges, adopting sustainable agricultural practices becomes imperative for the well-being of its farmers, the environment, and the broader goal of achieving food security.

Introduction of the project:

The ICAR, National Agricultural Higher Education Project in collaboration with World Bank initiated to improve academic excellence in Agricultural universities in various thematic areas. Since 2019, the Centre for Advanced Agricultural Science and Technology (CAAST), NAHEP, ICAR for Protected Agriculture and Natural Farming (PANF) has been granted and operational at Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya, Palampur. It comprises a multidisciplinary team of experts in various fields including organic and natural farming, vegetable science, plant breeding, soil science, entomology, plant pathology, microbiology, agricultural engineering, agricultural economics, horticulture, food technology, and veterinary public health and epidemiology to address the various research endeavours envisaged under objective

The PANF project has facilitated the development of several infrastructure facilities (More than 6.5 crores) such as high-tech planting material, production units, high-tech plant growth chambers, hydroponics, phytotron, molecular breeding laboratory, and bioagent production units. Approximately **16 polyhouses and 6 labs** have been refurbished, and the lecture theatre and conference rooms have been upgraded with the latest technologies. Moreover, over **105 farm** machinery and laboratory equipment have been acquired.

The primary objectives of the project are to improve academic and research excellence in protected agriculture and natural farming through the establishment of environmental control

protected structures as demonstration units. This includes producing quality planting material for protected agriculture, evaluating hybrids/varieties under protected and natural resource environments, developing various production and protective inputs, and assessing soil health periodically. In addition, the project aims to isolate, screen, and characterize indigenous bacterial isolates for large-scale production of bioformulations, biofertilizers, and compost/liquid manures. The project also standardizes rainwater harvesting technology for stored water without using electricity and develops integrated pest management strategies that rely on organic and bioformulations. The Phytotron is utilized for off-season hybridization of local landraces and new varieties.

The project has enhanced the competence of faculty, skills of postgraduate students, and fostered institutional reforms. The focus of the Centre is to develop the capacity for the adoption and development of Protected Agricultural and Natural Farming technologies among the students and faculties of CSKHPKV, Palampur through Skill/certificate courses, International/National training webinars, workshops, conferences, symposia, students-industry interphase, guest lectures, exposure visits, and demonstrations on different thematic areas. Furthermore, the project assures quality and safety evaluation of produce, microbial quality evaluation, development of value-added products, and economic evaluation of crops under protected farming.

The Centre aims to establish CSKHPKV, Palampur as a national level advanced training centre for “Protected Agriculture & Natural Farming.”

Title: Protected Agriculture and Natural Farming

Key objectives:

- Enhancement of academic and research excellence in protected agriculture and natural farming.
- Augmenting competence of faculty, skill of postgraduate students and fostering institutional reforms
- Value addition and marketing strategies for the products of protected agriculture and natural/ organic farming.

Intended benefits:

- Development/Creation of state of art infrastructure facilities including high tech planting material, production unit, high tech plant growth chamber, hydroponics, phytotron, molecular breeding laboratory, bioagent production unit etc.

- Development & Evaluation of New Hybrids/Varieties and productions technologies including management of pests and diseases for Protected Agriculture & Natural Farming and dissemination for quality production of vegetable crops.
- Continuous technical support to different stakeholders for sustainability of protected cultivation and natural farming
- Speed Breeding for maintaining and preserving localized races and R&D for new varieties and local land races using phytotron facility
- Research Facilities for PG student and faculty, Incubation centre on Protected Agriculture, Hydroponics and Natural Farming for startups being adopted by youths of the state
- Fostering linkages amongst institutions across the country to augment quality academic excellence
- Academic and research excellence through international exposure to Faculty & PG Students
- Capacity building of PG students and Faculty in National Institutes and through trainings and seminars
- Post harvest and economic evaluation for recommendations to farmers /other stakeholders
- PANF is serving as National Centre of Excellence and incubation centre for new Startups
- Improved Uinversity Ranking based on performance indicators
- Serving as centre for Knowledge Sharing and Capacity Building on Protected Agriculture and Natural Farming
- Development of climate resilent Agricuture practices on Protected Agriculture – a new paradigm
- Protected Agriculture increased economic benfits

1. Key activities carried out under the project during the entire period

1.1. Interventions carried out by AU which helped to improve research effectiveness

Please provide the details about the interventions carried out to make AU reform ready and led to ICAR accreditation. Please write one paragraph for each interventions and/or activities.

Key interventions	Remarks/Photographs
Webinars/Expert Talks	 Expert Lecture By Dr Chandrabali Karmarkar, PhD Fellow, Technical University Munich Germany on Application of Artificial Intelligence and Remote Sensing in Agriculture Expert Lecture By Dr P K Ghosh, Vice Chancellor and Founder Director National Institute of Biotic Stress Management, Raipur on Role of Institution for ATMANIRBHAR BHARAT through Innovation and Policy Reforms  Expert Lecture By Dr Chandrabali Karmarkar, PhD Fellow, Technical University Munich Germany on Application of Artificial Intelligence and Remote Sensing in Agriculture Expert Lecture By Dr Hans Raj Bhardwaj, Global Head Rice Breeding Innovations at IRRI, Manila Philippines on Recent Advances In Breeding Vegetable Suitable for Protected Environment **Fifty-nine webinars benefitted 6851** participants including scientists, farmers, students, researchers, extension workers Enhanced research excellence
National training to PG Students & Faculty	 A GROUP OF EIGHT PH.D.STUDENTS (RONIKA, AVNEE, AKASHDEEP, ISHA, PRATIBHA, SHUBAM, BHAWNA & SHORYA) ALONG WITH FACULTY MEMBER (DR. RISHI MAHAJAN) REPRESENTED CSKHPKV AT "NAHEP STUDENTS ENGAGEMENT CONCLAVE- 2023" HELD ON 9-10 DECEMBER AT CCS HARYANA AGRICULTURAL UNIVERSITY. Capacity building for academic Skill Development for students & faculty undertaken in reputed national institutes **Benefitted 2605 (PG Students and Faculty)** Reflected in high IF research articles by students

International training to PG Students & Faculty	 POST GRADUATE SCHOLARS OF CSK H.P. AGRICULTURE UNIVERSITY HAVE BEEN SELECTED FOR TRAININGS AT REPUTED INTERNATIONAL INSTITUTIONS IN MEXICO AND PHILLIPINES International exposure and Capacity building for advance technology, Research linkage for academic excellence (USA, Australia, England, Taiwan, Mexico, Israel, Phillipines, Turkey etc.) Fifty-five (**PG Students (43) and Faculty (12) benefitted**) Learned New Techniques
Certificate Courses	Skilled human resource for Entrepreneurship development; Three certificate courses have been developed viz., 1. **Commercial Hybrid Seed Production of Vegetable Crops,** 2. **Protected Cultivation of Vegetable Crops,** 3. **Pest management under Protected Cultivation** To give opportunity for postgraduate students of CSKHPKV to enhance their skills in the area of Protected Agriculture and Plant Protection through Natural Farming **> 80 PG students were benefitted (Annexure-XII)**
Publications	Publication of research outcome in pear review journals, the average NAAS score from 5.65 before 2020 increase to 7.27 (average NAAS score) and with **highest NAAS 12.56** after implementation of NAHEP, CAAST. Research Publications and Books compiled and uploaded in Knowledge Management Portal developed by ICAR-NAHEP

Brain Storming Sessions/ Visit of Foreign delegations to university	**International** • Dr Taisuke Kanao, Yamagata University, Japan visited university w.e.f 22 Oct to 6 Nov, 2022 to work on *termitophiles* • Dr Jan Sobotnik, Czec University of Life Sciences, Prague, Czech Republic visited university from 16.09.2021 to 25.09.2021 to develop collaboration on termite research. • High level delegation of University of Melbourne (Prof Frank R Dunshea and Dr SS Chauhan from School of Agriculture) held discussion for broad programmes like collaborative research projects, faculty interchange programme, student exchange and sandwich programmes. **National** • Brain Storming Session on 11.02.2021 to finalize certificate courses on 11.02.2021 (15 experts including Dr. Pritam Kalia from IARI, IVRI, CSKHPKV and private Sector involved and provided commendable suggestions to improve these courses) • Dr T.R. Sharma, Deputy Director General (Crop Science), Dr H.K. Chaudhary, Vice Chancellor, CSKHPKV, Directors of three ICAR institutes namely, Dr S.N. Sushil, Director, National Bureau of Agricultural Insect Resources (NBAIR), Bengaluru (Karnataka), Dr A.D. Pathak, Director, Indian Institute of Sugarcane Research (IISR), Lucknow (UP) and Sanjay Kumar, Indian Institute of Seed Science (IISS), Mau(UP) and statutory Officers and faculty members of CSKHPKV, Participated in a session wherein CSKHPKV signed three MoUs for future collaboration with ICAR.
Development of varieties and hybrids of vegetable crops	**13 (9 Vegetables + 4 Cereals)** **Two- Varieties of Garden Peas registered with PPVFRA** • Seven- Varieties namely, Garden pea var. Him Palam Matar-1 (mid-season), Snow pea var. Him Palam Meethi Phali-2, Chilli var. Him Palam Mirch-1, Chilli Var. Him Palam Mirch-2, Cucumber variety Him Palam Kheera 1, Cherry tomato variety Him Palam Cherry Yellow and Radish variety Him Palam Mooli-1 are recommended by CVRC for cultivation in HP.

	• Two garden pea genotypes were registered with NBPGR for unique traits i.e. fasciation ad powdery mildew resistance. • Four CMS based hybrids of cauliflower, Four GMS based hybrids of chilli, One variety each of tomato, cherry tomato, parthenocarpic cucumber, bell pepper, lettuce and snow pea, Two genotypes of garden pea, cauliflower and chilli are identified as promising ones and are in pipe line for release/recommendation
National Training "Present Status and Future Prospects of Natural Farming"	  प्राकृतिक खेती की बारीकियों को लगन से सीखें वैज्ञानिक : डा. तेज प्रताप कृषि विश्वविद्यालय पालमपुर में प्राकृतिक खेती पर राष्ट्रीय प्रशिक्षण Fourteen days National Training on Natural Farming conducted at Chaudhary Sarwan Kumar Himachal Pradesh Agriculture University 'National training on the present status and future prospects of natural farming' Chief Guest, Dr. P. K. Sharma, former Vice Chancellor distributed participation certificates to 30 scientists from various institutes from all over the country and scientists associated with organizing the **Benefited 30 Faculty members**
National Conference "Natural and Organic Farming on Ecological, Economical & Nutritional Security" 7-9 June, 2023	 National Conference on Natural and Organic Farming on Ecological, Economical and Nutritional Security, 7-9 June, 2023 **Benefitted > 200 Faculty and Students**

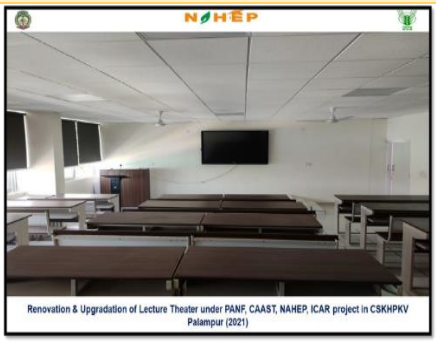
1.2. How the facilitative units helped to enhance learning outcomes

Please provide the details of the facilitative units which helped in enhancing learning outcomes of the students and/or faculties. Please note that we may not need to mention all facilitative units created in the AU here, but focus on those which are open for the students/faculties and other stakeholders.

Facilitative unit	Activity/achievement	Remarks/Photographs
High tech Planting Material Production Unit (polyhouse of 250m² area with polycarbonate sheet, water boomer irrigation system, cooling and heating system, tray benching system, microprocessor-based control panel with electrical back up system and solar panel) automatic nursery seeding machine	Unit is functional. State of art facility is being used for nursery production of different vegetable crops that resulted in revenue generation.	 State of Art facility developed in the Department of Vegetable Science & Floriculture under Protect Agriculture and Natural Farming, NAHEP-CAAST for raising nursery of different crops  Hi-tech Planting Material Unit with Solar System established under PANF, CAAST, NAHEP, ICAR project in CSKHPKV Palampur (2021)
High tech Polyhouse for soilless cultivation of vegetable crops (Hydroponics)	Unit is functional. State of art facility is used for developing the technologies for Hydroponic Production System for the crops *viz.,* Lettuce, Capsicum and Cherry tomato. Awareness among School students (>3000), College Students, Farmers (150) and Agriculture Officials (21), PG students are undertaking their field experiments of Vegetable Lettuce and tomato Skill-upgradation trainings to farmers and students	 Hi-Tech Polyhouse developed under NAHEP-CAAST  High tech Polyhouse for soilless cultivation (Hydroponics) Unit established under PANF, CAAST, NAHEP, ICAR project in CSKHPKV Palampur (2021)

Phytotron facility and Students Research Park comprising five walks in plant growth chambers and culture room	Unit is functional. It is used for Off-season hybridization, Wide Hybridization, Generation advancement in wheat, rice and oat, Micro-propagation of *kala zeera (black cumin)* using tissue culture approach, Gene pyramiding for yellow rust in wheat, QTL identification for drought tolerance in wheat and quality traits in Oat. 10 PG students undertaking their thesis work in the state of art facility Eight Faculty and Thirty PG students imparted 2-days training on Uses of Phytotron	 Ten- PG students working for PG research  Training on Phytotron
Installation of soil nutrient-based fertigation system and pressure bomb	Unit is functional. Being used for determining the leaf water potential for in DSR for silicon effect on water stress – One Ph.D & two (2) MSc students are working on automated fertigation unit for standardization of fertigation schedules in vegetable crops	

Renovation and installation of natural ventilated polyhouses	Evaluation of high-yielding, multiple disease resistant varieties/hybrids of Tomato, Cucumber, Chilli, cauliflower, lettuce, pea etc. under protected environment both natural and conventional farming. Breeder Seed Production of different vegetable crops viz., Cherry Tomato, Cucumber, Capsicum, pea, chilli and cauliflower. 6 PG students are undertaking their field experiment on Tomato, Cucumber and chilli	 Natural Ventilated Polyhouse
Molecular Breeding Lab	Unit is functional. Eight PG students working on molecular breeding in crops like chilli, cauliflower, tomato, pea and cucumber	 Molecular Lab established under PANF, CAAST, NAHEP, ICAR project in CSKHPKV Palampur (2021)
Bio-agent Production Unit	Unit is functional. Production of host insect culture; whitefly and aphid Mass production of biocontrol agents namely; *Encarsia formosa* and *Chrysoperla zastrowi sillemi* 12 PG students using the facility for research accomplishments.	 Bioagent Production Unit established under PANF, CAAST, NAHEP, ICAR project in CSKHPKV Palampur (2021)

Plant growth chamber	Unit is functional. Nursery raising of season vegetable (3 crops) and seed production (Lettuce, tomato and capsicum). Screening pea genotypes for powdery mildew disease resistance and advancement of segregating generations.	
Conference Room	Unit is functional in the Department of Vegetable Science and Floriculture	
Renovation and Upgradation of Lecture theatre	Unit is functional in the Department of Vegetable Science and Floriculture Smart Classroom with all facilities	
Renovation of PG Labs	Unit is functional. Created basic infrastructure Six PG labs renovated in the different departments (Vegetable Science, Natural farming, Entomology, Microbiology, Vety. Public Health)	
Power Tiller	Unit is functional in Organic Agriculture and Natural Farming	

Farm machinery and laboratory equipment (109 nos)	All functional Real time PCR, Digital colony counter, Texture analyzer, Food Packaging Machine, Stereo zoom Microscope, Potter Spray Tower, Autoclave, deep freezer, Gel Electrophoresis etc **(Annexure-I)**	

1.3. Out-of-box initiatives undertaken by the AU

Please provide the details on out-of-box initiatives undertaken by the AU in one-two paragraph.

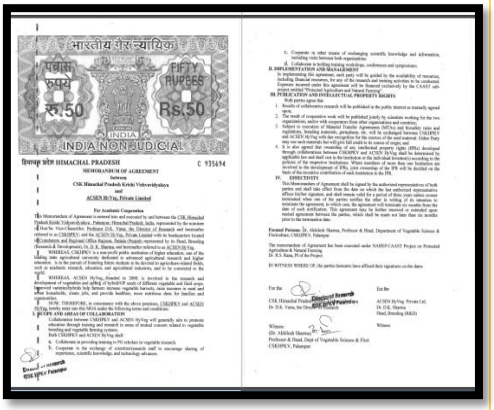
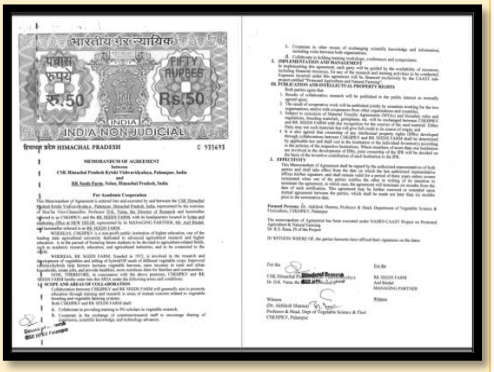
Out-of-box initiative	Activity/achievement	Remarks/Photographs
Startups	Three No. Start-ups under HIM Rabi on • Vertical farming under protected structure (You tube- 523 K hits) • Protected Farming • Hydroponics	

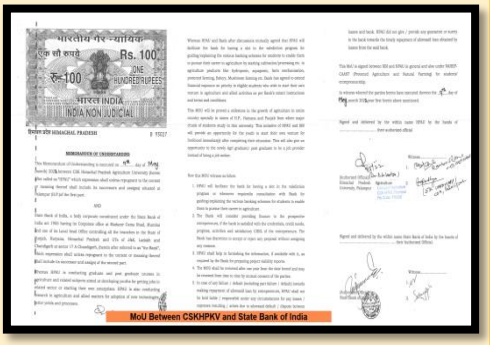
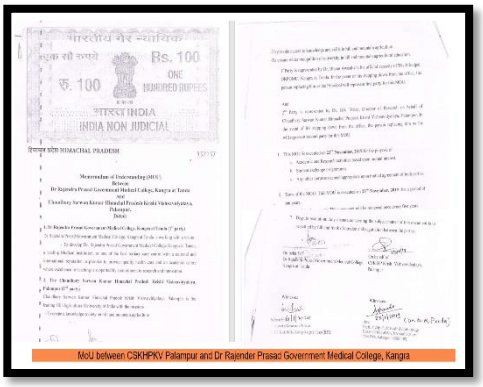
Nutrition Garden	Under Environment Sustainability Plan, the Nutritional Garden (3250sq m) was established. 356 Fruit trees, medicinal & aromatic plants (31) planted with participation of Post Graduate students as Graduation ceremony	 Hon'ble Chief Minister Shri Jai Ram Thakur inaugurated the 'Golden Jubilee Nutrition Garden' at CSK Himachal Pradesh Agriculture University under Rs.19 crore environment sustainability plan concept of CAAST-NAHEP project entitled 'Protected Agriculture and Natural Farming' to motivate the people to adopt gardening in a systematic manner in a small piece of land
Microbiological waste management	**Pine needle waste management:** Microbial interventions have been employed to alter the complex lignocellulosic complexities in the pine needles. Significant changes in functional group of lignin-cellulose complex moieties have been observed based upon FT-IR spectroscopy and SEM analysis	

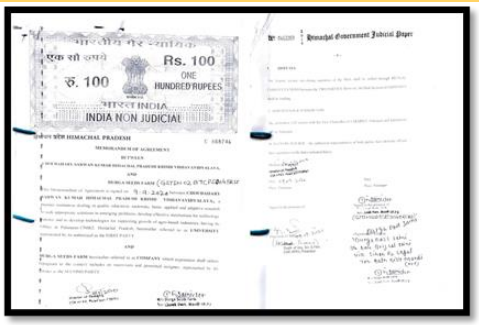
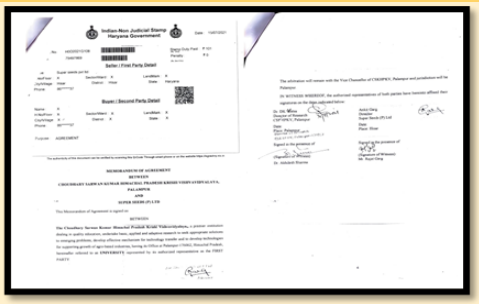
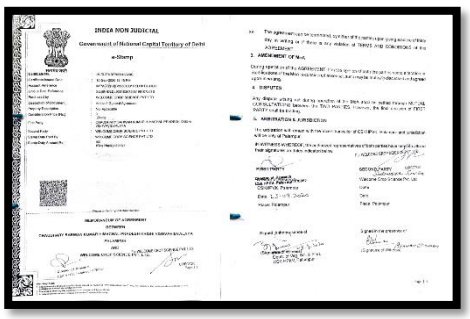
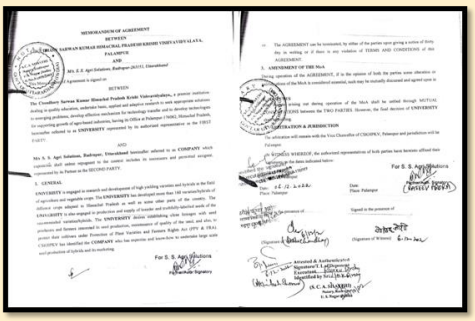
Quiz Competitions	Department of Entomology of CSKHPKV, Palampur organized Online quiz competition on 3 and 17 July, 2021 and off lime, 27 August, 2022 **54 students from three SAUs participated**	
Taping youth from School under Samgr Shiksha Abhiyan	>3000 school students visited High Tech Polyhouse and Hydroponics facility (7.9.022- GSSS Banuri 11.11.22- GSSS Averi 19.11.22- GSSS Kandwari 22.22.22- GSSS Rajpur 28.11.22 GSSS Ghaar 3.1.23- GSSS Sarkari Sidhpur 4.1.23- GSSS Salina)	

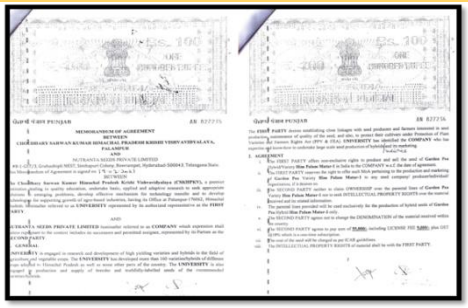
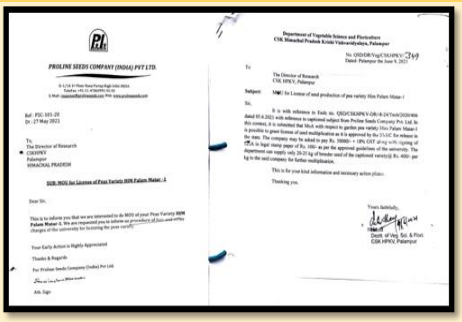
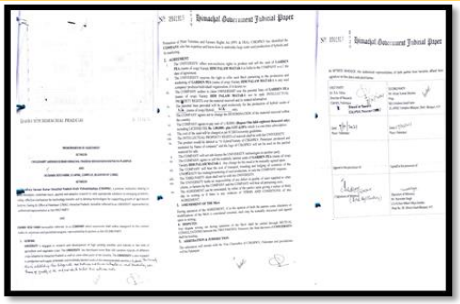
1.4. Collaborations with industry and other HEIs for bringing relevancy

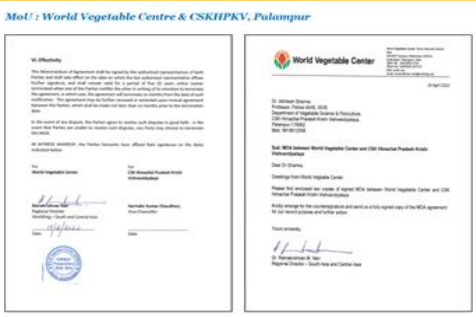
1.5. Please provide the details on relevant collaboration with industry for bringing relevancy and improving research effectiveness in the AU in one-two paragraph.

Collaborations	***Activity/achievement/ purpose***	***Remarks/Photographs***
NATIONAL		
ACSEN Hy. Veg Pvt Ltd, Rajpura, Punjab	Academic Cooperation for student exposure; To promote education through training and research to PG students; Knowledge sharing, collaboration in holding symposium, training and conferences in the thematic areas etc.	
R.K Seeds Farm, Solan	Academic Cooperation Training to PG students, Knowledge sharing, collaborate in holding symposium, training and conferences in the thematic areas etc.	
Agricare Organic Farms, Ludhiana, Punjab	Academic and Research Co-operation in the area of Insect Resources in Agricultural and allied sciences	 एग्रीकेयर ऑर्गेनिक फार्म लुधियाना और हिमाचल प्रदेश कृषि विवि मिलकर करेंगे काम

SBI, Chief General Manager, Chandigarh	Loans for Agri-Startups, Skill Enhancement; Entrepreneurship for B Sc & PG students	 MoU Between CSKHPKV and State Bank of India
ICAR-National Bureau of Agricultural Insect Resources (NBAIR), Bengaluru	Promote Academic and Research Co-operation in the area of Insect Resources in Agricultural and allied sciences M.Sc. student Mr Salunkhe Manoj Bhaurao undertaking research activity at NBAIR.	
National Fertilizer Limited	Skill Enhancement; Industrial training of BSc & PG Entrepreneurship Development	
Department of Community Medicine Dr. Rajendra Parsad Govt. Medical College, Kangra, Himachal Pradesh	Research and exchange of students; Academic Cooperation Skill Development	 MoU between CSKHPKV Palanpur and Dr Rajender Prasad Government Medical College, Kangra

Himalayan Cyber Security System Village Ladana, PO Barwara Dehra Distt Kangra HP	E-waste Management	
Durga Seed farm	Technology Transfer Multiplication /Sale of Seed Him Palam Matar-1 Palam Mridula	
Super Seeds (P) Ltd. Hissar (Haryana)	Technology Transfer Multiplication /Sale of Seed Him Palam Matar-1	
Welcome Crop Science Pvt. Ltd.	Technology Transfer Multiplication /Sale of Seed Him Palam Matar-1	
S. S. Agri Solutions, Rudrapur, Uttarakhand	Technology Transfer Multiplication /Sale of Seed Him Palam Matar-1	

Nutranta Seeds Pvt. Ltd	Technology Transfer Multiplication /Sale of Seed Him Palam Matar-1	
Proline Seed Company India Pvt Ltd	Technology Transfer Multiplication /Sale of Seed Him Palam Matar-1	
Krishma Seed Farms Bilaspur	Technology Transfer Multiplication /Sale of Seed Him Palam Matar-1	
National Institute of Technical Teachers Training & Research, Chandigarh	Video Film Production	
INTERNATIONAL		
The University of Melbourne, Australia	Letter of Intent (LOI) Academic Cooperation Training to PG students One PG student collaborated for Inter-national training & research	

World Vegetable Center, Shanhua, Taiwan	Letter of Intent (LOI) Academic Cooperation Training to PG students Seven (7) PG students collaborated for international training	
University of Wisconsin USA	Letter of Intent (LOI) Knowledge sharing, and exchange of information. Academic Cooperation for training only One faculty collaborated for 3 months by undertaking international training	
Volcani Centre Israel	Letter of Intent (LOI) Knowledge sharing, and exchange of information. Academic Cooperation for training only One faculty collaborated for 3 months international training	
Michigan State University	Academic Cooperation Knowledge sharing, and exchange of information Letter of Intent (LOI)	
University of Tuebingen, Geschwister-School-Platz 72074 Tubingen, Germany	Academic Cooperation Knowledge sharing, and exchange of information Letter of Intent (LOI) Two Faculty members collaborated for Artificial Intelligence and Machine Learning academics	

2. Achievements made through CAAST under NAHEP

2.1. Output-outcome monitoring

S. N.	Particulars	Oct'2019 to Dec'2023	
		Target	Achievement
1.	% increase in number of technologies commercialized	5 (nos)	240 % (9 varieties/hybrids and 3 technologies)
2.	% increase in faculty research effectiveness	5	20.5 (H index 2019-39 to 2022-47)
3.	Number of direct beneficiaries of the project	-	8804
4.	Number of female beneficiaries	-	3778
5.	% increase in JRF / SRF / ARS	5	12 (Compared to 2019) 43 (JRF/SRF/PG scholarships, ICAR), 4 (SRF/UGC), 1 (SRF/CSIR), 3 (ARS), 76 (NET), 2 (Civil Services), 4 (CDS/OTA) and 4 (Others).
6.	% increase in number of students who were admitted in foreign universities	10	(2 Nos)
7.	% increase in PG student placements	10	12 (76 Nos)
8.	Number of industry- sponsored projects and positions in cutting-edge areas of agri-science	10	46 (Rs.35.94 crore)
9.	Number of faculty training programmes (national) undertaken by AU	15	8
10.	Number of faculty training programmes (international) undertaken by AU	15	12
11.	Number of student training/seminars programmes (national) undertaken by AU	10	10 (outside) +6(Inhouse) (Beneficiaries: 90+2567=2657)
12.	Number of student training programmes (international) undertaken by AU	20	43

Observation

- The faculty of the University is striving hard to bring academic excellence in innovative ways. Both the Undergraduate and Postgraduate students are provided well equipped smart class room and teaching facility. PG students & faculty are using the facilitative Units established under NAHEP-CAAST to achieve research accomplishments.

- During the 2020-23, success of students of constituent colleges of the University, who qualified the National level competitive examinations has been appreciably enhanced and resulting in 43 (JRF/SRF/PG scholarships, ICAR), 4 (SRF/UGC), 1 (SRF/CSIR), 3 (ARS), 76 (NET), 2 (Civil Services), 4 (CDS/OTA) and 4 (Others).
- During the 2020-23, 7 Post-graduate students got JRF/SRF (Ph.D.) scholarship and four students were awarded ICAR-SRF under Exchange Programme. Twenty-seven students received national level fellowships namely, INSPIRE, DBT and other fellowships.
- Eighty-seven students qualified ASRB NET examination during the period 2023-24.
- Under CAAST- NAHEP, the faculties/students have been encouraged and sent/being sent for higher training in advance countries/ National lab.
- The State of Art facilities like high-tech laboratory and modern farm equipment's on the thematic area resulted, high rating NAAS publications increased and the highest rating of publication is 20.0 (IF).
- Establishment of Nutrition Garden (16th August, 2021) for teaching and demonstration purposes.
- Academic Management System (AMS) facility has been implemented for higher efficiency and quick access. As a step towards Resilient Agricultural Education System, digital contents of about 10% at Under Graduate level have been developed.
- Recently, ICAR has sanctioned a Volunteer Centre under All India Network Project on Agricultural Acarology to the university. The Centre will mainly be focusing on management of mite pests under protected agriculture.
- Within Project more than 20 Research and Review Papers published in more than 7 NAAS rating. Highest by Student 12.56 NAAS

2.2. Knowledge Management Collaterals

I. Knowledge Collaterals	Apr'2020 to Dec'2023	CAAST
1. Publications	226 (Associated faculty and PG students)	20
2. Research Articles	98	20
3. Annual Reports	3	3
4. Books/Manuals	15	15
5. Success Stories	148 International Trainings -55 National Institutes-90 Starups-3	148
6. Newsletter	-	-
7. Magazines	14	14
8. Blogs	-	5
Annexure-II & III		

II. Mobile and Web Applications	Apr'2020 to Mar'2023
1. Mobile Applications Developed	Nil
2. Web Applications Developed	2

III. Number of IPR (Intellectual Property Rights) Registered/Obtained	Apr'2020 to Mar'2023
1. Copyrights	6 (Books and Manuals)
2. Patents	Nil
3. Others	2 Garden Pea varieties Palam Triloki and Palam Sumool in 2021 (Registered with PPVFRA)
Annexure-IV	

IV. Dissemination and Outreach	Apr'2020 to Mar'2023
1. No. of Posts on social media	34 https://nahep.icar.gov.in/KMS/OUTForm1.aspx
2. No. of Posts on Newspaper	25 https://nahep.icar.gov.in/KMS/OUTForm1.aspx

3. No. of Posts on Magazines	-
4. No. of Unique Promotional or Outreach Collaterals	12 (Working manual of equipment's and PPTs) https://nahep.icar.gov.in/KMS/OUTForm2.aspx
Annexure-V &VI	

Capacity building programs to improve the research effectiveness

1. International trainings for students and faculties

Subject areas	***Host institutes, period of training***	***Output of the training***
Students		
Ms. Payal Sharma, Ph.D. Vegetable Science Mapping heat stress tolerance in a tomato MAGIC population	*Host Institute World Vegetable Centre, Taiwan* *Period: One month (1 to 31 Oct, 2022)*	*Learnt about General Linear Model (GLM), Mixed Linear Model (MLM), Population structure and linkage disequilibrium*
Ms. Alisha Thakur, Ph.D. Vegetable Science Mapping Mungbean Yellow Mosaic: virus resistance in Mungbea	*Host Institute World Vegetable Centre, Taiwan* *Period: One month (1 to 31 Oct, 2022)*	*Learnt modernistic techniques like 'PHENOSPEX' used for plant screening and high throughput field phenotyping under all weather conditions.*
Ms. Srishti, Ph.D. Vegetable Science Mapping heat stress tolerance in a tomato MAGIC population	*Host Institute World Vegetable Centre, Taiwan* *Period: One month (1 to 31 Oct, 2022)*	*Learnt about the advanced genotyping and image-based phenotyping technologies.* *Selected for PM scholar ship*
Himanshu Thakur Ph.D., Entomology *Molecular characterization of termites and their gut organisms through shot gun sequencing.*	*Host Institute: Okinawa Institute of Science and Technology, Okinawa, Japan* *Period: One month (01 December to 31 December, 2022)*	*1 Publication in Biological Journal of Linnean Society (IF: 2.27).* *Facilitated in PhD research*
Ekta Kaushik Ph.D., Entomology *Host plant resistance techniques for the management of whitefly, Bemisia tabaci and tomato pinworm, Phthorimaea absoluta*	*Host Institute: World Vegetable Center, Tainan, Taiwan* *Period: Three months ((13 December, 2022 to 12 March,2023)*	*Screening for resistance to whitefly, Bemisia tabaci , pinworm,(Phthorimaea) in different tomato lines; Evaluation of host plant resistance on the basis of types of trichomes.* *Got Job Opportunity in Quarantine Deptt.*

Ms Khushwinder Kaur, Ph.D., Plant Pathology *Isolation and characterization of Pseudocercospora griseola populations*	*Host Institute: Directorate of Plant Protection Central Research Institute Turkey* *Period: One month (1 to 31 Dec, 2022)*	*Learned three new isolation techniques for Pseudocercospora griseola, molecular characterization techniques and four new storage methods for Pseudocercospora griseola.* *Trained in biometric software*
Mr Akash Deep, Ph.D. Agronomy *Modelling of rice cropping system*	*Host Institute: University of Southern Queensland (Australia)* *Period: One month (28 Jan to 1March, 2023)*	*A data generated using APSIM modelling software included in thesis for excellence.*
Mr Shubham Verma, Ph.D. Genetics and Plant Breeding *Modern phenomics approaches to study different morph-physiological traits conferring drought tolerance*	*Host Institute: University of Melbourne (Australia)* *Period: One month (14 Feb to 31 March,2023)*	*Hands-on training on modern equipment's like IRGA, MINI-PAM, SPAD and Thermal camera.*
Ms. Minam Gamoh, Ph.D Department of Agriculture Economics, Training in Data analysis techniques for impact assessment at regional	*Host Institute World Vegetable Centre at Bangkhen campus Bangkok, Thailand* *Period: One month (16 June to 16 July, 2023)*	*Training in Data analysis techniques for impact assessment*
Ms. Ronika Ph.D., Department of Genetics & Plant Breeding	*Host Institute Laboratory of Plant Genetics and Genomics, Kazusa DNA Research Institute, Japan* *Period: One month (20th June to 20th July, 2023)*	*Training in Molecular genetic analysis of crop species*
Ms. Priyanka Ph.D. Dept. of Genetics & Plant Breeding	*Host Institute South Dakota state university, Brookings, USA* *Period: Two month (28 June to 25 August, 2023)*	*Advanced breeding and genomic techniques for characterizing and enhancing disease resistance*
Ms. Supriya Kaldate Ph.D. Dept. of Genetics & Plant Breeding	*Host Institute South Dakota state university, Brookings, USA* *Period: Two month (28 June to 25 August, 2023)*	*Advanced breeding and genomic techniques for characterizing and enhancing disease resistance*
Mr. Vivek Ph.D., *Dept of Genetics & Plant Breeding*	*Host Institute CIMMYT international Maize and Wheat Improvement Centre, El Batan, Mexico* *Period: 45 days (10 July to 25th August, 2023)*	*Genetics and Breeding for disease Resistance*
Mr. Tarun Sharma Ph.D. Deptt of Agronomy	*Host Institute: The University of Sydney, Australia*	*Big Data modelling for yield forecasting*

	Period: Two months (16th July to 15th September, 2023)	
Ms. Gaytri Hetta Ph.D. Deptt. Of Agronomy	*Host Institute IRRI Philippines Period: Two months (16th July to 15th September, 2023)*	*Estimation of Carbon footprints, GHG emissions & amp; Mitigation"*
Ms. Bhawna Babal Ph.D. Deptt. Soil Science	*Host Institute IRRI Philippines Period: Two months (16th July to 15th September, 2023)*	*Estimation of Carbon footprints, GHG emissions & amp; Mitigation"*
Ms. Avnee Ph.D. Dept of Agronomy	*Host Institute IRRI Philippines Period Two months (16th July to 15th September, 2023)*	*Crop growth simulation Modelling using DSSAT*
Ms. Aanchal Ph.D Dept of Soil Science	*Host Institute IRRI Philippines Period: Two months (16th July to 15th September, 2023)*	*Nutrient management vis-à-vis climate change"*
Ms. Pratibha Thakur Ph.D. Dept of Soil Science	*Host Institute IRRI Philippines Period: Two months (16th July to 15th September, 2023)*	*Crop growth simulation Modelling using DSSAT*
Mr. Gaurav Sharma Ph.D. Plant Breeding and Genetics	*Host Institute IRRI Philippines Period: Two months (16th July to 15th September, 2023)*	*Harnessing plant growth facility for climate SMART plant breeding"*
Ms. Sonali Parwan, Ph.D, Department of Plant Pathology	*Host Institute CIMMYT International Maize and Wheat Improvement Centre, El Batan, Mexico Period: 45 days (6th September to 23rd Oct, 2023*	*Genetics and Breeding for Disease Resistance*
Ms. Isha Thakur, Ph.D., Department of Soil Science	*Host Institute Hawkesbury Institute for the Environment, Western Sydney University (Hawkesbury Campus) Australia Period: Two months (26 August to 26 Oct 2023)*	*Soil Science studies in Relation to Climate Change*
Ms. Arshia Prashar, Ph.D., Department of Vegetable Science & Floriculture	*Host Institute National Cheng-Kung University Tainan, Taiwan Period: One month (1 to 31 Oct, 2023)*	*Vegetable Breeding and Genetics*
Mr. Vivek Singh, Ph.D, Department of Vegetable Science & Floriculture	*Host Institute World Vegetable Centre, Taiwan Period: One month (10th September to 11th Oct 2023)*	*Genome -wide association studies to unravel the population structure and genetic basis of yield attributes in Chilli*
Mr. Kulveer Singh Dhillon PhD. Department of Genetics and Plant Breeding	*Host Institute Laboratory of Plant Genomics and diseases resistance, University of Haifa, Israel Period: One month (1 to 31 Oct, 2023)*	*Characterization and mapping of Wheat Landraces against prevalent diseases with a focus on powdery mildew and rusts*

Ms. Jyoti Kumari Ph.D., Department of Genetics and Plant Breeding	*Host Institute Kazusa DNA Research Institute, Japan Period: One month (1 to 30 Sept, 2023)*	*Plant Genome sequencing and molecular genetics using NGS technologies*
Ms. Akriti Sharma Ph.D Department of Genetics and Plant Breeding	*Host Institute Kazusa DNA Research Institute, Japan Period: One month (1 to 30 Sept, 2023)*	*Plant genome sequencing and molecular genetics using NGS technologies*
Mr. Shorya Kapoor, Ph.D., Department of Vegetable Science & Floriculture	*Host Institute World Vegetable Centre, Taiwan Period: One month (10th September to 11th Oct 2023)*	*Cost -efficient genotyping of vegetable crops*
Ms. Chetna Mahajan, Ph.D., Department of Plant Pathology	*Host Institute CIMMYT, HQ, EI, Batan, Mexico Period: One month (25th September to 26th Oct, 2023)*	*Genetics and Breeding for disease resistance*
Ms. Anshumali PhD., Department of Agronomy,	*Host Institute CIMMYT Mexico Period: 20 days (10 to 29 Dec, 2023)*	*Estimation of GHG footprint of major food systems in India*
Mr Karthik R, Ph.D ,Department of Entomology	*Host Institute Xalapa, Veracruz, Mexico Period: One month (26 Nov-26 Dec, 2023)*	*Taxonomy and diversity of Phytophagous beetles of Rutelinae (Anomalini)*
Ms Deeksha Thakur PhD., Department of Agronomy,	*Host Institute CIMMYT Mexico Period: 20 days (10 to 29 Dec, 2023)*	*Identify the NUE hotspots and site- specific nutrient management for addressing food, fertilizer and climate crises"*
Ms. Mridula Ph D., Department of Agronomy,	*Host Institute IRRI Philippines Period: One month 28th Nov to 27th Dec,2023)*	*Climate Change Mitigation and crop simulation Modelling*
Ms Mandakranta Chakraborty PhD., Department of Agronomy,	*Host Institute CIMMYT Mexico Period: 20 days (10 to 29 Dec, 2023)*	*Analysing low – emission food systems to address climate change*
Ms Pooja Kumari, PhD., Department of Soil Science	*Host Institute CIMMYT Mexico Period: 20 days (10 to 29 Dec, 2023)*	*Estimation of Nutrient loading footprints for Indian food production system*
Ms. Shivani Bhatia Ph.D., Department of Genetics & Plant Breeding,	*Host Institute IRRI Philippines Period: One month 28th Nov to 27th Dec,2023)*	*Molecular Breeding and Genome Editing*
Mr Manoj Kumar Saini Ph.D, Department of Genetics & Plant Breeding	*Host Institute IRRI Philippines Period: One month 28th Nov to 27th Dec,2023)*	*Molecular Breeding and Genome Editing*
Ms Garima Chauhan PhD., Department of Agronomy,	*Host Institute CIMMYT Mexico Period: 20 days (10 to 29 Dec, 2023)*	*Comprehensive assessment of water footprint of different cropping systems in India*
Ms. Shabnam Kumari Ph D Department of Agronomy,	*Host Institute IRRI Philippines Period: One month (28th Nov to 27th Dec,2023)*	*Climate Change Mitigation and crop simulation Modelling*

Mr. Sachin, PhD., Department of Agronomy	*Host Institute IRRI Philippines Period: One month (28th Nov to 27th Dec,2023))*	*Crop simulation modelling & nutrient management*
Mr. Prikshit, Ph.D., Department of Genetics & Plant Breeding,	*Host Institute IRRI Philippines Period: One month (28th Nov to 27th Dec,2023)*	*Molecular breeding for product development in Rice*
Mr. Bharat Bhushan Rana, PhD Department of Agronomy,	*Host Institute IRRI Philippines Period: One month (28th Nov to 27th Dec,2023)*	*Crop simulation modelling (ORYZA)*
Mr. Ankit Kumar PhD., Department of Vegetable Science,	*Host Institute: IRRI Philippines Period: One month (28th Nov to 27th Dec,2023)*	*Seed production technology*
Faculty		
Dr. H.K. Chaudhary	*Host Institute: University of Leicester, UK Period: 10 days (7Juy to 27 July, 2022)*	*Explored possibility of collaboration and identify different laboratories*
Dr. S.P. Dixit, Director of Research	*Host Institute: University of Melbourne, Australia Period: 7 days (21 to 27 Nov, 2022)*	*Collaboration in Agricultural Sciences especially on Carbon sequestrations and Nano technological applications in Agricultural Sector for Student exchange*
Dr. Mandeep Sharma, Dean COVAS	*Host Institute: University of Melbourne Australia Period: 7 days (21 to 27 Nov, 2022)*	*Collaboration in Veterinary Sciences specially to facilitate blended education delivery and digital content creation in the context of veterinary education for Student exchange*
Dr. Akhilesh Sharma, Professor (Department of Vegetable Science)	*Host Institute: University of Wisconsin, Madison, USA Period: 3 months (12 Aug to 15 Nov, 2023)*	*10 Publication in Plos One (>8 NAAS rating) Genotyping using next generation sequencing and fine mapping of multiple plant and fruit traits*
Dr. Parveen Sharma, Professor (Department of Vegetable Science)	*Host Institute: The Volcani Centre, ARO, Rishon LeZion, Israel Period: 3 months (01Dec, 2022 to 28 Feb 2023*	*Learned modern technologies of protected cultivation and post-harvest in vegetable crops. The training will be beneficial to boost ongoing research of post graduate students for quality publications.*

		Bagged 1 Project from JICA & 2 Research >7 IF
Dr Rishi Mahajan, Assistant Prof. (Department of Microbiology, CSKHPKV Palampur	*Host Institute: UMR CNRS 5557 Ecologie Micro Bienne Universite de Lyon, France Period: 2 months (21st July 2023-21st Sep 2023)*	*Experimental evolution coupled with comparative genomics with special focus on Plant Microbiomes*
Dr Ajay Sood, Prof. Department of Entomology, CSKHPKV Palampur	*Host Institute: University of Minnesota, United States Period: 45 days (16th August to 30th September 2023)*	*Biocontrol and Conservation of beneficial insects in greenhouses Guided Students & Published High IF3.0*
Dr Vedna Kumari, Principal Scientist, Department of Genetics and Plant Breeding	*Host Institute: Iowa State University of Science and Technology, USA Period: 45 days (15th August 2023-29th Sept, 2023)*	*Genome Editing and Molecular Mapping Incorporated in Student Research work*
Dr NK Sankhayan, Professor & Head, Department of Soil Science	*Host Institute: IRRI, Philippines Period: 2 months (24 July 2023 to 22 Sep 2023)*	*Modelling impact of climate change w.r.t nitrogen simulations in DSSAT*
Dr Gopal Katna, Department of Organic and Natural Farming	*Host Institute: CIMMYT, EI Batan, Mexico Period: 1 month (23 Sep 2023 to 23 Oct 2023)*	*Genetics and breeding for Disease Resistance*
Dr RS Rana Sr Scientist, CGRT, CSKHPKV	*Host Institute: University of Tuebingen, Geschwister-School-Platz 72074 Tubingen, German Period: 1 month (27th Sep to 27th October 2023)*	*High IF 12.00 Collaborated as coordinator in Artificial Intelligence in Agriculture Partner with IIT Mandi*
Dr Pardeep Kumar, Professor Department of Soil Science	*Host Institute: University of Tuebingen, Geschwister-School-Platz 72074 Tubingen, German Period: 1 month (27th Sep to 27th October 2023)*	*High IF publication in Soil science*
List of beneficiaries along with training details in Annexure-VII		

2. National trainings for students and faculties

Subject areas	***Period of training, total beneficiaries***	***Output of the training***
Students		
Application of Geospatial technology, tools, fertility mapping and advance instrument handling (IISS, Bhopal)	*Period of training:5th to 11th Dec, 2023 Beneficiaries: 16*	*Learned geospatial tools, fertility mapping and handling of advance instruments 3 No students used technique in their thesis*

Climate Smart Agronomy for Resilient production systems and likelihood security (CCARI, Goa)	*Period of training:22-24th Nov, 2023* *Beneficiaries: 9*	*Attended and Presented at National Symposium*
Plant Biodiversity for Food Nutrition and Health Security in the North-West Himalayas' (Shoolni University, Solan)	*Period of training:27th Nov, 2023* *Beneficiaries: 6*	*Attended National Seminar*
Student Engagement Conclave, CCS HAU, Hisar	*Period of training:9th to 10th Dec, 2023* *Beneficiaries: 10*	*Interaction with Hon'ble DDG and Panel discussion, quiz, poster making* *First and third prize in panel discussion and Quiz competition*
Mite Taxonomy (ICAR-NBAIR, Bengaluru)	*Period of training:2nd to 7th May, 2022* *Beneficiaries: 3*	*Learned about the collection, preservation, mounting, and identification features of different mites especially, Eriophyid mites* *Three Students incorporated work in PhD program*
Production and Use of Biological Control Agents including microbials (ICAR-NBAIR, Bengaluru)	*Period of training:2nd to 7th May, 2022* *Beneficiaries: 7*	*Mass production of various biological agents*
Molecular breeding and protected cultivation of vegetable crops (ICAR-IIVR, Varanasi)	*Period of training: 11th to 16th July,2022* *Beneficiaries: 16*	*New techniques in advanced tools like molecular breeding and protected cultivation* *5 students working on this aspect*
Advance molecular techniques in agriculture (ICAR- National Bureau of Agriculturally Important Microorganisms (NBAIM), Mau, UP	*Period of training: 20th Oct to 3rd Dec, 2022* *Beneficiaries: 1*	*Learned techniques in advanced tools like HPLC, SEM, Confocal imaging, PCR, RT-PCR, FTIR, DNA isolation and sequencing etc*
Hands on training on Remote Sensing and GIS using QGIS (NAHEP-CAAST, College of Agricultural Engineering JNKVV Jabalpur)	*Period of training: 3rd to 23rd Jan, 2022* *Beneficiaries: 1*	*Learned techniques in advanced tools Remote Sensing and GIS* *3 No students uses technique in thesis*
Training cum Exposure Visit on Crop Protection for Sustainable Agriculture (International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	*Period of training: 14th to 19th December, 2022* *Beneficiaries: 14*	*Learned techniques in envirotyping, drone technology, CT imaging, Lysimeter testing, gene editing, trait mapping, Nuclear Magnetic Resonance (NRS) and X-Ray Fluorescence (XRF).*

Patancheru, Hyderabad, Telangana, India)		*2 students*
NAHEP sponsored Training on CRISPER based plant Genome editing: Tools and techniques, IARI, New Delhi	*Period of training: 11-21st Oct, 2022* *Beneficiaries: 2*	*Learnt practical application and working of CRISPR based Plant Genome Editing Technique Incorporated in PhD thesis*
Workshop on Presentation Skills organized by CSIR-Indian Institute of Toxicology Research, Lucknow	*Period of training: 26th Nov, 2021* *Beneficiaries: 10*	*Skill enhancement techniques*
Strategic Plan to Double Income through Protected Cultivation of Vegetable Crops, Department of Veg Sci and Floriculture, CSKHPKV Palampur	*Period of training: 31 Aug to 07 Sept, 2020* *Beneficiaries: 320*	*Conducted for strengthening the startups/ entrepreneurs & skill enhancement*
Training on Texture analyzer (TX-700) handling CSKHPKV Palampur	*Period of training:* *Beneficiaries:200*	*Skill enhancement*
Training on "Management of biotic and abiotic stresses in protected agriculture" CSKHPKV Palampur	*Period of training: 22 to 24 Sept, 2020* *Beneficiaries:1432*	*Strengthening the startups/ entrepreneurs* *Skill enhancement*
National Training cum Webinar on "Diagnosis and Management of Diseases and Insect, mite and nematodes of Vegetable crops in Protected Agriculture and Natural Farming" Dept of Entomology, CSKHPKV Palampur	*Period of training: 25 to 26 Feb, 2022* *Beneficiaries:182*	*Skill enhancement with practical experience*
National Training cum Webinar on "Buzz pollination: Role of bumble bee in pollination of crops in protected agriculture" Dept of Entomology CSKHPKV Palampur	*Period of training: 05 March, 2022* *Beneficiaries:306*	*Exposure to new paradigm Buzz Pollination*
Application of Drone Technology Dept of Soil Science CSKHPKV Palampur	*Period of training: 13-15 May, 2022* *Beneficiaries:158*	*Digital Agriculture stakeholders*
Training on "Experimental Design and Analysis through Statistical Softwares" CSKHPKV Palampur	*Period of training:24-30 May, 2022* *Beneficiaries:304*	*Learned techniques & advanced tools in Statistical Software's* *R studio & RS*
Training on Insect Systematics Dept of Entomology CSKHPKV Palampur	*Period of training:18-19 June; 01-02 July: 09-10 July,2022* *Beneficiaries:45*	*Two students incorporated work*
Application of Nano-technology in Crop Pest	*Period of training:14-15 Oct,2022*	*Learned new techniques*

Management Dept of Entomology CSKHPKV Palampur	*Beneficiaries:60*	
Faculty		
Strategic Plan to Double Income through Protected Cultivation of Vegetable Crops, Department of Veg Sci, CSKHPKV Palampur	Period of training: 31 Aug to 07 Sept, 2020 *Beneficiaries: 15*	*Exposure to new R&D projects formulations*
Training on NABL Accreditation and its benefits for Soil Testing Laboratories Dept of Soil Science CSKHPKV Palampur	*Period of training:30 Sept,2022* *Beneficiaries:60*	*Exposure & Lab management*
Training on "Management of biotic and abiotic stresses in protected agriculture" CSKHPKV Palampur	Period of training: 22 to 24 Sept, 2020 *Beneficiaries: 7*	*Biotic & Abiotic Stress learned for PA*
Milk vs Plant based Beverages-Bursting all myths DUVASU Mathura	*Period of training: 9-12 Dec, 2022* *Beneficiaries: 1*	*New techniques in advance area learned*
National Training cum Webinar on "Diagnosis and Management of Diseases and Insect, mite and nematodes of Vegetable crops in Protected Agriculture and Natural Farming" Dept of Entomology, CSKHPKV Palampur	*Period of training: 25 to 26 Feb, 2022* *Beneficiaries:20*	*Skill enhancement*
Training on Insect Systematics Dept of Entomology CSKHPKV Palampur	*Period of training:18-19 June; 01-02 July: 09-10 July,2022* *Beneficiaries:15 from 3 SAU's*	
Training on Smart governance in office system & official procedure	*Period of training: 10-12 Oct, 2022* *Beneficiaries: 1*	*Smart governance in office system & official procedure*
Training on Achieving zero hunger by 2030 critical role of Agriculture & Allied Sectors	*Period of training: 17-27 Aug, 2020* *Beneficiaries: 1*	*New innovation in Agri exposure*
List of trainings in Annexure-VIII		

2.3. Input and activity monitoring

	Capital (In Lakhs)	Revenue (In Lakhs)
Total funds sanctioned during 2019-2023 by PIU (INR Lakhs)	**605.00**	**1286.05**
Total funds received till December 31, 2023 (Cumulative) (INR Lakhs)	**605.00**	**1286.05**
Total expenditure up to December 31, 2023 (INR Lakhs)	**605.00**	**1248.05**

Input / Activity indicator	Sub- head / category	Apr'2018 to Mar'2023 Expenditure / input in INR lakhs Utilization	Planned	Activity elaboration
Goods and equipment	Equipment, Plant & Machinery	287.30	277.00	List attached in Annexure-IX Procurement completed and facilities being used for research by faculty and students
	Office equipment	5.56	7.00	-do-
	Laboratory equipment	209.21	215.00	-do-
	Furniture & fixtures	15.20	17.00	-do-
	Computers and Peripherals	18.03	17.00	-do-
	Books and Journals	4.65	5.00	120 books added in University Library
Civil works	Minor repair and renovation work	65.05	67.00	
Human capacity building	National level training	0	0	
	International level training	63.00	63.00	
	Short visit/ seminars	13.00	13.00	
	Meetings and workshops	9.00	9.00	
Consultancy	National level consultancies	87.00	87.00	
Recurrent cost / Miscellaneous	Travel	12.00	12.00	
	Contractual services	262.00	262.00	
	Operational costs	648.82	787.00	
	Institutional charges	53.05	53.05	
Total		**1853.05**	**1891.05**	

Observation
<Please provide the explanation on the progress made against the input and activity monitoring parameters> Under the Capital head procurements of all the equipment, minor civil works, plant & machinery, etc. have been completed.

Facilitative Units (7 No) established and are being utilized for training/research by students/faculty,

Strengthening and renovation of polyhouses (16 Nos) for research endeavors

Lecture Theatre, Conference room for quality teaching and trainings

Renovation of Labs (6 Nos.)- for effective research

International travel/National training conducted for the faculty (12No) and students (43No) -for Academic excellence

59 webinars and trainings (Offline/Online/Hybrid mode) have been completed with total beneficiaries of 6851.

Increased University visibility as ranking elevated to 12th among all and 8th amongst SAUs

Quality research publications by PG students and faculty Average NAAS publication in CAAST >NAAS -7.2 (University- 2019 onward 127 research publication NAAS>7 and highest 12.56 by PG Student)

Technologies –Varieties -9 released for HP state through CVRC 2021-22

Two Varieties viz. Garden pea-PALAM Triloki and PALAM Sumool registered with PPVFRA and 10 Varieties in pipe line

Three production technologies recommended in POP for state.

2.4. NAHEP outreach and other unique initiatives undertaken

Please provide the brief progress undertaken against the different categories placed below along with the suitable photographs/links/documents etc. Please note that only significant activities/initiatives are to be incorporated in this document.

a) Case studies/success stories developed under NAHEP
(establishment of own enterprise by beneficiary student/high-impact research carried-out by AU under NAHEP/enhanced students learning outcomes due to establishment of modern facilities under NAHEP etc.)

Illustrative: Success story

Vertical farming of Strawberry

Vertical Farming of Strawberry under High-Tech Polyhouse: Smt. Bharti from village Dhoren near Darang in Distt. Kangra, HP is practicing vertical farming for strawberries. Her team collaborated to build vertical farming systems and farm automation systems to implement precision farming to grow high-value crops. After experimenting for almost 3 years, in year 2021 their team started building for first commercial set up under the name of Hill sprouts. They first built a 2000 m² greenhouse under which 10 rows of vertical set up with the length of 200 feet each were built out of mild steel. And specially designed pots for this set up were manufactured on orders. At Hill sprouts Bharti and her team have been growing strawberry, lettuce, Stevia and capsicum. In the first season, she sold strawberry and other produce amounting to Rs six lacs. In addition, around six lacs runners (Young Plants) have been produced by the mother plants and were reserved for planting in the coming season with estimated gross return of Rs 15 lacs.

Hydroponic Unit at Hanol Hydroagri developed under supervision of NAHEP-CAAST

Protected cultivation of vegetables under Hydroponic system: Sh Saurabh Thakur from village Khalini District Shimla HP, in 2021 he took training about growing vegetables in hydroponics system constructed under NAHEP at CSK HPKV, Palampur University. With support of RKVY-RAFTAR he established his own hydroponic unit as HANOL HYDROAGRI in Khalini (Shimla). Presently growing lettuce and marketing to hotel industry with annual turnover of Rs 10 lakhs.

Protected cultivation of vegetables under Natural Farming System: Startup by Aditi Singh, Farm Manager, Shraddha Suman, Village Dhanotu, Tehsil Shahpur, District Kangra. Successfully trained in year-round protected cultivation of different vegetables under natural farming conditions under the mentorship of Dr. Sant Prakash, Consultant (Protected Agriculture) NAHEP-CAAST and demonstrated practical training to grow different seasonal vegetables round the year under natural farming system.

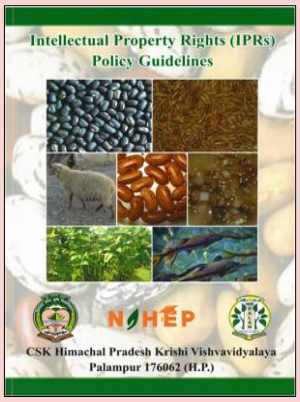
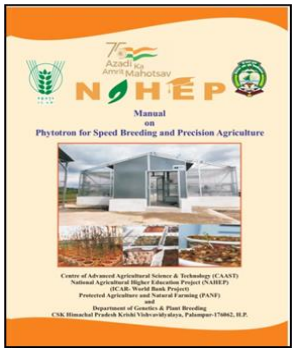
Growing vegetables through natural farming under protected structures

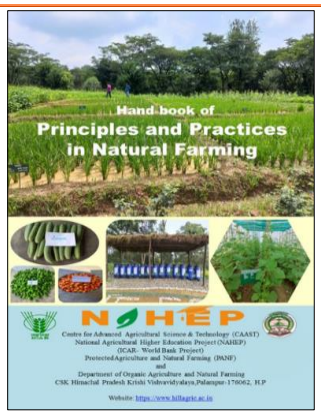
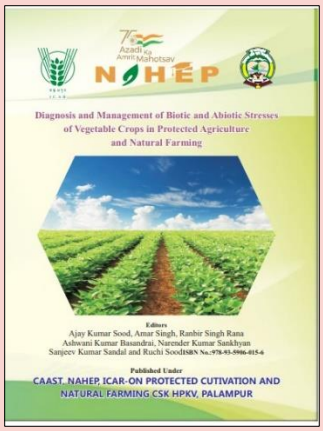
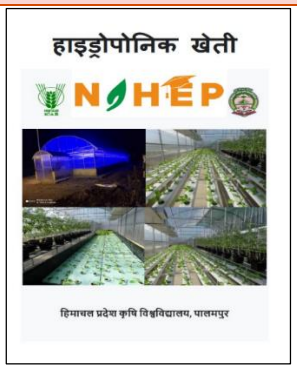
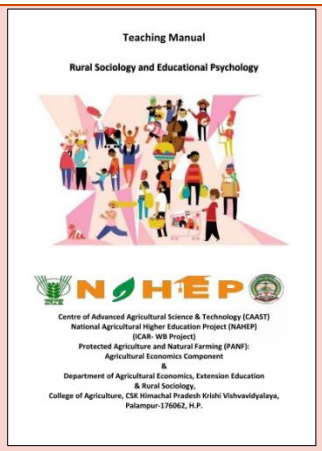
Student Awareness & Agri-Education: The farmers/agriculture students/School students/ Army Officers/Agriculture Officials visited the Center of Excellence on Protected Agriculture to get acquainted with various operations like raising of nursery under Hi-tech nursery unit, Hydroponics, automatic nursery seeding machine etc.

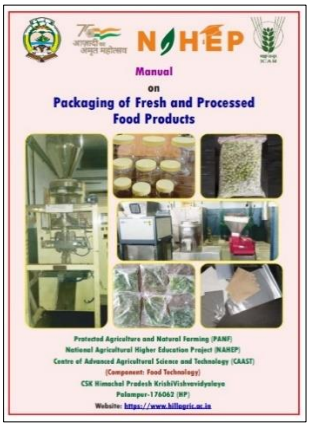
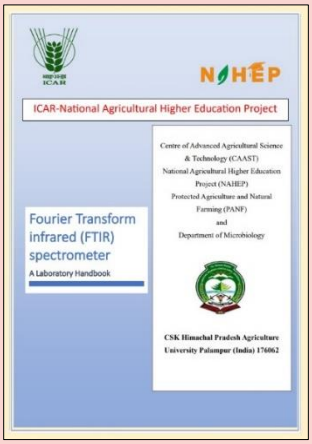
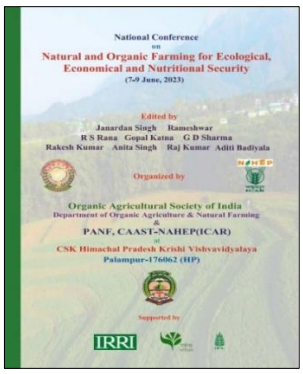
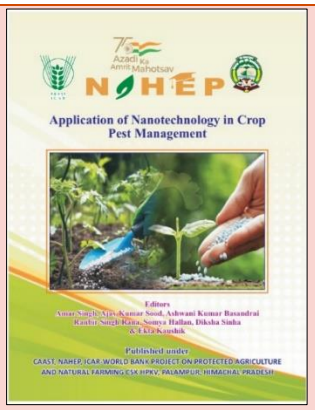
Students from UHF Nauni, Solan Visited the Centre of Excellence

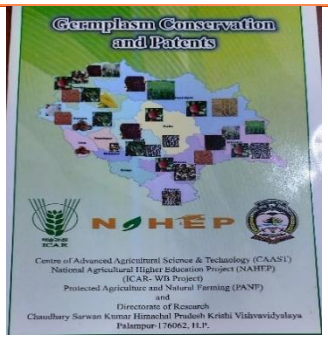
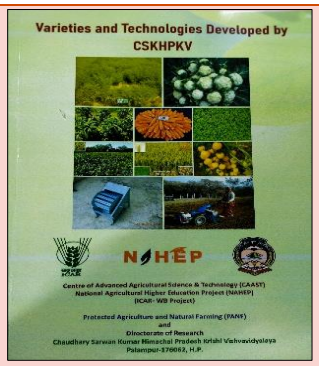
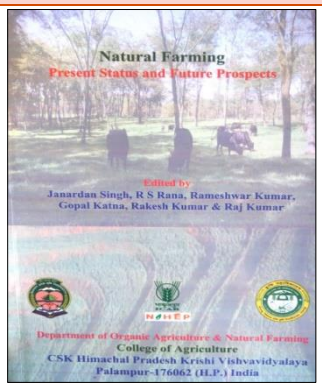
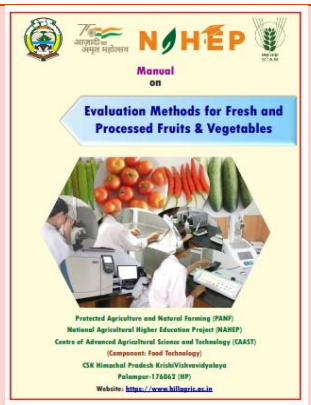
b) Knowledge management and outreach initiatives (development of collaterals, newsletter, social media outreach activities, creation of website, experiential learning workshop, exposure visits,

(provide the details of the documents/articles/reports/modules/social media outreach/ website creation/experiential learning workshop/exposure visits etc. developed under NAHEP along with the suitable photograph of the cover-page and web-link (if available) – brief summary, cover page,

S. N	Category of the collateral	Brief summary	Snapshot/cover page	Weblink (if any)
1	Book	Policy document on "Intellectual Property Rights-Policy guidelines" compiled by Dr H K Chaudhary, Dr Daisy Basandrai and Dr Virender Kumar in collaboration with NAHEP-CAAST and HIMCOST		https://nahep.icar.gov.in/KMS/KCForm1.aspx
2	Manual	Manual on "Phytotron for Speed breeding and precision agriculture under changing climatic scenario" compiled by Dr H K Chaudhary and Dr VK Sood		https://nahep.icar.gov.in/KMS/KCForm1.aspx
3	Manual	Manual on Plant -microbe interaction under Protected Agriculture and Natural Farming compiled by Dr Rishi Mahajan		https://nahep.icar.gov.in/KMS/KCForm1.aspx

4	Book	Book on Handbook of principles and practices in Natural Farming compiled by Dr GD Sharma & Dr Aditi Badiyala		https://nahep.icar.gov.in /KMS/KCForm1
5	Book	Book on Diagnosis and Management of Biotic and Abiotic stresses of Vegetable Crops in Protected Agriculture and Natural Farming Edited by Ajay Kumar Sood, Amar Singh, Ranbir Singh Rana Ashwani Kumar Basandrai, Narender Kumar Sankhyan Sanjeev Kumar Sandal and Ruchi Sood		https://nahep.icar.gov.in /KMS/KCForm1
6	Manual	Hindi & English Manual on Hydroponic Farming by Parveen Sharma, Akhilesh Sharma, Ranbir Singh Rana		https://nahep.icar.gov.in /KMS/KCForm1
7	Manual	Teaching Manual on 'Rural Sociology and Education Psychology ' Dr. Anup Katoch and Dr. Ranbir Singh Rana		https://nahep.icar.gov.in /KMS/KCForm1

8	Manual	"Packaging of Fresh and Processed Food Products" Dr. Ranjana Verma and Dr. Anupama Sandal Dr. Y.S. Dhaliwal, Dr. Ranbir Singh Rana, Dr. Farhan M. Bhatt & Mr. Manohar Lal		https://nahep.icar.gov.in /KMS/KCForm1
9	Manual	"Fourier Transform infrared (FTIR) spectrometer A Laboratory Handbook" by Rishi Mahajan, Shalini Chandel & Ranbir Singh Rana		https://nahep.icar.gov.in /KMS/KCForm2.aspx
10	Manual	Souvenir on National Conference on Natural and Organic Farming for Ecological, Economical and Nutritional Security Edited by Janardan Singh, Rameshwar, RS Rana, Gopal Katna, GD Sharma, Rakesh Kumar, Anita Singh, Raj Kumar, Aditi Badiyala		https://nahep.icar.gov.in /KMS/KCForm2.aspx
11	Book	"Application of Nanotechnology in Crop Pest Management" Edited by Amar Singh, Ajay Kumar Sood, Ashwani Kumar Basandrai, Ranbir Singh Rana, Somya Hallan, Diksha Sinha & Ekta Kaushik		https://nahep.icar.gov.in /KMS/KCForm1

12	Book	"Germplasm Conservation and Patents" Edited & compiled by Dr SK Upadhyay, Dr VK Sood, Dr RK Kapila, Dr Goverdhan Sharma and Dr PC Sharma		
13	Book	"Varieties and Technologies developed by CSKHPKV" Edited & compiled by Dr SK Upadhyay, Dr VK Sood, Dr RK Kapila, Dr DR Chaudhary, Dr Goverdhan Sharma and Dr PC Sharma		
14	Manual	Manual on National Training on Natural Farming Present Status and Future Prospects Edited by Janardan Singh, Ranbir Singh Rana, Rameshwar, Gopal Katna, Rakesh Kumar & Raj Kumar		https://nahep.icar.gov.in/KMS/KCForm1
15	Manual	"Evaluation Methods for Fresh and Processed Fruits & Vegetables" Dr. Ranjana Verma and Dr. Anupama Sandal Dr. Y.S. Dhaliwal, Dr. Ranbir Singh Rana, Dr. Farhan M. Bhatt & Mr. Manohar Lal		https://nahep.icar.gov.in/KMS/KCForm1
16	Exposure visit	ICAR-NBAIR, Bengaluru **10 Students benefitted**		

17	Exposure visit	ICRISAT Hyderabad **14 PG students benefitted**		
18	Exposure visit	IIVR, Varanasi **10 PG students benefitted**		
19	Exposure visit	National Seminar at Shoolni University, Solan **6 PG Students benefitted**		
20	Exposure visit	National Symposium at CCARI-ICAR, Goa **9 PG students benefitted**		
21	Exposure visit	IISS, Bhopal **16 PG students benefitted**		
22	Conference	CSKHPKV Palampur **255 Participants** (Faculty & Students)		
23	Experiential learning workshop	Fifty students of UHF Solan acquainted with various operations like training and pruning in cherry tomato and various other operations like raising of nursery under Hi-tech nursery unit	 Students from UHF Nauni, Solan Visited the Centre of Excellence	

24	Farmers Training Visit	Number of Progressive Farmers Visited the Centre of Excellence: 300		
25	School Student Awareness for taping youths	Number of School Students Visited the Centre of Excellence: >3000		

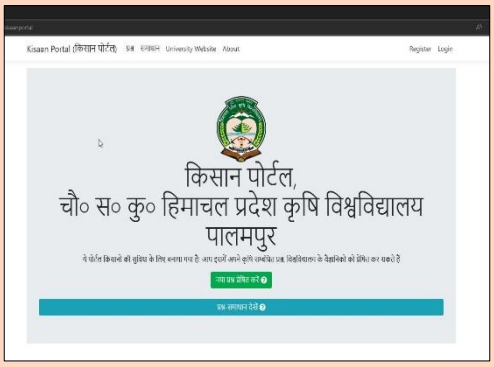
c) Unique initiatives undertaken

1. Digital infrastructure

(development of digital/smart classroom, virtual reality facility, digital library system, other digital education and administrative infrastructure, Agri Diksha, AMS implementation etc.)

CSKHPKV Admission Portal: Inhouse design and development of CSKHPKV Admissions Portal by Co-PI of the project, for admissions in the year 2021.

CSKHPKV Kisaan Portal: Designed and developed the Kisaan Portal of CSKHPKV. The Hon'ble Governor of Himachal Pradesh inaugurated the portal, during the 16th Convocation of CSKHPKV on 23-08-2021. This is a mobile friendly, dual language (English-Hindi) portal where farmers can directly submit their farming related queries directly from their fields, to the University and upload relevant photographs pertaining to the query.



The submitted farmer query gets evaluated by a nodal officer, who identifies the subject domain of the query. The nodal officer assigns the query to a Scientist in the University, which appears in the dashboard of the Scientist. The response tendered by the Scientist is available to the public for benefit of other farmers. This portal has been an important milestone in augmenting effective communication between farmer and the University using ICT Tools.

Virtual class room and Agri Diksha Web portal established to strengthen agricultural education through ICT interventions

Inauguration of Virtual Class room

2. Digital initiatives:

(Organizing trainings through online, conducting online examinations, administering attendance, developing of web applications, e-learning modules etc.

Developed by CoPI & Component -II Project

S.N	Category of the collateral	Digital initiative	Practice before introduction of the initiative	Practice after introduction of the initiative
1	Trainings	Teaching through MS-Teams	Offline only	Hybrid Mode-Online and Offline
2	Admission Portal	Web Application	Offline only	Online with payment gateway integration.
3	Kisaan Portal of University	Web Application	Telephone Service or in person interaction	Online farm query with facility to upload images, and resolution information is provided on portal for benefit of everyone.
4	Virtual lectures	Agri Web Channel	-	Online lectures

Please provide up to 15 photographs with high quality (minimum 1-2MB) and label with suitable caption. Attach the photographs separately in the mail.

3. Potential impact of the intervention:

Observation

<<Please provide the explanation on potential impact of the intervention in short and long term while illustrating the key initiative/activity. Also, relate how input turned into output→outcome→impact in brief sentence or graphical way. Consider one or two examples/cases etc, >

- The University got accredited by the ICAR with 'A' grade till 2028
- **The University ranked as 8th amongst Agricultural Universities and 12th among Agricultural Universities and ICAR Institutes.** The rank of the University in 2017 was 19 and in 2023 enhanced to 12 as per the NIRF from ICAR/MHRD. Majority (About 90%) ICAR seats in UG and PG filled
- **Exposure Visits/National Trainings/International training to students helps in enhancing student's academic excellence through overseas opportunities and availing post-doctoral fellowships. One Ph. D student got Jawahar Lal Nehru Fellowship after international trainings. Under PANF CAAST, 20 Research/Review papers published in NAAS Rating > 7.0, highest 12.56 by PG Student**
- The key initiative/activity undertaken under PANF, CAAST resulted in coverage of about 1000 ha area under protected conditions in Himachal Pradesh. Main crop varieties (Parthenocarpic cucumber variety Him Palam Kheeras-1, Bacterial wilt resistant Palam Tomato Hybrid-1, Cherry tomato variety Him Cherry Yellow), filler crop varieties (pea var. Him Palam Matar-1, Snow pea var. Him Palam Meethi Phali-2, cauliflower and chilli hybrids) along with improved package of practices for protected cultivation (Production and pest management) provide confidence among stakeholders as crops earlier damaged due many biotic stresses
- Center of excellence on Protected Agriculture and Natural Farming developed with various facilitative Units for awareness and training to school students/college students/farmers/ extension workers/researchers etc. National Training **on Natural Farming: Present status and Future Prospects** organized under Centre of Protected and Natural Farming in which 30 Nos. faculty from different agricultural universities participated like SKAUST Kashmir, PAU Ludhiana, MPKV Rahuri
- 3 startups initiated successfully in project thematic areas (Vertical farming of strawberry, Protected Agriculture and Hydroponics) & incubated under Him RABI

- 9 MOUs for seed multiplication of released variety with private sector companies for readily availability of quality seed (License fee 1 lakhs for variety (8) and 2 lakhs for hybrid (1) resulting in revenue generation
- Availability of Quality nursery of vegetable crops for (more than 2.0 lakhs per year)
- First parthenocarpic cucumber variety for protected Cultivation released (Him Palam Khira -1) and another with light green color under evaluation trials
- First Bacterial wilt resistant capsicum variety for protected cultivation under on farm trials and another in tomato
- CMS and GMS based Hybrids in cauliflower (4) and chilli (4) synthesized under PANF CAAST and presently under farm trials
- Bio pesticides and botanicals for management of diseases and pests developed and presently in evaluation trials for recommendations
- Productions technologies for protected Agriculture namely, Drip irrigation schedules for surface and sub surface placement based on climatological data; Fertigation schedules based on bio formulation and INM in Capsicum, Tomato and cucumber; Training and pruning in vegetable crops
- Collaborative Partner for Centre of Excellence on Artificial Intelligence in Agriculture with IIT Mandi and as Academic Supervisor at Cornell University, USA.

4. Challenges faced and lessons learned while implementing the project at AU:

Challenges	
1	Sustainability of Infrastructure developed after project e.g. recurring costs of maintenance of procured equipment.
2	Continuation of Certificate Courses- Academic approval is essentially required for commencement of the courses.
3	Limited employment Opportunity in public and private sectors for students on a larger scale.
4	Implementation of Blended Learning System under NEP-2020 in light of constraints of technology adaptation and lack of infrastructure facilities (higher end computing devices and network infrastructure) at various levels.
5	Globalization of knowledge standards has a consequence on the competence of existing resources competing at Global/ International level.
Lessons learned	
1	Strengthening and upgradation of Digital infrastructure in academic institutions will serve as a primary mitigation measure in crisis scenarios (e.g. COVID pandemic)
2	Blended learning techniques and digital knowledge resources became a new milestone in quality student education.
3	Exposure of students and faculty to the facilities of International and National Institutes uplifts the quality of research work and academic excellence 86 students qualified NET and 46 got jobs in State Agriculture Department
4	MoU signed with various industry partners serve as an employment opportunity for the students.
5	Collaboration with national institutions for collaborative research and academic excellence serves as a point of contact for students aspiring for higher studies in those institutions.

5. Sustainability Plan

5.1. Sustainability plan of the AU

- *Does the AU have any sustainability plan for to make AU future ready and globally recognized? (Yes / No)*
- *If yes, details thereof?*

1	Funds are being raised through adhoc projects from different funding agencies to meet out research, extension, infrastructure and lab requirements and Grant from State University 1. For Protected Agriculture Adhoc project funded by JICA-40.0 Lakhs 2. Adhoc Project Indo -Israel Joint in DST Program-80.0 lakhs (40+40)
2	Funds generation through testing of varieties/hybrids of crops/vegetables as well as agrochemicals developed by different private sectors/ industry for adoption in state
3	Funds generation through Capacity building and Trainings – Proposed Advanced training on PANF
4	One mega project on Seed Production of Vegetable and other Crops is in operation with financial assistance of Rs. 495.11 lakh from HP Crop Diversification Project, JICA ODA for quality seed production of vegetable and other crops for 2022-2024.
5	Funds by having MoUs with seed producing companies by licensing out seed of the varieties developed by the University for its multiplication and marketing for which license fee of Rs. 1.00 lakh for the crop variety and Rs. 2.00 lakh for hybrid has been fixed. During last three years, ten such MoUs have been signed with different seed companies like M/S Nutranta Seeds, Durga Seed Farm, Welcome Crop Science, Super Seeds, Krishma Seed Farms etc.
6	Consultancy Programme with 11 agencies (SJVN Foundation, Department of Agriculture, Department of Horticulture, NGOs, and ATMA units of Himachal) worth Rs. 5.57 crores taken up in Agro-techniques and trainings

5.2. Sustainability plan for improving internal revenue generation through facilities and infrastructure created under the project

1	Sale of Nursery of Vegetable Crops like tomato, cherry tomato, capsicum, brinjal, cucurbits, cauliflower, cabbage etc. During 2020-23, about 4 lakhs nursery seedlings of tomato, capsicum etc., were produced and sold which helps in revenue generation.

2	Sale of Bioagents and biofertilizers and natural products like ghanjeevamrit, jeevamrit etc.
3	Bench / training / internships fees for researchers of other University
4	Sale of Breeder Seed of released varieties/ Hybrids
5	Revenue generated from Licensing technologies to private commercial entities.
6	Revenue generated from fees collected from various certificate courses.

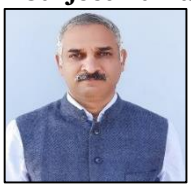
6. Contribution of each individual in project

6.1. Name of Vice Chancellors(s) during project duration and contributions each PI, Co-PI and team along with their photographs

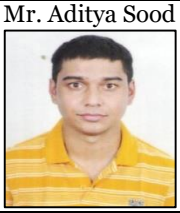
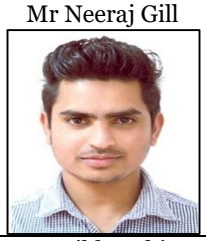
Name	Gender	Designation in AU and contact details (email, mobile)	Role in project (PI/Co-PI/RA/SRF etc.)	Major contribution/output
Project Administration Team				
Dr D.K. Vatas 	Male	officiating Vice Chancellor Office: +91 1894 230521 Resi: +91 1894 230522 e-mail: vc@hillagric.ac.in	Project Leader w.e.f 22.08.2023	Monitoring the work from time to time for its timely completion
Prof. H.K. Chaudhary 	Male	Vice Chancellor Office: +91 1894 230521 Resi: +91 1894 230522 e-mail: vc@hillagric.ac.in	Project Leader w.e.f 22.08.2020 to 21.08.2023	Monitoring the work from time to time for its timely completion
Dr S.K. Upadhyay 	Male	Director of Research E-mail: dr@hillagric.ac.in Contact: 9418291095, 01894230406	Mentor w.e.f. 20.10.2023 Nodal Officer (ESP)	Monitoring the research work from time to time for its timely completion Planning and execution of the component activities of ESP Clean and green copus proposal development
Dr Shashi Pal Dixit 	Male	Director of Research E-mail: dr@hillagric.ac.in Contact: 9418291095, 01894230406	Mentor	Monitoring the research work from time to time for its timely completion

Project Execution Team				
Dr Ranbir S. Rana 	Male	Principal Scientist & Programme Director Centre for Geoinformatics Research and Training Contact No.: 9418106167 Email: ranars66@gmail.com rsrana@hillagric.ac.in	Principal Investigator, CAAST NAHEP 7, Nodal Officer NAHEP	Management of project Research work and Scientific inputs to augment the quality of research endeavors Also, overall acting as Admin and Nodal Officer of NAHEP Comp2 for all 7 components
Dr Akhilesh Sharma 	Male	Principal Scientist (Vegetables) Contact No.: 9816612008 Email: assharmaakhil1@gmail.com	Assistant Coordinator (Protected Agriculture), CPI, Nodal Officer (EAP)	Targets of different project activities that resulted into development of different varieties/hybrids of vegetable crops and publications in high impact journals. Civil work execution as EAP.
Dr Parveen Sharma 	Male	Professor Email: parveens01@gmail.com Contact No.: 9418103265	Component-PI Procurement Officer	Technologies for Hydroponic Production System, development of varieties for protected cultivation Breeder Seed Production of different vegetable crops viz., Cherry Tomato, Cucumber and Capsicum. Publications in high impact journals
Dr GD Sharma 	Male	Professor, Deptt of Agronomy, CSK HPKV, Palampur Email: gurbhan_sharma@rediffmail.com Contact No.: 7018336546	Component-PI (Organic & Natural Farming)	Field experimentation on natural farming organizing secretary of webinars on natural farming, Associated in Publication of Book
Dr. V.K. Sood 	Male	Principal Scientist & Head (Department of Genetics and Plant Breeding) [Email: nks1998@rediffmail.com Contact No.: 8894026666]	Component-PI (Plant Breeding)	Speed Breeding of land races of six crops in Phytotron facility , Students research work and associated in Publication
Dr. Narender Kumar Sankhyan 	Male	Head (Soil Science)[Email: nks1998@rediffmail.com Contact No.: 8894026666]	Component-PI (Soil Nutrition)	Project activities in Soil health monitoring of Natural , conventional and Protected Agriculture Organizer of various webinars, trainings and awareness programmes, Delivered expert lectures in training programs

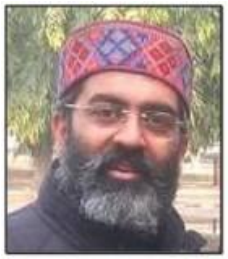
Dr. Sanjeev K. Sandal 	Male	Principal Scientist (Soil Science) [Email: sksandal@rediffmail.com Contact No.: 9418165752]]	Component-PI (Water Mangement)	Standardization of gravity fed based discharge flow rate of drip irrigation system Standardization of organic and IPNS NPK drip fertigation schedules under protected conditions Organizer of various webinars, trainings and awareness programmes
Dr Ajay K Sood 	Male	Principal Scientist (Entomology) Email- sood_hpau@yahoo.co.in Contact No.: 9418133549	Component PI (Entomology	Planning, execution of the component activities wrt novel approaches for the management of insect and mite pests of tomato and parthenocarpic cucumber. Evolved biointensive pest management technology for integration and validation of plant protection technology. Organised three National Trainings-cum-Webinars as Organising Secretary
Dr Amar Singh 	Male	Principal Scientist (Plant Pathology) Email- sood_hpau@yahoo.co.in Contact No.: 9418133549	Component-PI (Plant pathology)	Planning, execution of the component activities wrt Plant Pathology, New bioformulations for management of diseases for natural farming and Protected Agriculture
Dr Rishi Mahajan 	Male	Assistant Professor (Microbiology) Email- rishimahajan@hpkvplp.com rishimahajan@hillagrc.ac.in Contact No.: 7807224569	Component-PI (Microbiology)	Development of crop specific microbial bio-formulations for Capsicum, Cumber, Tomato and Chilli, Core Rhizo-bacterial communities identification using Metagenomics, Microbiological interventions for agro-waste management
Dr Y.S Dhaliwal 	Male	Dean, College of Community Sciences E Mail: ysdhaliwal44@yahoo.co.in Contact No.: 9816082444	Component-PI (Food technology)	Planning, and execution of the component activities wrt value addition in the organic farm products and analysis Also technologies for enhancing shelf life of Natural farming products
Dr A.K. Panda 	Male	Professor & Head Department of Veterinary Public Health & Epidemiology [Email: akpanda@hotmail.com Contact No: 9418040256]	Component-PI (Veterinary)	Planning and, execution supervision of the component (Microbial profiling)

Dr Anup Katoch 	Male	Professor & Head Economics	Component-PI (Economics) Continuing	Planning, and execution of the component activities of Economics of PANF
Dr R.K. Gupta 	Male	Retd. Professor [Email- errkgupta@yahoo.com]	Component-PI (Agri Econ.) (2Years) Retd	Planning, execution and supervision of the component activities like designing of polyhouse and also associated in procurements
Component-wise Execution Team				
Dr Surjeet Kumar 	Male	Principal Scientist (Entomology) [Email- skumarhpau@gmail.com Contact No: 9418153087]	Co-PI	Standardised mass rearing of predator, *Chrysoperla zastrowi sillemi* under laboratory conditions. Organised one National Trainings-cum-Webinar as Organising Secretary
Dr Sharmishtha Thakur 	F emale	Assistant Scientist (Entomology) [Email- sharmishthathakur@gmail.com Contact No: 8440004220]	Co-PI	Management of root knot nematode, soil drenching of a bioagent, *Bacillus amyloliquefaciens* and a new chemical fluopyram 400 SC (Velum Prime) were found promising in reducing nematode galls and increasing yield in cucumber.
Dr. Rameshwar Kumar 	Male	Principal Scientist (Agronomy), [Email- drrameshwar@gmail.com Contact No.:94180 97235]	CoPI (Natural Farming)	Associated in Field experimentation on natural farming organizing secretary of webinars on natural farming, Associated in Publication of Book
Dr. Gopal Katna 	Male	Sr. Scientist (Genetics & Plant Breeding) [Email-gkatna@gmail.com Contact No.: 94181 55748]	Co PI (Natural Farming)	Conducting trials on wheat and paddy trials under natural farming conditions, data compilation and analysis thereof, author of booklet on natural farming, co-organizing secretary of two webinars on natural farming

Scientific Support Staff				
Dr. Aditi Badiyala 	Female	Research Associate (Ph.D. Entomology), Deptt of Organic and Natural Farming, CSK HPKV, Palampur Email- aditibadiyala@gmail.com Contact No: 7876747593	RA (Natural Farming)	Effective implementation of research activities and contributed in publications, co-organizing webinars on natural farming
Dr. Bansuli 	Female	RA E mail: bansuli777@gmail.com Contact No.:	Research Associate (continuing)	Effective implementation of research activities and contributed in publications
Dr Ruchi Sood 	Female	Research Associate (CGRT) Email: ruchisood06@gmail.com Contact No 9418031353	Research Associate (continuing)	Assisting Principal Investigator in Management of Finance and technical reports, co-organizing webinars and to attend any work assigned from time to time
Dr. Anjali 	Female	JRF (Nutrient Management) [Email: anjalidhiman214@gmail.com Contact No.: 9882544417]	JRF	Associated Handled the soil and plant analysis work in lab (For samples collected under project) Co-organizer of various webinars, trainings and awareness programmes
Ms Diksha Sinha 	Female	JRF (Plant Pathology) [Email: sinha.diksha34@gmail.com Contact No.:8789263058]	JRF	Associated in Plant Pathology, New bioformulations for management of diseases for natural farming and Protected Agriculture and data collection
Ms Ekta Kaushik 	Female	JRF (Entomlogy) Email: Ektakaushik0893@gmail.com Contact No: 9459248759	-	Associated in Plant Pathology, New bioformulations for management of insects -pests for natural farming and Protected Agriculture and data collection
Dr. Shilpa 	Female	JRF (Vegetable Science) Email: shilpavij1212@gmail.com Contact No: 8580758814		Natural Farming filed experimentation and data compilation of attributes majorly on Tomato, Cucumber, and Capsicum under Protected Conditions. Lettuce in hydroponic unit and data compilation -Co-organizing Secretaries of National seminars/Webinars and one International Webinar Conducted under the Project Number of Research Articles Published under CAAST: 8

Dr Anila Sharma 	Female	Young Professional-II (Microbiology) Email: sharma.anila2013@gmail.com Contact No: 8219746687	Young Professional-II (Continuing)	Assisted in setting up experiments on micro-encapsulated carbon nanoparticles wit plant beneficial bacteria
Mr. Aditya Sood 	Male	YP-I(Veg Sci) E mail: sood.aditya223@gmail.com Contact No.:9805666613	Young Professional-I	Assisted in data recording & compilation, financial management, report compilation and other activities as directed
Mr Neeraj Gill 	Male	YP-I(Veg Sci) E mail: neerajgill2@gmail.com Contact No.:7018543960	Young Professional-I	Assisted in Procurement and financial management, report compilation and other activities as directed
Ms Pratibha Dhiman 	Female	YP-I(CGRT) E mail: d.pratibha92@gmail.com Contact No.:9736311283	Young Professional-I	Assisted in recruitments, sanctions, international training, proceedings, supply orders and other activities as directed
Mr Anmol Nag 	Male	YP-I(CGRT) E mail: anmolnag005@gmail.com Contact No.:94590995950	Young Professional-I	Assisted in Agri diksha, webinars, Virtual class room and other activities as directed
Mr Bharat Kumar 	Male	YP-I(CGRT) E mail:bharartdhiman18888@gmail.com Contact No.: 8094969955	Young Professional-I	Assisted in financial management other activities as directed

NAHEP Component-II Team

Mr Kapil Sharma 	Male	Astt. Prof. Dept. of PSL, COBS E mail: kapil96@gmail.com Contact No.:9418462229	CO-PI	AMS Implementation
Mr. Vaibhav Kalia 	Male	Astt. Prof. CGRT, COBS E mail: vaibhav@hillagric.ac.in Contact No.:9418473248	CO-PI	Web Application Development (Kisaan Portal) Web Development (Admission Portal) AMS Implementation Software Development and support

6.2. Details of visits of PIU-NAHEP officials at your AU along with photographs (provide list)

1. Dr RC Agarwal, National Director, NAHEP-ICAR, New Delhi
2. Dr Anuradha Agarwal, National Coordinator (CAAST), NAHEP-ICAR, New Delhi
3. Dr Hema Tripathi, National Coordinator (M&E and ESS), NAHEP-ICAR, New Delhi
4. Dr Ravindra Kumar, PI, IG BASU Bihar, NAHEP-ICAR

Dr. R.C. Agrawal, Deputy Director General, Indian Council of Agricultural Research, and National Director of National Agricultural Higher Education Project(NAHEP), interacting with Post Graduate students of Chaudhary Sarwan Kumar Himachal Pradesh Agriculture University

Distinguished guests visited the facilities established as part of NAHEP-CAAST

Visit of His Excellency Rajendra Vishwanath Arlekar in the Center of Excellence on Protected Agriculture

SHRI HOSHIAR SINGH, SH KEWAL SINGH PATHANIA, SH PURAN CHAND THAKUR, SH KULDEEP SINGH RATHORE AND SH HARISH JANARTHA, ALL HON'BLE MLAS VISITED HYDROPONIC UNIT, DEVELOPED UNDER NAHEP-CAAST

Shri Virender Kanwar ji, Hon'ble Agriculture, Animal Husbandry, Fisheries, Panchayati Raj and Rural Development Minister Inaugurated the Hydroponic Unit Developed under CAAST, NAHEP Department of Vegetable Science and Floriculture, CSKHPKV, Palampur on 17th June, 2021

Inauguration Nutritional Garden by Shri Jai Ram Thakur Hon'ble Chief Minister of Himachal Pradesh, under CAAST, NAHEP ,ESP ,Department of Horticulture, CSKHPKV, Palampur on 7 February, 2021

Annexure-I

Advanced Labs Facilities

Equipments procured and installed

A view of molecular lab

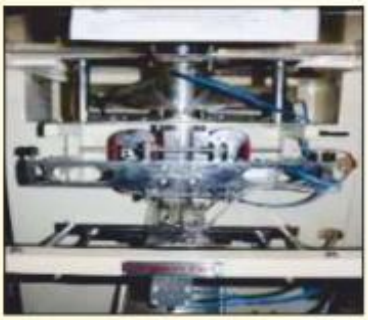
Biosafety Cabinet

BOD Incubator

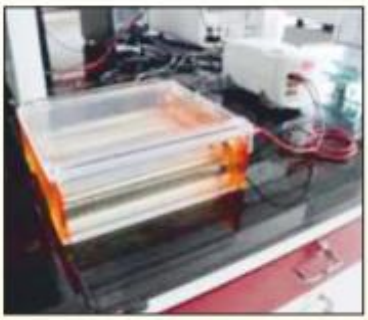
Centrifuge with Rotor

Digital Colony Counter

Fluorescence Microscope



Food Packaging Machine



Gel Electrophoresis

Glass Filtration and Vaccum

Gradient Thermal cycler

Ice Flaking Machine

Laminar Air Flow


Magnetic Stirrer and vortex
Spectrophotomerer
Micropipets
Multiple Water Purification System
Potters Tower
Pressure Bomb
Real timePCR
Shaking Incubator
Stereo zoom Microscope
Texture Analyser
trapure Water purification system
Milipore water purification system
Facilities Developed Under NAHEP-CAAST

Annexure-II

Knowledge Management Collaterals

Before 2020 (average NAAS score was 5.65)

	Research Publications (PI/CoPI/CAAST)	
S. No.	**Citation**	NAAS rating
Vegetable Science		
NAHEP-CAAST		
1	Rana, C., **Sharma, A.***, Rathour, R., Bansuli, Banyal, D.K., Rana, R.S. and Sharma, P. 2023. In vivo and in vitro validation of powdery mildew resistance in garden pea genotypes. *Scientific Reports* 13: 2243 DOI 10.1038/s41598-023-28184-0	11.0
2.	**Sharma, A.**, Sharma, S., Kumar, N., Rana, R.S., Sharma, P., Kumar, P., and Rani, M. 2022. Morpho-molecular genetic diversity and population structure analysis in garden pea (Pisum sativum L.) genotypes using simple sequence repeat markers. *PLoS ONE* 17(9) :e0273499.https://doi.org/10.1371/journal.pone.027349	9.75
3	Rana N, **Sharma A***, Rana RS, Lata H, Bansuli , Thakur A, Singh V and Sood A. 2023. Morphological and molecular diversity in mid-late and late maturity genotypes of cauliflower. PLoS ONE 18(8): e0290495. https://doi.org/10.1371/journal.pone.0290495	9.75
4	**Sharma A,** Rani M, Lata H, Thakur A, Sharma P, Kumar P, Jayswal DK and Rana RS. 2022. Global dimension of root rot complex in garden pea: Current status and breeding prospective. Crop Protection, 158: 106004 published on line https://doi.org/10.1016/j.cropro. 2022.106004	9.04
5.	Thakur A, **Sharma A**, Sharma P and Rana RS. 2021. An insight into the Problem of bacterial wilt in Capsicum spp with special reference to India. Crop Protection 140 (2021) 105420 Published on line https://doi.org/10.1016/j.cropro.2020.105420	9.04
6.	Lata, H., **Sharma, A***, Thakur, H., Thakur, A., Rana, R.S. and Kaur, M. 2023. Heterosis and combining ability vis-à-vis association for green fruit yield and component traits involving male sterile lines in chilli (*Capsicum annuum*) under wet temperate zone of North Western Himalayas. *Plant Breeding, 1–16.: https://doi.org/10.1111/pbr. 13114*	8.54
7.	**Sharma, A.,** Sekhon, B.S., Sharma, S. and Kumar, R. 2020. Newly isolated intervarietal garden pea (*Pisum sativum* L.) progenies (F_7) under north western Himalayan conditions of India. Experimental Agriculture 56 (1): 76-87	8.23
8.	Rana, C., **Sharma, A.***, Sharma, K.C., Mittal, P., Sinha, B.N., Sharma, V.K., Chandel, A., Thakur, H., Kaila, V., Sharma, P. and Rana, V. 2021. Stability analysis of garden pea (*Pisum sativum* L.) genotypes under North Western Himalayas using joint regression analysis and GGE biplots. *Genetic Resources and Crop Evolution* 68: 999–1010	7.88
9.	Chandel A., **Sharma A***., Sharma P., Rana S. S., Rana R.S., Shilpa. 2023. Seed yield, nutrient absorption and soil health as influenced by	7.19

	sowing time, fertility and genotypes of garden pea (Pisum sativum L.). Horticultural Science 50 (2): 142-151.	
10.	Eshanee, **Sharma A***, Sharma P, Sharma GD, Manuja S and Rana SS. 2023. Effect of sowing dates on phenological traits, yield and its contributing attributes on snow pea genotypes. Legume Research 46 (8): 1027-1033 **DOI:** 10.18805/LR-4817.	6.67
11.	**Sharma A**., Rana C, Thakur H, Sharma KC, Mittal P, Sharma P, Kumar V, Sharma VK and Sinha BN. 2022. Stability of Garden Pea Genotypes based on GGE Biplot and Regression Model. Legume Research (published on line, DOI 10.18805/LR-4903	6.67
12.	Singh J, **Sharma A***, Lata H, Thakur A and Kumar N. 2023. Genetic diversity for curd yield and its attributes in late cauliflower. Indian J. Hortic. 80(2): 136-142	6.0
13.	Chauhan A, **Sharma A***, Sharma P, Katoch V, Chadha S and Kumari V. 2023. Genetic Variability for Pod Yield and Component Traits in Sugar Snaps (*Pisum Sativum* Var. *saccharatum*). Legume Research 46 (5): 548-554.	6.67
	Review articles	
14.	Shweta, Sood S, **Sharma A**, Chadha S and Guleria V. 2021. Nanotechnology: A cutting-edge technology in vegetable production. The Journal of Horticultural Science and Biotechnology, DOI: 10.1080/14620316.2021.1902864	7.92
15.	Lata H, **Sharma A**, Chadha S, Kaur M and Kumar P. 2021. RNA interference (RNAi) mechanism and application in vegetable crops. Journal of Horticultural Science and Biotechnology 97 (2): 160-170	7.92
16.	Thakur V, **Sharma A**, Sharma P, Kumar P and Shilpa. 2022. Biofortification of vegetable crops for vitamins, mineral and other quality traits. The Journal of Horticultural Science and Biotechnology, DOI: 10.1080/14620316.2022.2036254. Link to this article: https://doi.org/10.1080/14620316.2022.2036254	7.92
17.	Shilpa, Sharma P, Thakur V, **Sharma A**, Rana R. S. and Kumar P. 2022. A status-quo review on management of root knot nematode in tomato. The Journal of Horticultural Science and Biotechnology, DOI: 10.1080/14620316.2022.2034531. Link to this article: https://doi.org/10.1080/14620316.2022.2034531	7.92
18.	Anuradha, **Sharma A**, Sood S, Badiyal A an Sood T. 2023. Fruit rot of Capsicum spp.: implications and management strategies. The Journal of Horticultural Science and Biotechnology; https://doi.org/10.1080/14620316.2023.2226148	7.92
19.	Singh, J., Sharma, A., Ranga, A.D. and Bairwa, M.K. 2022. Genetic Studies for Selection Parameters in Cauliflower (Brassica oleracea L. var. botrytis): A Review. Int. J. Plant & Soil Sci. 34 (24): 785-795	5.06
Associated		
20.	**Shiwani K** and Sharma A. 2021. Genetics of Quality Attributes and Powdery Mildew Severity in Garden Pea (Pisum sativum Var. Hortense L.) under Sub Temperate Conditions of North-Western Himalayas. Legume Research 10.18805/LR-4337 published online	7.34
21.	**Shiwani K** and Sharma A. 2021. Study on gene effects for pod yield and horticultural traits of garden pea (*Pisum sativum* var. *hortense* L.) using	5.54

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	Average NAAS score after implementation of NAHEP	**7.27**
	Books	
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2	Application of Nanotechnology in Crop Pest Management Edited by Amar Singh, Ajay K Sood, Ashwini K.Basandrai, Ranbir S Rana, Somya Halan, Diksha Sinha, Ekta Kaushik	
3	Hand book on Principles and Practices of Natural Farming Edited by GD Sharma, Aditi Badiyala, Gopal Katna Rameshwar Kumar, Ranbir Singh Rana	
4	Intellectual Property Rights (IPR) Policy Guidelines Ed By Dr HK Choudhary and Dr VK Sood	
5	Plant microbe interactions under Protected Agriculture and Natural Farming Practical Manual Ed By Dr Rishi Mahajan	
6	Phytotron for Speed breeding and precision agriculture under changing climatic scenario Ed By Dr HK Choudhary and Dr VK Sood	
7	Manual on Hydroponic Farming Ed by Parveen Sharma, Akhilesh Sharma, Ranbir Singh Rana (Hindi/English)	
8	Evaluation Methods for Fresh and Processed Fruits & Vegetables Ed Dr. Ranjana Verma and Dr. Anupama Sandal Dr. Y.S. Dhaliwal, Dr. Ranbir Singh Rana, Dr. Farhan M. Bhatt & Mr. Manohar Lal	
9	Rural Sociology and Education Psychology Dr Anup Katoch, Dr Ranbir Singh Rana	
10	Packaging of Fresh and Processed Food Products Ed Dr. Ranjana Verma and Dr. Anupama Sandal Dr. Y.S. Dhaliwal, Dr. Ranbir Singh Rana Dr. Farhan M. Bhatt & Mr. Manohar Lal	
11	Souvenir on National Conference on Natural and Organic Farming for Ecological, Economical and Nutritional Security	
12	Souvenir on National Training on Natural Farming Present Status and Future Prospects	

13	Fourier Transform infrared (FTIR) spectrometer A Laboratory Handbook Ed by Rishi Mahajan, Shalini Chandel & Ranbir Singh Rana	
14	Varieties and Technologies Developed by CSKHPKV Ed by Dr SK Upadhyay, Dr VK Sood, Dr RK Kapila, Dr DR Chaudhary, Dr Goverdhan Sharma and Dr PC Sharma	
15	Germplasm Conservation and Patents Dr SK Upadhyay, Dr VK Sood, Dr RK Kapila, Dr Goverdhan Sharma and Dr PC Sharma	
	Book Chapter	
1	हिमाचल प्रदेश के विभिन ज़िलों में जलवायु और मौसम पूर्वानुमान एवम मिटटी प्रवंधन (नरेन्द्र कुमार सांख्यान, अंजलि व रणबीर सिंह राणा)	
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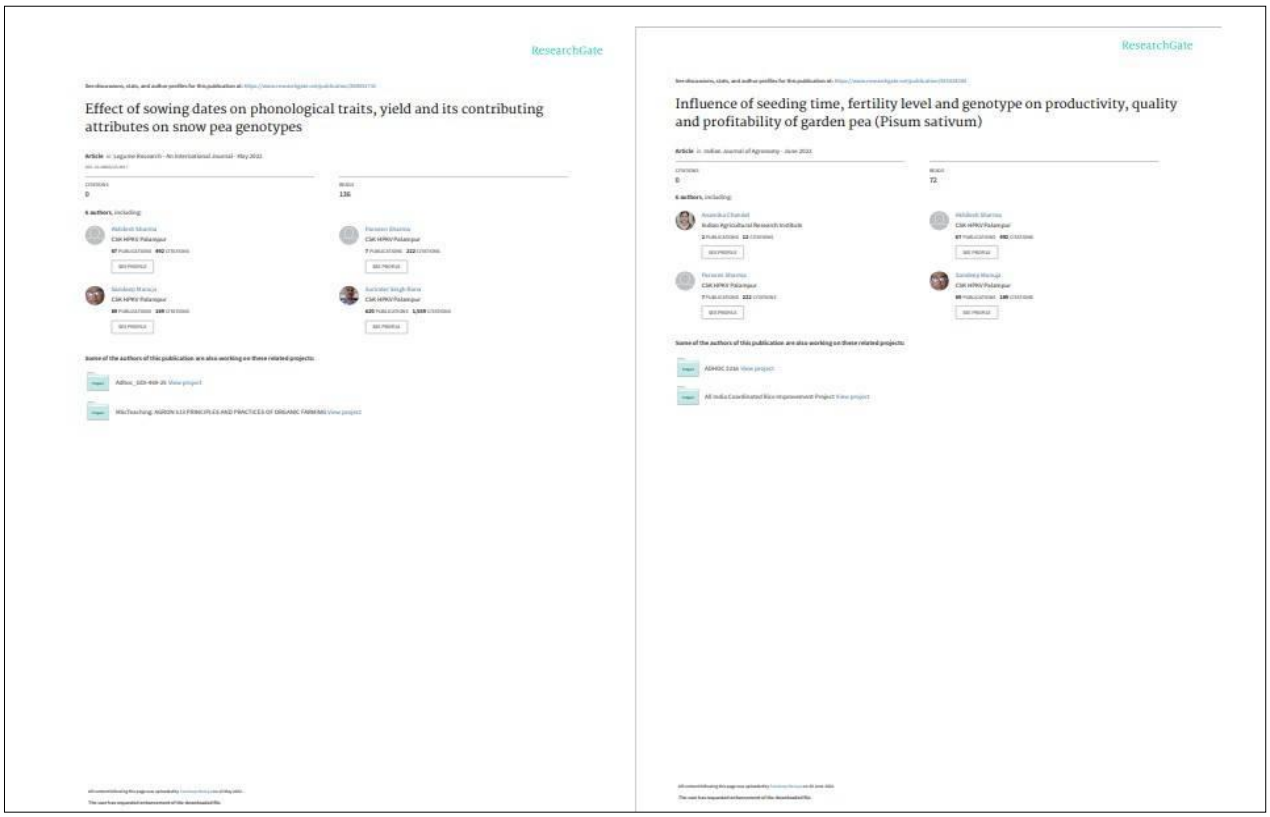


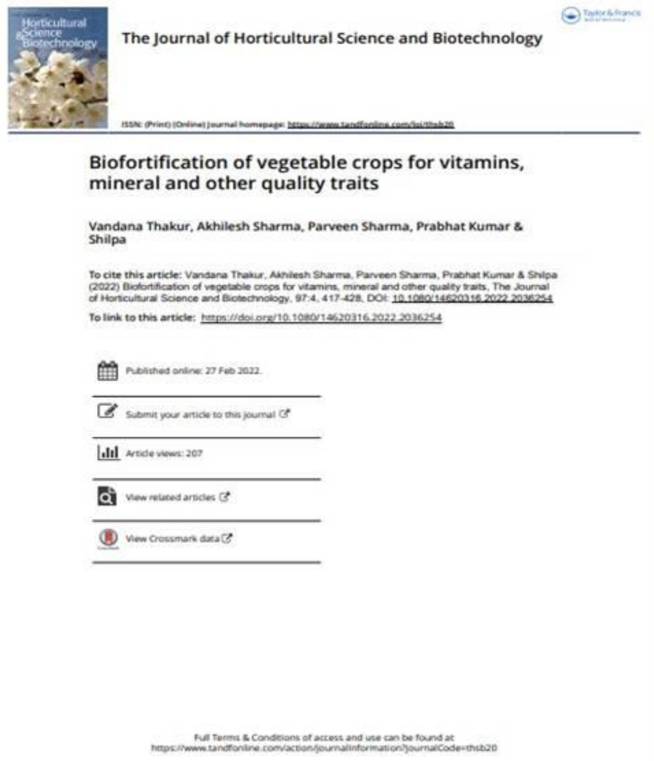

REVIEW ARTICLE — Agricultural Reviews, Volume 43 Issue 2: 199-204 (June 2022)

Effect of Mulching on Crop Production under Rainfed Condition: A Review

Shilpa[1], Parveen Sharma[1], Priyanka Bijalwan[2] — 10.18805/ag.R-1937

ABSTRACT

As the population of India is continuously rising so we have to adopt some means of sustaining our agricultural growth and it can be done through conservation farming. The best way out is the adoption of the age old practice of mulching in our agricultural fields. Mulching is an agricultural and horticultural technique in which the use of organic materials and synthetic materials for the purpose of increasing soil productivity is involved. In rainfed area, judicious use of water is essential for improving crop productivity. Therefore, mulching has been advocated as an effective means for conserving soil moisture. This technique is very useful in protecting the roots of the plants from heat, cold or drought or to keep fruit free from diseases and insect pests. Mulching is an old age technique to conserve soil moisture, checks evaporation, check the weed growth, moderate soil temperature and provide congenial microclimatic conditions ...


The Journal of Horticultural Science and Biotechnology

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/thsb20

Biofortification of vegetable crops for vitamins, mineral and other quality traits

Vandana Thakur, Akhilesh Sharma, Parveen Sharma, Prabhat Kumar & Shilpa

To cite this article: Vandana Thakur, Akhilesh Sharma, Parveen Sharma, Prabhat Kumar & Shilpa (2022) Biofortification of vegetable crops for vitamins, mineral and other quality traits, The Journal of Horticultural Science and Biotechnology, 97:4, 417-428, DOI: 10.1080/14620316.2022.2036254

To link to this article: https://doi.org/10.1080/14620316.2022.2036254

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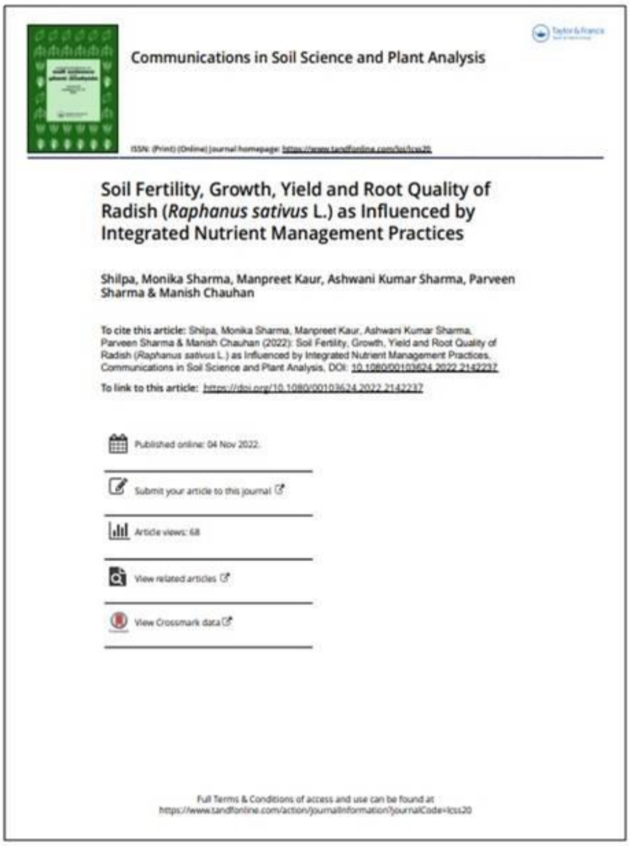
Communications in Soil Science and Plant Analysis

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/lcss20

Soil Fertility, Growth, Yield and Root Quality of Radish (*Raphanus sativus* L.) as Influenced by Integrated Nutrient Management Practices

Shilpa, Monika Sharma, Manpreet Kaur, Ashwani Kumar Sharma, Parveen Sharma & Manish Chauhan

To cite this article: Shilpa, Monika Sharma, Manpreet Kaur, Ashwani Kumar Sharma, Parveen Sharma & Manish Chauhan (2022): Soil Fertility, Growth, Yield and Root Quality of Radish (Raphanus sativus L.) as Influenced by Integrated Nutrient Management Practices, Communications in Soil Science and Plant Analysis, DOI: 10.1080/00103624.2022.2142237

To link to this article: https://doi.org/10.1080/00103624.2022.2142237

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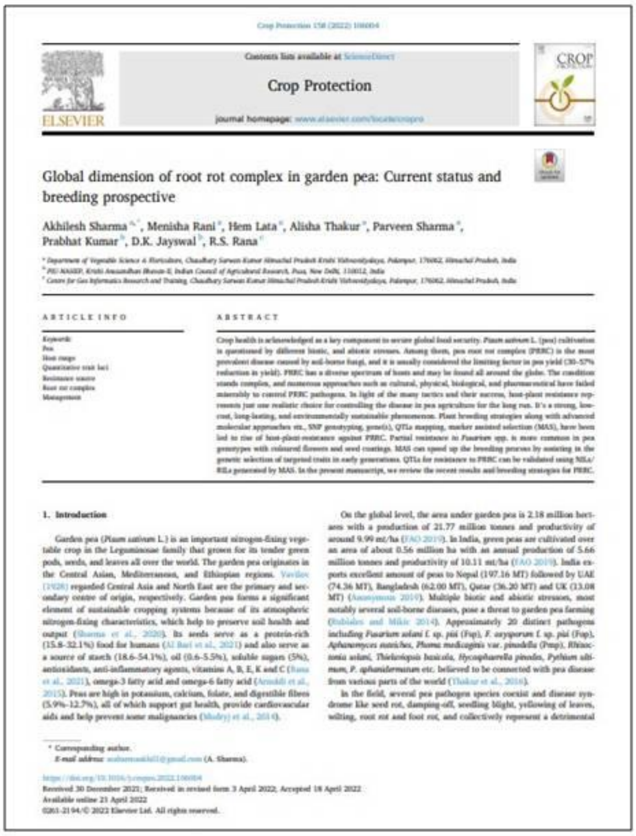
Crop Protection 158 (2022) 106004

Contents lists available at ScienceDirect

Crop Protection

journal homepage: www.elsevier.com/locate/cropro

Global dimension of root rot complex in garden pea: Current status and breeding prospective

Akhilesh Sharma[a,*], Menisha Rani[a], Hem Lata[a], Alisha Thakur[a], Parveen Sharma[a], Prabhat Kumar[b], D.K. Jayswal[b], R.S. Rana[c]

ARTICLE INFO

ABSTRACT

Himachal Journal of Agricultural Research 48(1): 65-70 (2022)

Influence of GA_3 and NAA on growth, yield and quality of tomato (*Solanum lycopersicum* L.)

Muhammad Juma*, Parveen Sharma, Akhilesh Sharma, Shilpa and Neelam Bhardwaj
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Manuscript Received: 10.08.2021; Accepted: 23.02.2022

Abstract

GA_3 and NAA affect various aspects of plant physiology, mainly vegetative, flowering and quality attributes including yield. A field experiment was carried out during 2020-21 at vegetable farm of CSKHPKV, Palampur, Himachal Pradesh to evaluate the effects of foliar-applied plant growth regulators gibberellic acid (GA_3) and Naphthalene Acidic Acid (NAA) on tomato hybrid Palam Tomato Hybrid-1. Significant impact of GA_3 and NAA at different concentrations was observed on yield and quality parameters of tomato. Among the different treatments plant growth regulators GA_3 @ 75 ppm resulted maximum number of fruits per plant, fruit weight and marketable yield per plant, marketable yield per m^2 area, ascorbic acid content plant height and minimum number of days to 50 % flowering.

Key words: NAA, GA_3, protected, tomato, yield

Out of the total vegetable production, solanaceous group plays an important role. Among this group, tomato is one of the important crops. It is a native of tropical America (Peru) and belongs to the family Solanaceae. Tomato (*Solanum lycopersicum* L., 2n = 24) is commercially important throughout the world both for fresh fruit market and for the processed food industries. It ranks 2nd in importance after potato in many countries. It is grown under wide range of climates. The leaves are compound pinnatifid with small leaflet Inflorescence is extra-axillaries cymes with dichotomous or polychotomous branching. The number of flowers per cluster varies from three to several. The flowers are bright yellow and are pentamerous, bisexual, regular, complete and hypogynous. The quantity of nutrients absorbed by the leaf during foliar application may be small; it is compensated by a higher efficiency of uptake than applying the same quantity of nutrients to the soil. The growth regulators have been known to be one of the quick means of increasing production. The dynamic role of plant growth regulators in various physiological and biochemical processes of tomato plant is well known, which not only enables a rapid change in the phenotype of the plant by accelerating germination or growth but also helping in the augmentation of the produce. Gibberellic acid is an important growth regulator that may have many uses to modify the growth and flowering contributing characters of plant (Rafeekher *et al.* 2002). Plant growth regulators are used widely to improve plant performance. Gibberellic acid is one of those growth regulators that have positive effect on plant growth through the effect on cell division and elongation (Batlang *et al.* 2006). NAA has been shown to greatly increase the cellulose formation in plants when paired with another phytohormone. NAA is commonly used at relatively low concentration to elicit auxin type responses in cell growth, cell division, fruit setting and rooting (Sun and Hong 2010). The adventitious root production was increased rapidly at lower NAA concentration, while the number of roots was decreased at higher concentration.

Materials and Methods

The present experiment was carried out under the naturally ventilated polyhouse having 250 m^2 areas at the Research Farm of Department of Vegetable Science and Floriculture, CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur during the year 2020-21. (Table.1). The experiment was conducted in a randomized block design with three replications

Himachal Journal of Agricultural Research 47(1): 1-17 (2021)

Review article

Breeding vegetables for protected cultivation: A review

Parveen Sharma*, Manpreet Kaur, Shilpa, Akhilesh Sharma and Neelam Bhardwaj
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Manuscript received: 16.03.2021; Accepted:29.04.2021

Abstract

Protected cultivation of vegetable crops was given a high priority and developed very rapidly during the past 15 years in India. Initially, vegetable cultivars commonly used for open field production were also started to grown under protected conditions. Despite various measures, many problems arose due to unfavorable ecological conditions in protected environments. Since the late 1980's and early 1990's, breeding of vegetable cultivars for protected conditions has been carried out by taking advantages of both conventional methods and biotechnological tools. One of the main research efforts include screening and evaluation of breeding materials for tolerance to various biotic and abiotic stresses. Another effort focused on the creation and development of new breeding materials (variety, cultivar or breeding line) for protected conditions by selection, introduction, crossing and biotechnological methods, including isolating from popular F$_1$ genotypes, wide crosses, tissue and cell culture, protoplast regeneration, gene transfer techniques, molecular marker assisted breeding and many other approaches. As most hydroponic cultivation and grafting tools are carried out inside the protected conditions, more cultivars adapted to this type of culture are also urgently needed.

Key words: Breeding, grafting, hydroponic, protected cultivation, vegetable.

Introduction

Agriculture has been the backbone of our Indian economy and till date approximately 43% of India's geographical area is being used for agricultural activity related to various perspectives (Anonymous 2018). Though after the independence of India, special emphasis on agriculture in the five-year plans and steady improvements in irrigation, technology, application of modern agricultural practices and provision of agricultural credit and subsidies since the Green Revolution have increased crop yields per unit area of all crops but today, fragmentation of land, small land holdings, urbanization, industrialization, declining biodiversity, climate change and food demand of burgeoning population are mounting a great pressure on the limited resources of the country (Kohli *et al.* 2010). Furthermore, when this thing was compared internationally, the average yield in India is only 30% to 50% of the highest average yield in the world. Thus, alternate means for improving the quality and increasing the productivity from limited land is a matter of concern for researchers and policy makers (Kacira 2011). Vegetable crops on the other hand, hold prime responsibility of meeting nutritional requirement of the population, generating employment and improving economic conditions of the people. During the last four decades, area and production of vegetables has increased by 77 and 187% respectively, but still per capita availability is lower than the recommended (300g) dietary requirement (FAO 2013). Therefore, it is extremely important to improve the productivity of vegetables by adopting intensive cultivation practices like protected cultivation to produce more produce per unit area with increased input use efficiency.

Protected cultivation offers an opportunity to grow vegetables under adverse conditions, in which natural environment is modified to achieve optimal growth and development of the plant. The modification of micro-climate around the plants by trapping the solar energy gives new dimension to

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Horticultural Science (Prague), *Original Paper*
https://doi.org/10.17221/138/2022-HORTSCI

Seed yield, nutrient absorption and soil health as influenced by the sowing time, nutrient levels and genotypes of the garden pea (*Pisum sativum* L.)

Anamika Chandel[1,4], Akhilesh Sharma[1], Parveen Sharma[1], Surinder Singh Rana[2], Ranbir Singh Rana[3], Shilpa[1]*

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**Corresponding author: asharmaakhil1@gmail.com*

Citation: Chandel A., Sharma A., Sharma P., Rana S.S., Rana R.S., Shilpa (2023): Seed yield, nutrient absorption and soil health as influenced by the sowing time, nutrient levels and genotypes of the garden pea (*Pisum sativum* L.). Hort. Sci. (Prague).

Abstract: The choice of variety, sowing time and optimum nutrition are important management options to optimise the seed yield. Accordingly, an experiment comprising of 18 treatments was conducted during the winter 2017–2018 and 2018–2019 in a factorial randomized block design, replicated three times to assess the response of pea genotypes (DPP-SP-6, Him Palam Matar-1 and Pb-89) to the seeding time (26th October and 10th November) and nutrient levels (0, 100 and 125% of the recommended NPK). The individual treatment effects revealed that early sowing, application of 125% NPK and DPP-SP-6 were significantly superior for the seed yield and related traits. The interaction effects indicated a significant response of the 125% NPK on the early sown crop for the seed yield, harvest index and NPK uptake. Significantly highest soil available NPK were obtained at 125% NPK with a respective increase of 41.54, 5.90 and 30.82 kg/ha, respectively, over the initial status. Early sowing of DPP-SP-6 with an application of 125% NPK is a better preposition for enhancing the productivity of peas.

Keywords: fertility; interaction effects; NPK uptake; productivity; soil nutrients

The garden pea is the second most important food legume after *Phaseolus*, and is a principal vegetable crop of temperate and sub-tropical areas of the world. It is considered one of the most nutritious vegetables, being rich in health promoting phytonutrients, minerals, vitamins, and antioxidants (Sharma et al. 2020). It is an important off-season vegetable in the north-western Himalayas of India (Sharma et al. 2023) comprising the states of Himachal Pradesh, Jammu and Kashmir and Uttarakhand which provides lucrative returns to the growers (Sharma et al. 2013).

The sowing time is an important factor affecting the pea growth and development, seed yield and seed quality. The optimum planting time is effective in enhancing the growth and develop-

The Journal of Horticultural Science and Biotechnology
ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/thsb20

A status-quo review on management of root knot nematode in tomato

Shilpa, Parveen Sharma, Vandana Thakur, Akhilesh Sharma, R. S. Rana & Prabhat Kumar

To cite this article: Shilpa, Parveen Sharma, Vandana Thakur, Akhilesh Sharma, R. S. Rana & Prabhat Kumar (2022) A status-quo review on management of root knot nematode in tomato, The Journal of Horticultural Science and Biotechnology, 97:4, 403-416, DOI: 10.1080/14620316.2022.2034531

To link to this article: https://doi.org/10.1080/14620316.2022.2034531

Published online: 28 Feb 2022.

Journal of Plant Nutrition

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/lpla20

Influence of different organic manures, biofertilizers and inorganic nutrients on performance of pea (*Pisum sativum* L.) in North Western Himalayas

Monika Sharma, Shilpa, Manpreet Kaur, Ashwani Kumar Sharma & Parveen Sharma

To cite this article: Monika Sharma, Shilpa, Manpreet Kaur, Ashwani Kumar Sharma & Parveen Sharma (2022): Influence of different organic manures, biofertilizers and inorganic nutrients on performance of pea (*Pisum sativum* L.) in North Western Himalayas, Journal of Plant Nutrition, DOI: 10.1080/01904167.2022.2071735

To link to this article: https://doi.org/10.1080/01904167.2022.2071735

The Journal of Horticultural Science and Biotechnology

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/thsb20

Recent advances in cucumber (*Cucumis sativus* L.)

Manpreet Kaur & Parveen Sharma

To cite this article: Manpreet Kaur & Parveen Sharma (2022) Recent advances in cucumber (*Cucumis sativus* L.), The Journal of Horticultural Science and Biotechnology, 97:1, 3-23, DOI: 10.1080/14620316.2021.1945956

To link to this article: https://doi.org/10.1080/14620316.2021.1945956

Genet Resour Crop Evol (2021) 68:999–1010
https://doi.org/10.1007/s10722-020-01040-0

RESEARCH ARTICLE

Stability analysis of garden pea (*Pisum sativum* L.) genotypes under North Western Himalayas using joint regression analysis and GGE biplots

Chanchal Rana · Akhilesh Sharma · K. C. Sharma · Pankaj Mittal · Bhrigu Nath Sinha · Vinod Kumar Sharma · Anamika Chandel · Hament Thakur · Vineeta Kaila · Praveen Sharma · Vijay Rana

Received: 11 July 2020 / Accepted: 8 October 2020 / Published online: 19 October 2020

Abstract Garden pea is an important off-season vegetable in the hills of North Western Himalayas that provides high remuneration to growers. Lack of high yielding wider adaptive varieties restricts its productivity. To identify high yielding stable genotypes across environments, 48 lines were evaluated in Alpha Lattice design over seven diverse environments spreading in five locations from sub-tropical to dry temperate conditions of Himachal Pradesh during winter 2016–2017 (5 environments) and one location each during summer 2017 and winter 2017–2018. The highest mean pod yield over environments was produced by SP-3 (83.35 g) which was 20% higher over check Pb-89 while SP-6 (79.45 g) and SP-22 (76.90 g) got second and third rank with significant increase of 15 and 11% for pod yield over the check, respectively. The joint regression analysis depicted significant G × E (linear) interaction for pods/plant and pod yield/plant. Of the seven genotypes depicting stability for pod yield, SP-6 showed stability ($bi = 1$ and $S^2di = 0$) for all the traits whereas SP-22 showed the same for seeds/pod and shelling percentage. G + GE biplot described Dhaulakuan as the most representative and discriminating environment for pod

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s10722-020-01040-0) contains supplementary material, which is available to authorized users.

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Vegetable Science (2022) 49(1):116-119

Short Communication

Correlation and path analysis studies in parthenocarpic cucumber (*Cucumis sativus* L.)

Palvi Mehta, Parveen Sharma*, Manpreet Kaur, Shilpa, Akhilesh Sharma and Neelam Bhardwaj

Received: March 2022/ Accepted: July 2022

Cucumber (*Cucumis sativus* L.) is the most important member of cucurbitaceae family due to its economic importance. It helps to cure kidney infection, jaundice, stomach problems and indigestion. It is believed to be originated in India and the wild relative *Cucumis sativus* var. *hardwickii* is the progenitor of the cultivated cucumber (Choudhary et al. 2015; Sharma 2017). It is most suitable vegetable for protected conditions due to year round production and higher demand in market. Due to its origin in India, it has accumulated most of the genetic variability which helps to improve various characters through selection. Germplasm purity is difficult to maintain due to higher cross pollination in cucumber. It depicts wide range of variability with no uniformity in characters like fruit size, shape, color and yield among existing germplasm (Sharma et al. 2017; Kaur and Sharma 2022). Parthenocarpic genotypes are widely grown under protected conditions which bear female flowers in every node and develop seedless fruits. Presence of genetic variability in germplasm helps in crop improvement through selection. Therefore, genetic restructuring of cucumber germplasm is the first step to identify the potential genotypes for use in breeding programme. Most of economic traits are quantitative in nature, which are influenced by the environment and their effective selection relies on the nature of genetic and non-genetic variation. It will help in partitioning the overall variability into heritability and non-heritable components. Understanding of interrelationships among various characters is useful because selection of one character may affect the performance of other characters, which helps in identification of components of complex characters such as yield. Determination of correlation does not give a correct depiction of the direct influence of each of the components traits towards the yield. Path coefficient helps in partitioning the correlation coefficient into direct and indirect effects and helps in identification of characters which are useful selection criteria to improve fruit yield. Thus, present investigation was carried out to study the character association and direct & indirect effects of independent characters on yield.

The experiment was conducted at Department of Vegetable Science and Floriculture, College of Agriculture, CSKHPKV, Palampur during spring-summer 2018 under naturally ventilated polyhouse. The experimental farm is situated at 32Ú6' N latitude, 76Ú3'E longitude and at an elevation of 1,290.8 m above mean sea level. The experimental material consists of twelve genotypes of parthenocarpic cucumber along with two checks were evaluated in Randomized Block Design (RBD) with three replications in modified naturally ventilated poly-house. Ten plants in each replication were planted at spacing of 70×30 cm within row to row and plant to plant, respectively to determine components of variability, association of various traits with yield and their direct and indirect effects for successful selection for crop improvement. Data were recorded on randomly taken ten plants of each genotype in each replication on growth and yield contributing characters viz., days to anthesis of first female flower, nodal position of first female flower, number of female flowers per node, days taken to first fruit harvest, fruit length (cm), fruit girth (cm), fruit weight (g), number of fruits per plant, marketable yield per plant (kg), harvest duration (days), internodal length (cm), vine length (m), total soluble solids (°Brix), incidence of powdery mildew disease (%) and incidence of downy mildew disease (%). Correlation coefficients analysis were carried as per the method of Al-Jibouri et al (1958) while, path coefficient analysis

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Annexure -III

List of Books/Manuals Published under PANF-CAAST, NAHEP

SNo.	Type	Title	Month	Year	Authors
1	Book	Phytotron for Speed Breeding and Precision Agriculture	March	2023	Vinod Kumar Sood, Nimit Kumar, Sawan Kumar, Gaurav Sharma
2	Book	Hindi Manual on Hydroponic Farming	December	2022	Parveen Sharma, Akhilesh Sharma, Ranbir Singh Rana
3	Book	Manual on Hydroponic Farming	November	2022	Parveen Sharma, Akhilesh Sharma, Ranbir Singh Rana
4	Book	Handbook on Principles and Practices of Natural Farming	June	2022	Dr. G.D. Sharma, Dr. Aditi Badiyala, Dr. Gopal Katna, Dr. Rameshwar Kumar, Dr. Ranbir Singh Rana
5	Book	Rural Sociology and Education Psychology	August	2022	Dr. Anup Katoch, Dr. Ranbir Singh Rana
6	Book	Packaging of Fresh and Processed Food Products	July	2022	Dr. Ranjana Verma and Dr. Anupama Sandal Dr. Y.S. Dhaliwal, Dr. Ranbir Singh Rana, Dr. Farhan M. Bhatt & Mr. Manohar Lal
7	Book	Evaluation Methods for Fresh and Processed Fruits & Vegetables	July	2022	Dr. Ranjana Verma and Dr. Anupama Sandal Dr. Y.S. Dhaliwal, Dr. Ranbir Singh Rana, Dr. Farhan M. Bhatt & Mr. Manohar Lal
8	Book	Diagnosis and Management of Biotic and Abiotic stresses of Vegetable Crops in Protected Agriculture and Natural Farming		2023	Ajay K Sood, Amar Singh, Ranbir S Rana, Ashwini K. Basandrai, N. Sankhyan & Sanjeev Sandal

9	Book	Application of Nanotechnology in Crop Pest Management		2023	Amar Singh, Ajay K Sood, Ashwini K. Basandrai, Ranbir S Rana, Somya Halan, Diksha Sinha, Ekta Kaushik
10	Book	Intellectual Property Rights (IPR) Policy Guidelines		2023	Dr HK Chaudhary and Dr VK Sood
11	Brochure	Protected Agriculture and Natural farming Activities & Salient Achievements	February	2022	Complied By Dr Sant Prakash Published by Dr Ranbir Singh Rana
12	Brochure	Protected Cultivation of Vegetable Crops	February	2022	Parveen Sharma, Akhilesh Sharma Dr Sant Prakash Tech Guidance Dr Desh Raj Chaudhary Published by Dr Ranbir Singh Rana
13	Booklet	Germplasm Conservation and Patents	Jan	2023	Directorate of Research & Centre of Advanced Agricultural Science and Technology (CAAST)National Agricultural Higher Education Project (NAHEP) (ICAR-WB Project)
14	Book	Varieties and Technologies developed by CSKHPKV, Palampur	Jan	2023	Directorate of Research & Centre of Advanced Agricultural Science and Technology (CAAST)National Agricultural Higher Education Project (NAHEP) (ICAR-WB Project)

Annexure -IV

Registration Certificate of Garden Pea Variety Palam Triloki

संख्या सं./Sl. No. 4858

प्ररूप O-2, FORM O-2
(कृपया नियम 36 और 37 देखें) (See rules 36 and 37)
भारत सरकार GOVERNMENT OF INDIA

PPVFRA

पौधा किस्म रजिस्ट्री PLANT VARIETIES REGISTRY

एनएएस परिसर, डीपीएस मार्ग, निकट टोडापुर गांव, नई दिल्ली/Opp. Todapur Village, NAS Complex, New Delhi - 110 012

रजिस्ट्रीकरण प्रमाण-पत्र/Certificate of Registration

पंजीकरण सं./ Registration No.: REG/2020/386	फाइल करने की तारीख/ Date of Filing: 22 दिसम्बर/December,2020
	जारी करने की तारीख/ Date of Grant: 02 नवम्बर/ November,2021

सीएसके हिमाचल प्रदेश कृषि विश्वविद्यालय पालमपुर, जिला– कांगड़ा– 176062, हिमाचल प्रदेश ने घोषित किया है कि उसने गार्डन मटर (*Pisum sativum* L.) फसल की निद्यमान (अधिसूचित) पौधा किस्म Palam Triloki (DPPA-8 E) विकसित किया है और यह उसका वास्तविक प्रजनक (या वास्तविक प्रजनक का विधिक प्रतिनिधि या समनुदेशिती) है और पौधा किस्म संरक्षण और कृषक अधिकार अधिनियम, 2001 के उपबंधों को ध्यान में रखते हुए वह उक्त पौधा किस्म के अधिकार का हकदार है और यह कि उसके पक्ष में पौधा किस्म के पंजीकरण के प्रति कोई आक्षेप नहीं है।
और, यह उक्त पौधा किस्म के लिए आवेदन करते हुए अनुरोध करता है कि विद्यमान (अधिसूचित) पौधा किस्म का पंजीकरण उसके नाम पर किया जाये;

और, उसने अपने आवेदन द्वारा और उसके, उक्त पौधा किस्म के विभिन्न विशिष्ट लक्षणों और उसके अभिधान का उल्लेख किया है;

अतः यह विलेख है कि उपर्युक्त आवेदक (जिसमें उसके विधिक प्रतिनिधि और समनुदेशिती या इनमें से कोई भी है) पौधा किस्म संरक्षण और कृषक अधिकार अधिनियम, 2001 के उपबंधों और उक्त अधिनियम की धारा 47 में विनिर्दिष्ट शर्तों और तत्समय प्रवृत्त किसी अन्य विधि द्वारा विनिर्दिष्ट शर्तों और उपबंधों के अधीन रहते हुए वर्ष 2018 के जनवरी माह की 16 तारीख से छः वर्षों की अवधि के लिए एवं शेष वर्षों के लिए नवीनीकरण के उपरांत, उस किस्म के उत्पादन, विक्रय, विपणन, वितरण, आयात या निर्यात करने और ऐसा करने के लिए किसी अन्य व्यक्ति को प्राधिकृत करने का अनन्य अधिकार होगा, इस शर्त के अधीन रहते हुए कि इस पंजीकरण की विधि मान्यता प्रत्याभूत नहीं की जाती है और इस पंजीकरण को बनाए रखने के लिए विहित फीस का समय पर रूप से संदाय किया जाता है।

Whereas CSK Himachal Pradesh Krishi Vishvavidyalaya Palampur, District: Kangra - 176062, Himachal Pradesh has declared that he has developed Palam Triloki (DPPA-8 E) of Garden pea (*Pisum sativum* L.) as Extant (Notified) plant variety and that he is the true breeder thereof (or the legal representative or assignee of the true breeder) and that he is entitled to a plant variety right on the said variety, having regard to the provisions of the Protection of Plant Varieties and Farmers' Rights Act, 2001 and that there is no objection to the registration of plant variety in favour of him.

And whereas he has, by an application, requested that registration of Extant (Notified) plant variety may be allowed to him for the said plant variety;

And whereas he has, by and in his application, particularly described the various distinctive features and mentioned the denomination of the said plant variety;

Now, these presents that the above said applicant (including his legal representatives and assignees or any of them) shall, subject to the provisions of the Protection of Plant Varieties and Farmers' Rights Act, 2001 and the conditions specified in section 47 of the said Act, and the conditions and provisions specified by any other law for the time being in force, from the 16th day of January, 2018, have the exclusive right to produce, sell, market, distribute, import or export the variety for initial term of Six years & renewable for the remaining years and of authorizing any other person to do so, subject to the conditions that the validity of this registration is not guaranteed and that the fee prescribed for the continuance of this registration are duly paid.

इसके साक्ष्य स्वरूप रजिस्ट्रार ने वर्ष 2021 के नवम्बर माह की 02 तारीख को पंजीकरण पर मुहर लगाई है। In witness thereof, the Registrar has caused this registration to be sealed as of the 2nd day of November, 2021.

भारत सरकार पौधा किस्म रजिस्ट्री Plant Variety Registry Government of India

रजिस्ट्रार के हस्ताक्षर व मुहर/ Seal and Signature of the Registrar,
पौधा किस्म रजिस्ट्री/ Plant Varieties Registry

टिप्पण/ Note : इस पंजीकरण को बनाए रखने के लिए फीस, यदि इसे बनाए रखा जाना है तो वर्ष 2022 के जनवरी माह की 16 तारीख को और उसके पश्चात प्रत्येक वर्ष उसी तारीख को देय होगी। The fees for maintenance of this registration, if it is to be maintained, will fall due on 16th day of January, 2022 and on the same day in every year thereafter.

E-mail: ppvfra-agri@nic.in; Website: www.plantauthority.gov.in

Registration Certificate of Garden Pea Variety Palam Sumool

संख्या नं./Sl. No. 4859

प्ररूप O-2, FORM O-2

(कृपया नियम 36 और 37 देखें) (See rules 36 and 37)

भारत सरकार GOVERNMENT OF INDIA

PPVFRA

पौधा किस्म रजिस्ट्री PLANT VARIETIES REGISTRY

एनएएस परिसर, डीपीएस मार्ग, निकट टोडापुर गांव, नई दिल्ली/Opp. Todapur Village, NAS Complex, New Delhi - 110 012

रजिस्ट्रीकरण प्रमाण-पत्र/Certificate of Registration

पंजीकरण सं./ Registration No.: REG/2020/387	दाखिल करने की तारीख/ Date of Filing: 22 दिसम्बर/December,2020
	जारी करने की तारीख/ Date of Grant: 02 नवम्बर/ November,2021

सीएसके हिमाचल प्रदेश कृषि विश्वविद्यालय पालमपुर, जिला– कांगड़ा– 176062, हिमाचल प्रदेश ने घोषित किया है कि उसने **गार्डन मटर (*Pisum sativum* L.)** फसल की **विद्यमान (अधिसूचित)** पौधा किस्म **Palam Sumool (DPPM-64)** विकसित किया है और वह उसका वास्तविक प्रजनक (या वास्तविक प्रजनक का विधिक प्रतिनिधि या समनुदेशिती) है और पौधा किस्म संरक्षण और कृषक अधिकार अधिनियम, 2001 के उपबंधों को ध्यान में रखते हुए वह उक्त पौधा किस्म के अधिकार का हकदार है और यह कि उसके पक्ष में पौधा किस्म के पंजीकरण के प्रति कोई आक्षेप नहीं है।

और, वह उक्त पौधा किस्म के लिए आवेदन करते हुए अनुरोध करता है कि **विद्यमान (अधिसूचित)** पौधा किस्म का पंजीकरण उसके नाम पर किया जाये;

और, उसने अपने आवेदन द्वारा और उसके, उक्त पौधा किस्म के विभिन्न विशिष्ट लक्षणों और उसके अभिधान का उल्लेख किया है;

अतः यह विलेख है कि उपर्युक्त आवेदक (जिसमें उसके विधिक प्रतिनिधि और समनुदेशिती या इनमें से कोई भी है) पौधा किस्म संरक्षण और कृषक अधिकार अधिनियम, 2001 के उपबंधों और उक्त अधिनियम की धारा 47 में विनिर्दिष्ट शर्तों और तत्समय प्रवृत्त किसी अन्य विधि द्वारा विनिर्दिष्ट शर्तों और उपबंधों के अधीन रहते हुए वर्ष **2018** के **जनवरी** माह की **16** तारीख से **छः** वर्षों की अवधि के लिए एवं शेष वर्षों के लिए नवीनीकरण के उपरांत, उस किस्म के उत्पादन, विक्रय, विपणन, वितरण, आयात या निर्यात करने और ऐसा करने के लिए किसी अन्य व्यक्ति को प्राधिकृत करने का अनन्य अधिकार होगा, इस शर्त के अधीन रहते हुए कि इस पंजीकरण की विधि मान्यता प्रत्याभूत नहीं की जाती है और इस पंजीकरण को बनाए रखने के लिए विहित फीस का सम्यक रूप से संदाय किया जाता है।

Whereas **CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur, District: Kangra-176062, Himachal Pradesh** has declared that he has developed **Palam Sumool (DPPM-64)** of **Garden pea (*Pisum sativum* L.)** as **Extant (Notified)** plant variety and that he is the true breeder thereof (or the legal representative or assignee of the true breeder) and that he is entitled to a plant variety right on the said variety, having regard to the provisions of the Protection of Plant Varieties and Farmers' Rights Act, 2001 and that there is no objection to the registration of plant variety in favour of him.

And whereas he has, by an application, requested that registration of **Extant (Notified)** plant variety may be allowed to him for the said plant variety;

And whereas he has, by and in his application, particularly described the various distinctive features and mentioned the denomination of the said plant variety;

Now, these presents that the above said applicant (including his legal representatives and assignees or any of them) shall, subject to the provisions of the Protection of Plant Varieties and Farmers' Rights Act, 2001 and the conditions specified in section 47 of the said Act, and the conditions and provisions specified by any other law for the time being in force, from the 16th day of **January, 2018**, have the exclusive right to produce, sell, market, distribute, import or export the variety for initial term of **Six** years & renewable for the remaining years and of authorizing any other person to do so, subject to the conditions that the validity of this registration is not guaranteed and that the fee prescribed for the continuance of this registration are duly paid.

इसके साक्ष्य स्वरूप रजिस्ट्रार ने वर्ष 2021 के नवम्बर माह की 02 तारीख को पंजीकरण पर मुहर लगाई है। In witness thereof, the Registrar has caused this registration to be sealed as of the 2nd day of November, 2021.

भारत सरकार पौधा किस्म रजिस्ट्री Plant Varieties Registry Government of India

रजिस्ट्रार के हस्ताक्षर व मुहर/ Seal and Signature of the Registrar,
पौधा किस्म रजिस्ट्री/ Plant Varieties Registry

टिप्पण/ Note : **इस पंजीकरण को बनाए रखने के लिए फीस, यदि इसे बनाए रखा जाना है तो वर्ष 2022 के जनवरी माह की 16 तारीख को और उसके पश्चात प्रत्येक वर्ष उसी तारीख को देय होगी। The fees for maintenance of this registration, if it is to be maintained, will fall due on 16th day of January, 2022 and on the same day in every year thereafter.**

Annexure-V

Newspaper/Print Media (Total 46)

Palampur Agricultural Varsity gets 'A' grade Accreditation

@TheSaveraTimes
Network

Palampur : Chaudhary Sarwan Kumar Himachal Pradesh Agriculture University has been accredited for five years. While disclosing this, Dr D.K.Vatsa, Vice Chancellor said that the Indian Council of Agricultural Research has conveyed that the University has been accredited till March 2028 and awarded 'A' grade. He told that a high level ICAR Peer Review Team had visited the University almost six months back and had thoroughly inspected and studied all the facilities for academic, research and extension education. The team had independently interacted and elicited feedback from all stakeholders including farmers, students and staff. While expressing his gratitude to National Agricultural Education Accreditation Board of the ICAR for granting accreditation with 'A' grade, Dr Vatsa thanked the University community for working in close cohesion and dedication for this prestigious achievement. He exhorted all to maintain high tempo to achieve excellence in assigned mandate.

> Dr D.K.Vatsa, Vice Chancellor informed that the University has been accredited till March 2028

He told that almost all academic programs have been accredited and the University has been asked to upload self study reports of the constituent colleges on the University website. A mid-term review will be done and the University has been asked not to increase intake of students without the permission of National Agricultural Education Accreditation Board.

HP agri varsity gets 'A' grade

DHARAMSHALA:
Chaudhary Sarwan Kumar Himachal Pradesh Agriculture University, Palampur, has been accredited with grade "A" for five years by the Indian Council of Agricultural Research (ICAR). Vice-chancellor DK Vatsa said that the IVAR has conveyed that the university has been accredited till March 2028. He said that a high-level ICAR peer review team had visited the university almost six months ago and had inspected and studied all the facilities for academic, research and extension education.

कृषि विश्वविद्यालय को भारतीय कृषि अनुसंधान परिषद ने ए ग्रेड आंका

पालमपुर, 24 फरवरी(भृ): कृषि विश्वविद्यालय को भारतीय कृषि अनुसंधान परिषद ने ए ग्रेड आंका है। यह ग्रेडिंग पांच वर्ष के लिए प्रदान की गई है। अनेक पूर्वोतियों के बावजूद कृषि विश्वविद्यालय ए ग्रेड प्राप्त करने में सफल रहा है। विश्वविद्यालय को मार्च 2028 तक मान्यता दी गई है और ए ग्रेड प्रदान है। भारतीय कृषि अनुसंधान परिषद की उच्च स्तरीय पीयर रिव्यू टीम ने लगभग छह महीने पहले विश्वविद्यालय का दौरा किया था। टीम ने इस दौरान शैक्षणिक, अनुसंधान और विस्तार शिक्षा के लिए सभी सुविधाओं का गहन निरीक्षण और अध्ययन किया था।

भारतीय कृषि अनुसंधान परिषद की उच्च स्तरीय पीयर रिव्यू टीम ने लगभग सभी शैक्षणिक कार्यक्रमों को भी मान्यता दी गई है और विश्वविद्यालय को विश्वविद्यालय की वैबसाइट पर घटक कॉलेजों की स्व अध्ययन रिपोर्ट अपलोड करने के लिए कहा गया है। विश्वविद्यालय को एक मध्यावधि समीक्षा की जाएगी जबकि राष्ट्रीय कृषि शिक्षा प्रत्यायन बोर्ड की अनुमति के बिना विश्वविद्यालय में छात्रों का प्रवेश की संख्या को न बढ़ाने को भी कहा है।

कुलपति डाक्टर डी.के. वत्स ने कृषि विश्वविद्यालय को ए ग्रेड के साथ मान्यता प्रदान करने के लिए आई.सी.ए.आर. के राष्ट्रीय कृषि शिक्षा प्रत्यायन बोर्ड के प्रति आभार व्यक्त करते हुए सभी को सौंपे गए आदेश में उत्कृष्टता प्राप्त करने के लिए उच्च गति बनाए रखने का आह्वान किया।

कुलपति डॉक्टर डीके वत्स ने दी जानकारी, इंस्टीट्यूशनल रैंकिंग फ्रेमवर्क में अर्जित किया 12वां स्थान

कृषि विवि को मिली 2028 तक 'ए' ग्रेड मान्यता

अमर सिंह, पालमपुर

चौधरी सरवन कुमार हिमाचल प्रदेश कृषि विश्वविद्यालय को भारतीय कृषि अनुसंधान परिषद ने ए ग्रेड के साथ पांच साल के लिए मान्यता दी है।

कुलपति डाक्टर डीके वत्स ने बताया कि भारतीय कृषि अनुसंधान परिषद ने जानकारी दी है कि विश्वविद्यालय को मार्च 2028 तक मान्यता दी गई है और 'ए' ग्रेड प्रदान है। उन्होंने बताया कि एक उच्च स्तरीय आईसीएआर पीयर रिव्यू टीम ने लगभग छह महीने पहले विश्वविद्यालय का दौरा किया था। टीम ने इस दौरान शैक्षणिक, अनुसंधान और विस्तार शिक्षा के लिए सभी सुविधाओं का गहन निरीक्षण और अध्ययन किया था। इतना ही नहीं टीम ने स्वतंत्र रूप से सभी हितधारकों से प्रतिक्रिया प्राप्त करते हुए किसानों, छात्रों और कर्मचारियों से बातचीत की थी। 'ए' ग्रेड के साथ मान्यता प्रदान करने के लिए आईसीएआर के राष्ट्रीय कृषि शिक्षा प्रत्यायन बोर्ड के प्रति आभार व्यक्त करते हुए, डाक्टर वत्स ने इस प्रतिष्ठित उपलब्धि के लिए निकट सहयोगियों और समर्पण के साथ काम करने के लिएविश्वविद्यालय समुदाय को धन्यवाद दिया। उन्होंने सभी को सौंपे गए आदेश में उत्कृष्टता हासिल करने के लिए उच्च गति बनाए रखने का आह्वान किया।

उन्होंने बताया कि लगभग सभी शैक्षणिक कार्यक्रमों को भी मान्यता दी गई है और विश्वविद्यालय को विश्वविद्यालय की वेबसाइट पर घटक कॉलेजों की स्व-अध्ययन रिपोर्ट अपलोड करने के लिए कहा गया है। (अगले पेज)

अनुमति के बिना छात्रों का प्रवेश न बढ़ाए

उन्होंने कहा कि विश्वविद्यालय को एक मध्यावधि समीक्षा की जाएगी और यह राष्ट्रीय कृषि शिक्षा प्रत्यायन बोर्ड की अनुमति के बिना छात्रों का प्रवेश न बढ़ाए। उन्होंने कहा कि विश्वविद्यालय पूरी लगन से सभी छात्रों का पालन करेगा। वर्तमान में केंद्रीय शिक्षा मंत्रालय के नेशनल इंस्टीट्यूशनल रैंकिंग फ्रेमवर्क ने विश्वविद्यालय को सभी कृषि और संबद्ध विज्ञान संस्थानों में 12वां स्थान दिया है और देश के सभी खुले कृषि विश्वविद्यालयों में इसे आठवां स्थान दिया है।

कृषि उच्च शिक्षा परियोजना दे रही प्रोत्साहन

पालमपुर : प्रदेश कृषि विश्वविद्यालय में राष्ट्रीय कृषि उच्च शिक्षा परियोजना के तहत संरक्षित कृषि और प्राकृतिक खेती पर उन्नत कृषि विज्ञान और प्रौद्योगिकी केंद्र ने शिक्षाविदों में सुधार और अत्याधुनिक बुनियादी ढांचे के निर्माण के लिए एक बड़ा प्रोत्साहन दिया है। कुलपति प्रो. एचके चौधरी ने बताया कि इस परियोजना के तहत 602.93 लाख रुपये की लागत से उच्च तकनीक रोपण सामग्री उत्पादन इकाई, उच्च तकनीक संयंत्र विकास कक्ष, हाइड्रोपोनिक इकाई, फाइटोट्रान सुविधा, आणविक प्रयोगशाला, बायोएजेंट उत्पादन इकाई आदि बनाई गई हैं। 105 कृषि और प्रयोगशाला उपकरणों को जोड़ के अलावा, प्रयोगशाला, व्याख्यान थियेटर और सम्मेलन कक्षों को नवीनतम तकनीकों के साथ उन्नत किया गया और पालिहाउस का नवीनीकरण कार्य भी किया गया। लगभग 50 स्नातकोत्तर छात्रों को विभिन्न अंतरराष्ट्रीय और राष्ट्रीय संस्थानों के भ्रमण के माध्यम से लाभान्वित किया गया है। (संस)

उपमहानिदेशक ने किया सात प्रकाशनों का विमोचन

पालमपुर। प्रदेश कृषि विश्वविद्यालय में भारतीय कृषि अनुसंधान परिषद के उप महानिदेशक व राष्ट्रीय कृषि उच्च शिक्षा परियोजना एनएएचईपी के राष्ट्रीय निदेशक डाक्टर आरसी अग्रवाल ने स्नातकोत्तर विद्यार्थियों के साथ संवाद किया। बतौर मुख्य अतिथि डा. अग्रवाल ने युवाओं को सलाह दी कि प्रगति करने और मानवता के लाभ के लिए योगदान देने के लिए सीखना और जीवन जीने का जुनून होना चाहिए। उन्होंने कहा कि नियमित अनुसंधान को नए विचारों और लीक से हटकर सोच द्वारा प्रतिस्थापित किया जाना चाहिए। नवोन्मेष अनुसंधान के लिए धन की कोई कमी नहीं है। डा. अग्रवाल ने नए शोध विचारों पर चर्चा की जो वैश्विक चुनौतियों के लिए नए तरह के समाधान दे सकते हैं। उन्होंने छात्रों को नोबेल पुरस्कार विजेताओं और अन्य शीर्ष वैज्ञानिकों के साथ काम करने के अवसर खोजने का सुझाव दिया। मुख्यातिथि ने विश्वविद्यालय के वैज्ञानिकों द्वारा लिखित सात प्रकाशनों का भी विमोचन किया।

अपने पेशे के प्रति जुनूनी रहें : डा आरसी अग्रवाल

अपने पेशे के प्रति जुनूनी रहें विद्यार्थी

उप महानिदेशक आई.सी.ए.आर. ने विद्यार्थियों से संवाद कर दी सलाह

पालमपुर, 5 जनवरी(भृ): कृषि विश्वविद्यालय में भारतीय कृषि अनुसंधान परिषद के उप महानिदेशक व राष्ट्रीय कृषि उच्च शिक्षा परियोजना के राष्ट्रीय निदेशक डाक्टर आर.सी. अग्रवाल ने स्नातकोत्तर विद्यार्थियों के साथ संवाद किया। बतौर मुख्य अतिथि डा. अग्रवाल ने युवाओं को सलाह दी कि प्रगति करने और मानवता के लाभ के लिए योगदान देने के लिए सीखना और जीवन जीने का जुनून होना चाहिए। उन्होंने कहा कि नियमित अनुसंधान को नए विचारों और लीक से हटकर सोच द्वारा प्रतिस्थापित किया जाना चाहिए। नवोन्मेष अनुसंधान के लिए धन की कोई कमी नहीं है।

डा. अग्रवाल ने नए शोध विचारों पर चर्चा की जो वैश्विक चुनौतियों के लिए नए तरह के समाधान दे सकते हैं। उन्होंने छात्रों को नोबेल पुरस्कार विजेताओं और अन्य शीर्ष वैज्ञानिकों के साथ काम करने के अवसर खोजने का सुझाव दिया। उन्होंने कहा कि प्रतिष्ठित अंतर्राष्ट्रीय और राष्ट्रीय संस्थानों में छात्रों के संपर्क से उनके व्यक्तित्व में पूरी तरह से बदलाव आता है। यह उनकी दृष्टि को बढ़ाता है और उन्हें शैक्षणिक और अनुसंधान के मोर्चे पर चुनौतियों का सामना करने और हल करने के लिए आश्वस्त करता है। उन्होंने कहा कि किसी भी चुने हुए पेशे में जुनून होना चाहिए।

डा. अग्रवाल ने कहा कि विश्वविद्यालय में संरक्षित कृषि और प्राकृतिक खेती पर उन्नत कृषि विज्ञान और प्रौद्योगिकी केंद्र ने अच्छा प्रदर्शन किया है। मुख्य अतिथि ने विश्वविद्यालय के वैज्ञानिकों द्वारा लिखित सात प्रकाशनों का भी विमोचन किया। उन्होंने इस बात पर जोर दिया कि चूंकि किसानों को आधुनिक खेती में शामिल होने की जरूरत है। उन्होंने कहा कि इस विश्वविद्यालय ने उन्नत प्रशिक्षण के लिए छात्रों का चयन साक्षात्कारपूर्वक किया है। अनुसंधान निदेशक डा. एस.के. उपाध्याय ने बताया कि विश्वविद्यालय के 44 छात्रों ने एन.ए.एच.ई.पी. के तहत प्रतिष्ठित संस्थानों में अंतर्राष्ट्रीय और राष्ट्रीय प्रशिक्षण में भाग लिया। विश्वविद्यालय में एन.ए.एच.ई.पी. के प्रधान अन्वेषक डा. रणवीर सिंह राणा ने परियोजना की उपलब्धियों और योगदान के बारे में बताया। इस अवसर पर डा. अखिलेश शर्मा और डा. ऋषि महाजन ने भी संबोधित किया।

पालमपुर : प्रकाशनों का भी विमोचन करते भारतीय कृषि अनुसंधान परिषद के उप महानिदेशक व राष्ट्रीय कृषि उच्च शिक्षा परियोजना के राष्ट्रीय निदेशक डाक्टर आर.सी. अग्रवाल व अन्य। (भृ)

अनुसंधान को नए विचारों से प्रतिस्थापित करें युवा

संवाद सहयोगी, पालमपुर : चौधरी सरवन कुमार हिमाचल प्रदेश कृषि विश्वविद्यालय में शुक्रवार को भारतीय कृषि अनुसंधान परिषद के उपमहानिदेशक व राष्ट्रीय कृषि उच्च शिक्षा परियोजना (एनएएचईपी) के राष्ट्रीय निदेशक डा. आरसी अग्रवाल ने स्नातकोत्तर विद्यार्थियों से संवाद किया। बतौर मुख्य अतिथि डा. अग्रवाल ने युवाओं को सलाह दी कि प्रगति करने और मानवता के लाभ में योगदान देने के लिए सीखना और जीवन जीने का जुनून होना चाहिए।

उन्होंने कहा कि नियमित अनुसंधान को नए विचारों व लीक से हटकर सोच द्वारा प्रतिस्थापित किया जाना चाहिए। नवोन्मेष अनुसंधान के लिए धन की कोई कमी नहीं है। डा. अग्रवाल ने छात्रों को नोबेल पुरस्कार विजेताओं और अन्य शीर्ष वैज्ञानिकों के साथ काम करने के अवसर खोजने का सुझाव दिया। डा. अग्रवाल ने विश्वविद्यालय के विज्ञानियों द्वारा लिखित सात प्रकाशनों का भी लोकार्पण किया। अपने अध्यक्षीय भाषण में कुलपति डा. डीके वत्स ने कहा कि कृषि का भविष्य प्रतिभाशाली युवा विज्ञानियों के हाथ में सुरक्षित है। उन्होंने कहा कि प्रौद्योगिकी हस्तक्षेप और कृत्रिम बुद्धिमत्ता आगामी समय में खेती में महत्वपूर्ण भूमिका निभाएगी। विशिष्ट अतिथि एनएएचईपी की राष्ट्रीय समन्वयक डा. अनुराधा अग्रवाल ने कहा कि संरक्षित कृषि और प्राकृतिक खेती के लिए विश्वविद्यालय में उत्कृष्ट सुविधाएं विकसित की गई हैं। अनुसंधान निदेशक डा. एसके उपाध्याय ने बताया कि विश्वविद्यालय के 44 छात्रों ने एनएएचईपी के तहत प्रतिष्ठित संस्थानों में अंतरराष्ट्रीय और राष्ट्रीय प्रशिक्षण में भाग लिया।

विश्वविद्यालय में एनएएचईपी के प्रधान अन्वेषक डा. रणवीर सिंह राणा ने परियोजना की उपलब्धियों और योगदान के बारे में बताया।

कृषि विश्वविद्यालय में विज्ञानियों के प्रकाशनों का लोकार्पण करते एनएएचईपी के राष्ट्रीय निदेशक डा. आरसी अग्रवाल व कुलपति डा. डीके वत्स ■ गजटहा

लाभ विश्वविद्यालय में 602.93 लाख रुपए की लागत से अनेक सुविधाओं का किया आगाज

कृषि विवि के लिए लाभकारी सिद्ध हुई राष्ट्रीय कृषि उच्च शिक्षा परियोजना

कार्यालय संवाददाता- पालमपुर

प्रदेश कृषि विवि में राष्ट्रीय कृषि उच्च शिक्षा परियोजना के तहत संरक्षित कृषि और प्राकृतिक खेती पर उन्नत कृषि विज्ञान और प्रौद्योगिकी केंद्र ने शिक्षाविदों में सुधार और अत्याधुनिक बुनियादी ढांचे के निर्माण के लिए एक बड़ा प्रोत्साहन दिया है। इस परियोजना के तहत 602.93 लाख रुपये की लागत से उच्च तकनीक रोपण सामग्री उत्पादन इकाई, उच्च तकनीक संयंत्र विकास कक्ष, हाइड्रोपोनिक इकाई, फाइटोट्रॉन सुविधा, आणविक प्रयोगशाला, बायोएजेंट उत्पादन इकाई आदि बनाई गई हैं। 105 कृषि और प्रयोगशाला उपकरणों को जोड़ने के अलावा, प्रयोगशालाओं, व्याख्यान थियेटर और सम्मेलन कक्षों को नवीनतम तकनीकों के साथ उन्नत किया गया और पॉलीहाउस का नवीनीकरण कार्य भी किया गया। लगभग 50 स्नातकोत्तर छात्रों को विभिन्न अंतरराष्ट्रीय और राष्ट्रीय संस्थानों के भ्रमण के माध्यम से लाभान्वित किया गया है। क्षमता विकास कार्यक्रम में प्रतिभागिता के फलस्वरूप 24 एमएससी एवं पीएचडी छात्रों को संरक्षित कृषि और प्राकृतिक खेती के विभिन्न विषयगत क्षेत्रों में शोध विषय सौंपे गए हैं। अमेरिका, ऑस्ट्रेलिया, इस्राइल और ताइवान के प्रमख संस्थानों में पांच फैकल्टी और आठ पीजी छात्रों ने अंतरराष्ट्रीय प्रशिक्षण में भाग लिया है। यह विश्वविद्यालय में ई.गवर्नेंस का मील का पत्थर है। हाईटेक वर्चुअल क्लास रूम सुविधा की स्थापना के माध्यम से आईसीएआर के कृषि दीक्षा वेब चैनल के माध्यम से कृषि, पशु चिकित्सा और संबद्ध विज्ञान के विषयों में ई.व्याख्यान का एक ऑनलाइन भंडार बनाकर रखा जा रहा है।

परियोजना के परिणाम मुख्य रूप से संरक्षित कृषि और खुले वातावरण के तहत प्राकृतिक खेती की अत्याधुनिक तकनीकों को दर्शाते हैं। कृषि शिक्षा पेशे और उद्यमिता की संभावनाओं को बढाने के लिए स्कली छात्रों के लिए कृषि उच्च शिक्षा जागरूकता कार्यक्रम भी चलाया गया। कैंपस प्रशिक्षण कार्यक्रम और एक्सपोजर विजिट से बड़ी संख्या में किसान लाभान्वित हुए हैं।

कुलपति प्रो. एचके चौधरी का कहना है कि महत्त्वाकांक्षी परियोजना ने विश्वविद्यालय को प्रतिष्ठित राष्ट्रीय और अंतरराष्ट्रीय संगठनों के साथ संबंध विकसित करने में सक्षम बनाया है और निजी क्षेत्र, उद्योग और सार्वजनिक क्षेत्र के संगठनों के साथ बाजार उन्मुख कार्यक्रम विकसित करने और उद्योग के लिए स्नातक तैयार करने के लिए 12 से अधिक समझौता ज्ञापनों पर हस्ताक्षर किए गए हैं।

उन्होंने बताया कि अमरीका, ऑस्ट्रेलिया, इसराईल और ताईवान के प्रमुख संस्थानों में 5 फैकल्टी और 8 पी.जी. छात्रों ने अंतर्राष्ट्रीय प्रशिक्षण में भाग लिया है।

परियोजना ने कौशल वृद्धि और स्टार्टअप के लिए संरक्षित खेती के तहत सब्जियों की फसलों के वाणिज्यिक संकर बीज उत्पादन, सब्जी फसलों की संरक्षित खेती और कीट प्रबंधन में स्नातकोत्तर डिप्लोमा के लिए रूपरेखा भी विकसित की है। विश्वविद्यालय के 2 पूर्व छात्रों ने अपना स्टार्टअप स्थापित किया है।

शैक्षणिक जानकारी क्लाऊड में उपलब्ध

कुलपति प्रो. एच.के. चौधरी ने कहा कि इस परियोजना के अंतर्गत विकसित अकादमिक प्रबंधन प्रणाली को लागू किया गया है, जिसमें संकाय और छात्रों की सभी शैक्षणिक जानकारी क्लाऊड में उपलब्ध होगी और विश्व में कहीं से भी सभी के लिए सुलभ होगी। यह विश्वविद्यालय में ई-गवर्नेंस का मील का पत्थर है।

कृषि विश्वविद्यालय के लिए राष्ट्रीय कृषि उच्च शिक्षा परियोजना बनी लाभदायी

सवेरा न्यूज / जसवंत कठियाल

पालमपुर 20 जनवरी : चौधरी सरवन कुमार हिमाचल प्रदेश कृषि विश्वविद्यालय में राष्ट्रीय कृषि उच्च शिक्षा परियोजना के तहत संरक्षित कृषि और प्राकृतिक खेती पर उन्नत कृषि विज्ञान और प्रौद्योगिकी केंद्र ने शिक्षाविदों में सुधार और अत्याधुनिक बुनियादी ढांचे के निर्माण के लिए एक बड़ा प्रोत्साहन दिया है।

यह जानकारी देते हुए कुलपति प्रोफेसर एचके चौधरी ने बताया कि इस परियोजना के तहत 602.93 लाख रु पये की लागत से उच्च तकनीक रोपण सामग्री उत्पादन इकाई, उच्च तकनीक संयंत्र विकास कक्ष, हाइड्रोपोनिक इकाई, फाइटोट्रॉन सुविधा, आणविक प्रयोगशाला, बायोएजेंट उत्पादन इकाई आदि बनाई गई है। 105 कृषि और प्रयोगशाला उपकरणों को जोडने के अलावा, प्रयोगशालाओं, व्याख्यान थिएटर और सम्मेलन कक्षों को नवीनतम तकनीकों के साथ उन्नत किया गया और पॉलीहाउस का नवीनीकरण कार्य भी किया गया। लगभग 50 स्नातकोत्तर छात्रों को विभिन्न अंतर्राष्ट्रीय और राष्ट्रीय संस्थानों के भ्रमण के माध्यम से लाभान्वित किया गया है। क्षमता विकास कार्यक्रम म में प्रतिभागिता के फलस्वरूप 24 एमएससी एवं पीएचडी छात्रों को संरक्षित कृषि और प्राकृतिक खेती के विभिन्न विषयगत क्षेत्रों में शोध विषय सौंपे गए हैं। कुलपति ने कहा कि महत्वाकांक्षी परियोजना ने विश्वविद्यालय को प्रतिष्ठित राष्ट्रीय और अंतर्राष्ट्रीय संगठनों के साथ संबंध विकसित करने में सक्षम बनाया है और निजी क्षेत्र, उद्योग और सार्वजनिक क्षेत्र के संगठनों के साथ बाजार उन्मुख कार्यक्रम विकसित करने और उद्योग के लिए तैयार स्नातक तैयार करने के लिए 12 से अधिक समझौता ज्ञापनों पर हस्ताक्षर किए गए हैं।

उन्होंने बताया कि अमरीका, ऑस्ट्रेलिया, इस्राइल और ताइवान के प्रमुख संस्थानों में 5 फैकल्टी और 8 पीजी छात्रों ने अंतरराष्ट्रीय प्रशिक्षण में भाग लिया है। प्रो. एच.के चौधरी ने कहा कि इस परियोजना के तहत विकसित अकादमिक प्रबंधन प्रणाली को लागू किया गया है जिसमें संकाय और छात्रों की सभी शैक्षणिक जानकारी क्लाउड में उपलब्ध होगी और दुनिया में कहीं से भी सभी के लिए सुलभ होगी। यह विश्वविद्यालय में ई.गवर्नेंस का मील का पत्थर है। उन्होंने कहा कि हाइटेक वर्चुअल क्लास रूम सुविधा की स्थापना के माध्यम से आईसीएआर के कृषि दीक्षा वेब चैनल के माध्यम से कृषि, पशु चिकित्सा और संबद्ध विज्ञान के विषयों में ई.व्याख्यान का एक ऑनलाइन भंडार बनाकर रखा जा रहा है। छात्रों को कृषि और पशु चिकित्सा विज्ञान के विभिन्न क्षेत्रों में व्यावहारिक कौशल सीखने में मदद करने के लिए विश्वविद्यालय में यथार्थ वास्तविकता और आभासी वास्तविकता प्रणाली भी स्थापित की गई है। लगभग 6500 फैकल्टी और पीजी छात्रों को लाभान्वित करने के लिए लगभग 43 राष्ट्रीय और अंतर्राष्ट्रीय सेमिनार आयोजित किए गए हैं। परियोजना के परिणाम मुख्य रूप से संरक्षित कृषि और खुले वातावरण के तहत प्राकृतिक खेती की अत्याधुनिक तकनीकों को दर्शाते हैं। कैंपस प्रशिक्षण कार्यक्रम म और एक्सपोजर विजिट से बडी संख्या में किसान लाभान्वित हुए हैं।कुलपति ने 18.91 करोड रुपए की राष्ट्रीय कृषि उच्च शिक्षा परियोजना के तहत संरक्षित कृषि और प्राकृतिक खेती पर उन्नत कृषि विज्ञान और प्रौद्योगिकी के लिए अग्रणी राष्ट्रीय उत्कृष्टता केंद्र के रूप में अपने विश्वविद्यालय की पहचान करने के लिए भारतीय कृषि अनुसंधान परिषद और विश्व बैंक का आभार व्यक्त किया।

प्रो चौधरी ने प्रधान अन्वेषक डॉ रणबीर सिंह राणा और उनकी 18 वैज्ञानिकों, तीन सलाहकारों व 54 सहायक वैज्ञानिक कर्मचारियों की मजबूत टीम की सराहना की। उन्होंने कहा कि कडी मेहनत करने वाली टीम परियोजना के शुरु आती चरण के दौरान कोविड-19 के बावजूद परिणाम प्राप्त करने में सक्षम रही है।

- **विशेषज्ञों और विद्यार्थियों को प्रशिक्षण दिलवाने के साथ जुटाई सुविधाएं**

छात्रों को विभिन्न अंतर्राष्ट्रीय और राष्ट्रीय संस्थानों के भ्रमण के माध्यम से लाभान्वित किया गया है। क्षमता विकास कार्यक्रम म में प्रतिभागिता के फलस्वरूप 24 एमएससी एवं पीएचडी छात्रों को संरक्षित कृषि और प्राकृतिक खेती के विभिन्न विषयगत क्षेत्रों में शोध विषय सौंपे गए हैं। कुलपति ने कहा कि महत्वाकांक्षी परियोजना ने विश्वविद्यालय को प्रतिष्ठित राष्ट्रीय और अंतर्राष्ट्रीय संगठनों के साथ संबंध विकसित करने में सक्षम बनाया है और निजी क्षेत्र, उद्योग और सार्वजनिक क्षेत्र के संगठनों के साथ बाजार उन्मुख कार्यक्रम विकसित करने और उद्योग के लिए तैयार स्नातक तैयार करने के लिए 12 से अधिक समझौता ज्ञापनों पर हस्ताक्षर किए गए हैं।

उन्होंने बताया कि अमरीका, ऑस्ट्रेलिया, इस्राइल और ताइवान के प्रमुख संस्थानों में 5 फैकल्टी और 8 पीजी छात्रों ने अंतरराष्ट्रीय प्रशिक्षण में भाग लिया है। प्रो. एच.के चौधरी ने कहा कि इस परियोजना के तहत विकसित अकादमिक प्रबंधन प्रणाली को लागू किया गया है जिसमें संकाय और छात्रों की सभी शैक्षणिक जानकारी क्लाउड में उपलब्ध होगी और दुनिया में कहीं से भी सभी के लिए सुलभ होगी। यह विश्वविद्यालय में ई.गवर्नेंस का मील का पत्थर है। उन्होंने कहा कि हाइटेक वर्चुअल क्लास रूम सुविधा की स्थापना के माध्यम से आईसीएआर के कृषि दीक्षा वेब चैनल के माध्यम से कृषि, पशु चिकित्सा और संबद्ध विज्ञान के विषयों में ई.व्याख्यान का एक ऑनलाइन भंडार बनाकर रखा जा रहा है। छात्रों को कृषि और पशु चिकित्सा विज्ञान के विभिन्न क्षेत्रों में व्यावहारिक कौशल सीखने में मदद करने के लिए विश्वविद्यालय में यथार्थ वास्तविकता और आभासी वास्तविकता प्रणाली भी स्थापित की गई है। लगभग 6500 फैकल्टी और पीजी छात्रों को लाभान्वित करने के लिए लगभग 43 राष्ट्रीय और अंतर्राष्ट्रीय सेमिनार आयोजित किए गए हैं। परियोजना के परिणाम मुख्य रूप से संरक्षित कृषि और खुले वातावरण के तहत प्राकृतिक खेती की अत्याधुनिक तकनीकों को दर्शाते हैं। कैंपस प्रशिक्षण कार्यक्रम म और एक्सपोजर विजिट से बडी संख्या में किसान लाभान्वित हुए हैं।कुलपति ने 18.91 करोड रुपए की राष्ट्रीय कृषि उच्च शिक्षा परियोजना के तहत संरक्षित कृषि और प्राकृतिक खेती पर उन्नत कृषि विज्ञान और प्रौद्योगिकी के लिए अग्रणी राष्ट्रीय उत्कृष्टता केंद्र के रूप में अपने विश्वविद्यालय की पहचान करने के लिए भारतीय कृषि अनुसंधान परिषद और विश्व बैंक का आभार व्यक्त किया।

प्रो चौधरी ने प्रधान अन्वेषक डॉ रणबीर सिंह राणा और उनकी 18 वैज्ञानिकों, तीन सलाहकारों व 54 सहायक वैज्ञानिक कर्मचारियों की मजबूत टीम की सराहना की। उन्होंने कहा कि कडी मेहनत करने वाली टीम परियोजना के शुरु आती चरण के दौरान कोविड-19 के बावजूद परिणाम प्राप्त करने में सक्षम रही है।

राष्ट्रीय कृषि उच्च शिक्षा परियोजना बनी लाभप्रद

विशेषज्ञों और विद्यार्थियों को प्रशिक्षण दिलवाने के साथ जुटाई सुविधाएं

पालमपुर, 20 जनवरी (भृगु): कृषि विश्वविद्यालय में राष्ट्रीय कृषि उच्च शिक्षा परियोजना के तहत संरक्षित कृषि और प्राकृतिक खेती पर उन्नत कृषि विज्ञान और प्रौद्योगिकी केंद्र ने शिक्षाविदों में सुधार और अत्याधुनिक बुनियादी ढांचे के निर्माण के लिए एक बड़ा प्रोत्साहन दिया है।

कुलपति प्रोफेसर एच.के. चौधरी ने बताया कि इस परियोजना के तहत 602.93 लाख रुपए की लागत से उच्च तकनीक रोपण सामग्री उत्पादन इकाई, उच्च तकनीक संयंत्र विकास कक्ष, हाइड्रोपोनिक इकाई, फाइटोट्रॉन सुविधा, आणविक प्रयोगशाला व बायोएजेंट उत्पादन इकाई आदि बनाई गई हैं।

105 कृषि और प्रयोगशाला उपकरणों को जोड़ने के अतिरिक्त प्रयोगशालाओं, व्याख्यान थियेटर और सम्मेलन कक्षों को नवीनतम तकनीकों के साथ उन्नत किया गया। लगभग 50 स्नातकोत्तर छात्रों को विभिन्न अंतर्राष्ट्रीय और राष्ट्रीय संस्थानों के भ्रमण के माध्यम से लाभान्वित किया गया है। क्षमता विकास कार्यक्रम में प्रतिभागिता के फलस्वरूप 24 एम.एससी. एवं पीएच.डी. छात्रों को संरक्षित कृषि और प्राकृतिक खेती के विभिन्न विषयगत क्षेत्रों में शोध विषय सौंपे गए हैं। प्रो. चौधरी ने प्रधान अन्वेषक डा. रणबीर सिंह राणा और उनकी 18 वैज्ञानिकों, 3 सलाहकारों और 54 सहायक वैज्ञानिक कर्मचारियों की मजबूत टीम की सराहना की।

5 फैकल्टी और 8 पी.जी. छात्रों ने अंतर्राष्ट्रीय प्रशिक्षण में लिया भाग

कुलपति ने कहा कि महत्वाकांक्षी परियोजना ने विश्वविद्यालय को प्रतिष्ठित राष्ट्रीय और अंतर्राष्ट्रीय संगठनों के साथ संबंध विकसित करने में सक्षम बनाया है और निजी क्षेत्र, उद्योग और सार्वजनिक क्षेत्र के संगठनों के साथ बाजार उन्मुख कार्यक्रम विकसित करने और उद्योग के लिए स्नातक तैयार करने के लिए 12 से अधिक समझौता ज्ञापनों पर हस्ताक्षर किए गए हैं।

उन्होंने बताया कि अमरीका, ऑस्ट्रेलिया, इसराईल और ताईवान के प्रमुख संस्थानों में 5 फैकल्टी और 8 पी.जी. छात्रों ने अंतर्राष्ट्रीय प्रशिक्षण में भाग लिया है।

परियोजना ने कौशल वृद्धि और स्टार्टअप के लिए संरक्षित खेती के तहत सब्जियों की फसलों के वाणिज्यिक संकर बीज उत्पादन, सब्जी फसलों की संरक्षित खेती और कीट प्रबंधन में स्नातकोत्तर डिप्लोमा के लिए रूपरेखा भी विकसित की है। विश्वविद्यालय के 2 पूर्व छात्रों ने अपना स्टार्टअप स्थापित किया है।

शैक्षणिक जानकारी क्लाऊड में उपलब्ध

कुलपति प्रो. एच.के. चौधरी ने कहा कि इस परियोजना के अंतर्गत विकसित अकादमिक प्रबंधन प्रणाली को लागू किया गया है, जिसमें संकाय और छात्रों की सभी शैक्षणिक जानकारी क्लाऊड में उपलब्ध होगी और विश्व में कहीं से भी सभी के लिए सुलभ होगी। यह विश्वविद्यालय में ई-गवर्नेंस का मील का पत्थर है।

कृषि विश्वविद्यालय में एग्री दीक्षा वैब चैनल सुविधा शुरू

देश के 18 चुनिंदा विश्वविद्यालयों में हुआ शामिल

पालमपुर, 16 अप्रैल (ब्यूरो): कृषि विश्वविद्यालय पालमपुर देश के उन 18 चुनिंदा कृषि विश्वविद्यालयों में शामिल हो गया है जहां वर्चुअल क्लासरूम व एग्री दीक्षा वैब चैनल सुविधा है। केंद्रीय कृषि व किसान कल्याण, ग्रामीण विकास, खाद्य प्रसंस्करण व पंचायती राज मंत्री नरेंद्र सिंह तोमर ने इन दोनों सुविधाओं का वर्चुअल माध्यम से उद्घाटन किया।

समारोह में विशिष्ट अतिथि कृषि व किसान कल्याण राज्य मंत्री पुरुषोत्तम रूपाला, भारतीय कृषि अनुसंधान परिषद के महानिदेशक डा. त्रिलोचन महापात्र, सचिव संजय कुमार, उपमहानिदेशक (शिक्षा) डा. आरसी अग्रवाल, राष्ट्रीय समन्वयक डा. प्रभात कुमार, भारतीय कृषि सांख्यिकी शोध संस्थान के निदेशक डा. आर प्रसाद व परियोजना के राष्ट्रीय प्रधान अन्वेषक डा. सुदीप ने भी वर्चुअल माध्यम से इस अवसर पर अपने विचार रखे। इस अवसर पर कृषि विश्वविद्यालय के कुलपति प्रो. हरीन्द्र कुमार चौधरी ने स्टेट ऑफ आर्ट व आधुनिकतम सुविधा प्रदान करने के लिए भारत सरकार का आभार प्रकट किया और कहा कि पर्वतीय राज्य के छात्रों के लिए यह सुविधा वरदान से कम नहीं होगी। उन्होंने कहा कि वर्तमान में महामारी के चलते इस सुविधा से छात्र व प्राध्यापक आपस में जुड़े रहेंगे। इसी तरह दूरदराज के किसान भी विश्वविद्यालय से जुड़ सकते हैं।

पालमपुर : वर्चुअल क्लासरूम व एग्री दीक्षा वैब चैनल सुविधा शुरू होने के वर्चुअल कार्यक्रम में भाग लेते कुलपति प्रो. हरीन्द्र कुमार व अन्य।

कुलपति ने कहा कि एग्री दीक्षा वैब चैनल सुविधा का लाभ प्रदेश कृषि विभाग भी उठा सकेगा। उन्होंने सभी अधिष्ठाताओं को निर्देश दिए कि वर्चुअल क्लासरूम के लिए

कृषि विवि पालमपुर में एग्री दीक्षा वेब चैनल हुआ शुरू

पालमपुर (कांगड़ा)। कृषि विश्वविद्यालय पालमपुर देश के उन 18 कृषि विश्वविद्यालयों शामिल हो गया, जहां वर्चुअल क्लास रूम और एग्री दीक्षा वेब चैनल सुविधा शुरू हो गई। केंद्रीय पंचायतीराज मंत्री नरेंद्र सिंह तोमर ने शुक्रवार को इन दोनों सुविधाओं का वर्चुअल माध्यम से शुभारंभ किया। विशिष्ट अतिथि कृषि और किसान कल्याण राज्य मंत्री परषोतम रूपाला, भारतीय कृषि अनुसंधान परिषद के महानिदेशक डॉ. त्रिलोचन महापात्र, सचिव संजय कुमार, उपमहानिदेशक(शिक्षा) डॉ. आरसी अग्रवाल, राष्ट्रीय समन्वयक डॉ. प्रभात कुमार, भारतीय कृषि सांख्यिकी शोध संस्थान के निदेशक डॉ. आर प्रसाद और परियोजना के राष्ट्रीय प्रधान अन्वेषक डॉ. सुदीप ने भी वर्चुअल माध्यम से अपने विचार रखे। कृषि विश्वविद्यालय के कुलपति प्रो. हरींद्र कुमार चौधरी ने इसके सरकार का आभार जताया। उन्होंने कहा कि इस पर्वतीय राज्य के विद्यार्थियों के लिए यह सुविधा वरदान से कम नही होगी। उन्होंने कहा कि वर्तमान में महामारी के चलते इस सुविधा से छात्र और प्राध्यापक आपस में जुड़े रहेंगे। संवाद

सुशखबरी देश की चुनिंदा विश्वविद्यालयों में शामिल; एग्री दीक्षा वेब चैनल की भी सुविधा, केंद्रीय कृषि मंत्री ने किया उदघाटन

कृषि विश्वविद्यालय में वर्चुअल क्लास रूम

कार्यालय संवाददाता-पालमपुर

प्रदेश कृषि विश्वविद्यालय देश के उन 18 कृषि विश्वविद्यालयों शामिल हो गया, जहां वर्चुअल क्लास रूम व एग्री दीक्षा वेब चैनल की सुविधा दी जा रही है। केंद्रीय कृषि व किसान कल्याण, ग्रामीण विकास, खाद्य प्रसंस्करण व पंचायतीराज मंत्री नरेंद्र सिंह तोमर ने शुक्रवार को इन दोनों सुविधाओं का वर्चुअल माध्यम से उद्घाटन किया। विशिष्ट अतिथि कृषि व किसान कल्याण राज्य मंत्री पुरुषोत्तम रूपाला, भारतीय कृषि अनुसंधान परिषद के महानिदेशक डाक्टर त्रिलोचन महापात्रा, भारतीय कृषि अनुसंधान परिषद के सचिव संजय कुमार, भारतीय कृषि अनुसंधान परिषद के उपमहानिदेशक (शिक्षा) डा. आरसी अग्रवाल, राष्ट्रीय समन्वयक डाक्टर प्रभात कुमार, भारतीय कृषि सांख्यिकी शोध संस्थान के निदेशक डाक्टर आर प्रसाद व परियोजना के राष्ट्रीय प्रधान अन्वेषक डाक्टर सुदीप ने भी वर्चुअल माध्यम से इस अवसर पर अपने विचार रखे। कुलपति ने सभी अधिष्ठाताओं को निर्देश दिए कि वर्चुअल क्लास रूम हेतु गुणवत्तापूर्ण लैक्चर समय-समय पर अपलोड किए जाएं। नोडल आफिसर डाक्टर रणबीर सिंह राणा ने जानकारी दी कि स्टेट ऑफ आर्ट इस सुविधा के लिए भारतीय कृषि अनुसंधान परिषद ने 'राष्ट्रीय कृषि उच्च शिक्षा परियोजना' के अंतर्गत वित्तिय सहायता प्रदान की है, जो कि सहायता विश्व बैंक द्वारा प्रायोजित है।

छात्रों के लिए वरदान से कम नहीं

प्रदेश कृषि विश्वविद्यालय के कुलपति प्रो. हरीन्द्र कुमार चौधरी ने इस स्टेट ऑफ आर्ट व आधुनिकतम सुविधा प्रदान करने के लिए भारत सरकार के प्रति आभार प्रकट किया और कहा कि इस पर्वतीय राज्य के छात्रों के लिए यह सुविधा वरदान से कम नहीं होगी। उन्होंने कहा कि वर्तमान में कोरोना महामारी के चलते इस सुविधा से छात्र व प्राध्यापक आपस में जुड़े रहेंगे। इसी तरह दूरदराज के किसान भी विश्वविद्यालय से जुड़ सकते हैं। वैज्ञानिक भी राष्ट्रीय व अंतरराष्ट्रीय संस्थानों से जुड़े रहेंगे। कुलपति ने कहा कि एग्री दीक्षा वैब चैनल सुविधा का लाभ प्रदेश कृषि विभाग भी उठा सकेगा।

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मिलकर काम करेंगे एग्रीकेयर आर्गेनिक फार्म व कृषि विवि

संवाद सहयोगी, पालमपुर : चौधरी सरवन कुमार हिमाचल प्रदेश कृषि विवि पालमपुर ने एग्रीकेयर आर्गेनिक फार्म लुधियाना के साथ समझौता ज्ञापन पर हस्ताक्षर किए हैं। कुलपति प्रो. एचके चौधरी ने बताया कि समझौते के तहत दोनों संस्थानों के बीच अकादमिक, अनुसंधान व प्रशिक्षण सहयोग होगा। विश्वविद्यालय और एग्रीकेयर शिक्षा, प्रशिक्षण, अनुसंधान, सूचना व प्रौद्योगिकी के आदान-प्रदान को बढ़ावा देंगे।

कृषि विश्वविद्यालय पालमपुर के शोध निदेशक डाक्टर बीके शर्मा व एग्रीकेयर आर्गेनिक फार्म की तरफ से प्रबंध निदेशक शैमा अरोड़ा ने समझौता ज्ञापन पर हस्ताक्षर किए। उमा सैनी, बिपन सैनी और कीट विज्ञान और पादप रोग विज्ञान विभाग के विज्ञानी भी इस मौके पर मौजूद रहे।

मिलेगा लाभ : समझौता ज्ञापन पर हस्ताक्षर के दौरान कृषि विश्वविद्यालय के कुलपति व एग्रीकेयर आर्गेनिक फार्म लुधियाना के अधिकारी • जागरण।

सुरक्षित खाद्य उत्पादन पर ध्यान दें : पी.के. शर्मा

कृषि विश्वविद्यालय में प्राकृतिक खेती पर 14 दिवसीय राष्ट्रीय प्रशिक्षण सम्पन्न

पालमपुर, 27 सितम्बर (भृगु): कृषि विश्वविद्यालय में प्राकृतिक खेती की वर्तमान स्थिति और भविष्य की संभावनाओं पर आयोजित 14 दिवसीय राष्ट्रीय प्रशिक्षण बुधवार को सम्पन्न हुआ। पूर्व कुलपति डा. पी.के. शर्मा ने बतौर मुख्यातिथि उपस्थित होकर देश भर के विभिन्न संस्थानों के 30 वैज्ञानिकों और प्रशिक्षण के आयोजन से जुड़े वैज्ञानिकों को भागीदारी प्रमाण पत्र वितरित किए। उन्होंने एक प्रशिक्षण पुस्तिका का भी विमोचन किया। डा. शर्मा ने आयोजकों की सराहना की और प्रशिक्षुओं को बधाई दी।

उन्होंने सुरक्षित खाद्य उत्पादन की वकालत की। अपने अध्यक्षीय भाषण में कुलपति डा. डी.के. वत्स ने प्रशिक्षुओं से अपने नए अर्जित ज्ञान और कौशल को अपने संस्थानों के अन्य वैज्ञानिकों और प्रगतिशील किसानों के बीच साझा करने के लिए कहा। उन्होंने कहा कि प्राकृतिक खेती से बिगड़ते मानव, पशु और मिट्टी के स्वास्थ्य के कई मुद्दों का समाधान हो सकता है। उन्होंने बताया कि उनका विश्वविद्यालय अगले वर्ष तक प्राकृतिक खेती में प्रथाओं का एक मानक पैकेज लेकर आएगा। उन्होंने कहा कि जलवायु परिवर्तन, प्राकृतिक आपदाओं, पर्यावरणीय गिरावट जैसी चुनौतियों पर भी वैज्ञानिकों को ध्यान देने की आवश्यकता है। हिमाचल प्रदेश केंद्रीय विश्वविद्यालय के डीन डा. प्रदीप कुमार ने विशिष्ट अतिथि, अनुसंधान निदेशक डा. एस.पी. दीक्षित और स्नातकोत्तर शिक्षा अधिष्ठाता डा. सुरेश उपाध्याय ने सराहना करते हुए कहा कि विशेषज्ञ व्याख्यान के अतिरिक्त प्रमुख प्राकृतिक खेती विशेषज्ञों को शामिल करते हुए प्रशिक्षुओं को व्यावहारिक प्रशिक्षण दिया गया है। पाठ्यक्रम निदेशक एवं विभागाध्यक्ष डा. जनार्दन सिंह, प्रमुख अन्वेषक डा. जी.डी. शर्मा, डा. राकेश चौहान तथा कुछ प्रशिक्षुओं ने भी प्राकृतिक खेती पर अपने विचार व्यक्त किए।

पालमपुर : कृषि विश्वविद्यालय में प्राकृतिक खेती पर आयोजित राष्ट्रीय प्रशिक्षण के समापन अवसर पर प्रतिभागी सामूहिक चित्र में। (भृगु)

खुशखबरी देश की चुनिंदा विश्वविद्यालयों में शामिल; एग्री दीक्षा वेब चैनल की भी सुविधा, केंद्रीय कृषि मंत्री ने किया उद्घाटन

कृषि विश्वविद्यालय में वर्चुअल क्लास रूम

कार्यालय संवाददाता-पालमपुर

प्रदेश कृषि विश्वविद्यालय देश के उन 18 कृषि विश्वविद्यालयों शामिल हो गया, जहां वर्चुअल क्लास रूम व एग्री दीक्षा वेब चैनल की सुविधा दी जा रही है। केंद्रीय कृषि व किसान कल्याण, ग्रामीण विकास, खाद्य प्रसंस्करण व पंचायतीराज मंत्री नरेंद्र सिंह तोमर ने शुक्रवार को इन दोनों सुविधाओं का वर्चुअल माध्यम से उद्घाटन किया। विशिष्ट अतिथि कृषि व किसान कल्याण

छात्रों के लिए वरदान से कम नहीं

प्रदेश कृषि विश्वविद्यालय के कुलपति प्रो. हरींद्र कुमार चौधरी ने इस स्टेट ऑफ आर्ट व आधुनिकतम सुविधा प्रदान करने के लिए भारत सरकार के प्रति आभार प्रकट किया और कहा कि इस पर्वतीय राज्य के छात्रों के लिए यह सुविधा वरदान से कम नहीं होगी। उन्होंने कहा कि वर्तमान में कोरोना महामारी के चलते इस सुविधा से छात्र व प्राध्यापक आपस में जुड़े रहेंगे। इसी तरह दूरदराज के किसान भी विश्वविद्यालय से जुड़ सकते हैं। वैज्ञानिक भी राष्ट्रीय व अंतरराष्ट्रीय संस्थानों से जुड़े रहेंगे। कुलपति ने कहा कि एग्री दीक्षा वेब चैनल सुविधा का लाभ प्रदेश कृषि विभाग भी उठा सकेगा।

राज्य मंत्री पुरुषोत्तम रूपाला, भारतीय कृषि अनुसंधान परिषद के महानिदेशक डाक्टर त्रिलोचन महापात्रा, भारतीय कृषि अनुसंधान परिषद के सचिव संजय कुमार, भारतीय कृषि अनुसंधान परिषद के उपमहानिदेशक (शिक्षा) डा. आरसी अग्रवाल, राष्ट्रीय समन्वयक डाक्टर प्रभात कुमार, भारतीय कृषि सांख्यिकी शोध संस्थान के निदेशक डाक्टर आर प्रसाद व परियोजना के राष्ट्रीय प्रधान अन्वेषक डाक्टर सुदीप ने भी वर्चुअल माध्यम से इस अवसर पर अपने विचार रखे। कुलपति ने सभी अधिष्ठाताओं को निर्देश दिए कि वर्चुअल क्लास रूम हेतु गुणवत्तापूर्ण तैयार समय-समय पर अपलोड किए जाएं। नोडल ऑफिसर डाक्टर रणबीर सिंह राणा ने जानकारी दी कि स्टेट ऑफ आर्ट इस सुविधा के लिए भारतीय कृषि अनुसंधान परिषद ने 'राष्ट्रीय कृषि उच्च शिक्षा परियोजना' के अंतर्गत वित्तीय सहायता प्रदान की है, जो कि सहायता विश्व बैंक द्वारा प्रायोजित है।

प्राकृतिक खेती के सिद्धांत अपनाएं प्रशिक्षु : डॉ. तेज

पालमपुर (कांगड़ा)। कृषि विश्वविद्यालय पालमपुर में आयोजित कार्यक्रम में पूर्व कुलपति डॉ. तेज प्रताप ने कहा कि प्रशिक्षुओं को प्राकृतिक खेती के महत्व और उपयोग के बारे में स्पष्ट होना चाहिए।

उन्होंने प्रशिक्षुओं से प्राकृतिक खेती की बारीकियों को लगन से सीखने को कहा। उन्होंने कहा कि प्राकृतिक, जैविक और शून्य बजट प्राकृतिक खेती जैसे शब्द प्रारंभिक चरण में भ्रमित करने वाले रहे हैं लेकिन अब स्थिति अलग है। लोग सुरक्षित भोजन के उपभोग और खेती के बारे में चिंतित हैं। उन्होंने प्रशिक्षुओं से प्राकृतिक खेती के चार सिद्धांतों को अपनाने के लिए कहा। डॉ. तेज प्रताप प्रदेश कृषि

कृषि विवि पालमपुर में प्राकृतिक खेती पर प्रशिक्षण

विश्वविद्यालय पालमपुर में प्राकृतिक खेती की वर्तमान स्थिति और भविष्य की संभावनाओं पर राष्ट्रीय प्रशिक्षण के उद्घाटन पर बोल रहे थे। कुलपति डॉ. डीके वत्स ने कहा कि प्राकृतिक खेती वर्तमान समय का महत्वपूर्ण मुद्दा बन गया है।

अनुसंधान निदेशक डॉ. एसपी दीक्षित ने कहा कि सब्जियों में कीटनाशकों का उपयोग चिंताजनक रूप से बढ़ गया है। अब समय आ गया है कि सभी संबंधित लोगों को प्राकृतिक खेती को लोकप्रिय बनाने के लिए मिलकर काम करना चाहिए। संवाद

जागरण सिटी कांगड़ा

अनुसंधान को खेत तक पहुंचाएं विज्ञानी

कृषि विश्वविद्यालय में आयोजित राष्ट्रीय सम्मेलन का किसानों को मिलेगा लाभ : चंद्र

संवाद सहयोगी, पालमपुर : कृषि एवं पशुपालन मंत्री प्रो. चंद्र कुमार ने कहा कि देशभर से जैविक खेती के क्षेत्र में विशेषज्ञों, शोधकर्ताओं, नीति निर्माताओं व चिकित्सकों के ज्ञान व अनुभव के आदान-प्रदान होने से कृषि व किसानों को बहुत अधिक लाभ प्राप्त होगा। उन्होंने कहा कि राष्ट्रीय सम्मेलन में तीन दिन के मंथन के बाद कृषि विज्ञानियों की संस्तुतियों का लाभ सरकार और किसानों को प्रत्यक्ष रूप में होगा।

चौधरी सरवन कुमार कृषि विश्वविद्यालय पालमपुर में प्राकृतिक एवं जैविक खेती पर तीन दिवसीय सम्मेलन के समापन में बतौर मुख्य अतिथि पहुंचे मंत्री ने यह बात कही। सम्मेलन में देश के 250 कृषि विशेषज्ञों और शोधार्थियों ने भाग लिया। उन्होंने कृषि वैज्ञानिकों से अनुसंधान को प्रयोगशाला से

पालमपुर में पोस्टर मेकिंग स्पर्धा में विजेता को सम्मानित करते मंत्री चंद्र कुमार • जागरण

मंत्री ने पारिस्थितिक, आर्थिक और पोषण सुरक्षा के लिए प्राकृतिक व जैविक खेती जैसे महत्वपूर्ण विषय पर राष्ट्रीय सम्मेलन के आयोजन के लिए बधाई दी।

कृषि मंत्री चंद्र कुमार ने कहा कि भारत में खेतीबाड़ी प्राचीन पद्धति है और हमारे पूर्वज बिना रासायनों, कीटनाशकों तथा पराधन के साथ ... थे। उन्होंने कहा कि प्राकृतिक व जैविक खेती कोई नई अवधारणा नहीं है, बल्कि भारत में हजारों वर्षों से इसी अवधारणा से खेतीबाड़ी होती रही है। उन्होंने कहा कि कृषि विश्वविद्यालय और कृषि अनुसंधान केंद्र कृषि विज्ञानिकों की नर्सरी हैं। उन्होंने कहा कि इन संस्थानों ने देश की कृषि की दिशा व दशा बदलने में ...

उन्होंने वैज्ञानिकों से मृदा परीक्षण पर विशेष ध्यान देने की बात करते हुए कहा कि जलवायु एवं वातावरण के अनुरूप किसानों और बागवानों को प्रोत्साहित किया जाए। इससे पहले चौधरी सरवन कुमार कृषि विश्वविद्यालय के कुलपति डा. एच के चौधरी ने मुख्य अतिथि का स्वागत किया। उन्होंने मृदा के सेहत पर ध्यान देने की आवश्यकता पर बल देने की बात कही।

उन्होंने कहा कि सम्मेलन का लाभ किसानों को प्राप्त होगा। इस दौरान पोस्टर मेकिंग प्रतियोगिता के विजेताओं को सम्मानित किया गया। सम्मेलन में कृषि महाविद्यालय के अधिष्ठाता डा. डीके वत्स, सम्मेलन संयोजक डा. एसपी दीक्षित, आयोजन सचिव डा. जनार्दन सिंह, वरिष्ठ विज्ञानिक डा. रणबीर राणा, डा. गोपाल कतना व अन्य ...

प्रयोगशाला से खेत तक पहुंचाएं शोध

चौसकु कृषि विश्वविद्यालय में प्राकृतिक-जैविक खेती विषय पर बोले कृषि मंत्री

कार्यालय संवाददाता-पालमपुर

कृषि विश्वविद्यालय और कृषि अनुसंधान केंद्र हमारे लिए कृषि वैज्ञानिकों की नर्सरी है। इन संस्थानों ने देश की कृषि की दिशा और दशा बदलने में सराहनीय प्रयास किए हैं। कृषि वैज्ञानिकों से अनुसंधान को प्रयोगशाला से खेत पर लाने का आह्वान किया ताकि किसानों को आर्थिक रूप में सुदृढ़ किया जा सके। यह बात कृषि एवं पशुपालन मंत्री चौधरी चंद्र कुमार ने चौसकु प्रदेश कृषि विश्वविद्यालय में प्राकृतिक एवं जैविक खेती पर तीन दिवसीय सम्मेलन के समापन समारोह में मुख्यातिथि के रूप में शामिल होकर कही। सम्मेलन में देशभर से अढ़ाई सौ कृषि विशेषज्ञों और शोधार्थियों ने भाग लिया। कृषि मंत्री ने कहा कि कृषि, बागवानी और पशुपालन विकास सरकार की विशेष प्राथमिकता है और इन क्षेत्रों के विकास के लिए कई योजनाएं चलाई जा रही हैं। चौसकु कृषि विश्वविद्यालय के कुलपति डा. एचके चौधरी ने कहा कि मांग के अनुरूप काम किया जाना समय की आवश्यकता है ताकि उसके मुताबिक किसान काम करें। ऐसा होने से ही किसानों को सही रूप में लाभ मिलेगा। समापन समारोह में विशेष अतिथि के रूप में वीर चंद्र सिंह गढ़वाली बागवानी एवं वानिकी विश्वविद्यालय उत्तराखंड के कुलपति डा. परमिंदर कौशल उपस्थित रहे। उन्होंने आयोजकों को जैविक एवं प्राकृतिक खेती पर राष्ट्रीय सम्मेलन की बधाई दी। उन्होंने कहा कि इस सम्मेलन का सीधा लाभ किसानों को प्राप्त होगा।

- कृषि वैज्ञानिकों से किया आह्वान, किसानों की आर्थिकी होगी मजबूत

दिव्य हिमाचल 10-6-2023

जैविक और प्राकृतिक खेती भारत की प्राचीन कृषि पद्धति : प्रो. चन्द्र कुमार

अनुसंधान को प्रयोगशाला से खेतों तक ले जाएं कृषि वैज्ञानिक : चंद्र

कृषि विवि पालमपुर में बोले कृषि मंत्री चंद्र कुमार, तीन दिवसीय कार्यशाला का हुआ समापन

Annexure-VI

Facebook Page (Total 16)

CSKHPAU: A Leading University on Hill Agriculture
Hirday Paul Singh · 28 Aug 2020 ·

Identify new varieties for the protected environment: Prof H.K.Chaudhary, Vice-Chancellor, CSKHPAU: Prof. Harinder Kumar Chaudhary, Vice-Chancellor, CSK H.P. Agriculture University, inaugurated a webinar on 'Vegetable cultivation under protected cultivation', here today.

The Vice-Chancellor emphasized the need to identify new varieties or genotypes suitable for protected environments with higher production potential. He advised scientists to use artificial intelligence and robotics to enhance the efficiency of the production system. He suggested that small poly-houses should be popularized for small and marginal farmers.

Dr. Mandeep Sharma, Director of Research, discussed the techniques of Hi-tech nursery production and varieties suitable for protected environment for enhancing the production potential. Dr. Bal Raj Singh, former Vice-Chancellor of Jodhpur Agriculture University delivered two thematic expert talks on 'Plug Tray Nursery Raising Technology in Vegetables' and 'Cultivation of Vegetable Crops under Protected Conditions'.

Dr. Ranbir Singh Rana, Principal Investigator told that webinar was organized under the Centre for Advanced Agricultural Science and Technology project on protected agriculture and natural farming, national agricultural higher education

CSKHPAU: A Leading University on Hill Agriculture
Hirday Paul Singh · 20 Jan ·

NAHEP gives a big fillip in academics and state-of-the-art infrastructure at CSKHPAU: Prof H.K.Chaudhary, Vice-Chancellor: The Centre for Advanced Agricultural Science and Technology on Protected Agriculture and Natural Farming under National Agricultural Higher Education Project has given a big fillip for improving the academics and creating state of the art infrastructure at CSK H.P. Agriculture University.

Disclosing this, Prof. H.K Chaudhary, Vice-Chancellor, said that under this project, high tech planting material production unit, high tech plant growth chamber, hydroponic unit, phytotron facility, molecular laboratory, bioagent production unit etc. have been created worth Rs 602.93 lakh. Besides adding 105 farm and laboratory equipments, the laboratories, lecture theatre and conference rooms were upgraded with latest technologies and renovation work of polyhouses was also done. Around 50 postgraduate students have benefited through the exposure visits to various international and national institutes. As a result of participation in the capacity development program, 24 M.Sc and 18 Ph.D. students have been assigned research topics in different thematic areas of protected agriculture and natural farming.

The Vice-Chancellor said that the ambitious project has enabled the University to develop

CSKHPAU: A Leading University on Hill Agriculture
Hirday Paul Singh · 13 May 2022 ·

Prof. H.K. Chaudhary, Vice-Chancellor has said that the drone technology will revolutionise the system of farming in the country.He has asked the members of CAAST to take lead for launching this technology in the University. He exhorted the students to adopt entrepreneurship and become job providers.The Vice Chancellor conv... See more

CSKHPAU: A Leading University on Hill Agriculture
Hirday Paul Singh · 16 Apr 2021 ·

Narendra Singh Tomar was live. · Follow
16 Apr 2021 ·

भारतीय कृषि अनुसंधान परिषद् (ICAR) - राष्ट्रीय कृषि उच्च शिक्षा परियोजना द्वारा आयोजित भारतीय कृषि अनुसंधान संस्थान के अन्वेषण केंद्र, कृषि-दीक्षा वेब शिक्षा चैनल एवं भारतीय कृषि सांख्यिकी अनुसंधान संस्थान के स्मार्ट क्लासरूम का उद्घाटन समारोह...

#ICAR #NAHEP Indian Council of Agricultural Research Ministry of Agriculture & Farmer's Welfare, Government of India

CSKHPAU: A Leading University on Hill Agriculture
Hirday Paul Singh · 12 May 2022 ·

Ten M.Sc and PhD students from Department of Entomology attended six days training program on Production of bioagents and mite taxonomy at NBAIR, Bengaluru.This training was sponsored under NAHEP.

CSKHPAU: A Leading University on Hill Agriculture
Hirday Paul Singh · 21 Jan ·

News about NAHEP in the University:


लाभ
विश्वविद्यालय में 602.93 लाख रुपए की लागत से अनेक सुविधाओं का किया आगाज
कृषि विवि के लिए लाभकारी सिद्ध हुई राष्ट्रीय कृषि उच्च शिक्षा परियोजना

CSKHPAU: A Leading University on Hill Agriculture
Hirday Paul Singh · 7 Feb 2021 ·

Hon'ble CM inaugurates Golden Jubilee Nutrition Garden at CSKHPAU: Hon'ble Chief Minister Shri Jai Ram Thakur today inaugurated the 'Golden Jubilee Nutrition Garden' at CSK Himachal Pradesh Agriculture University under Rs.19 crore environment sustainability plan concept of CAAST-NAHEP project entitled 'Protec
... See more

Guest of honor Dr.R.C. Goyal, IT Consultant, National Agricultural Higher Education Project(NAHEP) detailed about master data requirements and operational architecture of AMS. He also informed about the features and functioning of PIMS and artificial intelligence-based mobile app for disease and pest management. Other experts educated the participants about online reporting system, data validation and entry, problem solving, etc.

Dr.R.K.Agnihotri, Dean, Post Graduate Studies and Dr.D.K.Vatsa, Director of Research underlined the importance of AMS and PIMS.

Dr.Ranbir Singh Rana, Principal Investigator, NAHEP and Shri Kapil Sharma, workshop coordinator, informed that this system tracks the students' activities right from the registration to the completion of academic programmes.

The Chief Guest released five reference manuals related to AMS.

Dr Mandeep Sharma, Dean, Dr.GC Negi College of Veterinary & Animal Sciences; Dr.Ashwani Kumar Basandrai, Dean, College of Agriculture and College of Basic Sciences and Dr.Yadwinder Singh Dhaliwal, Dean, College of Community Science were also present in the inaugural ceremony.

CSKHPAU: A Leading University on Hill Agriculture
Hirday Paul Singh · 6 May 2022 ·

National Coordinator (Monitoring & Evaluation) NAHEP, ICAR visits Centre of Excellence on Protected Agriculture :Prof. H.K. Chaudhary, Vice Chancellor welcomed Dr. Hema Tripathi, National Coordinator (M & E) NAHEP, ICAR and interacted with her during her visit to the University today. Prof. Chaudhary informed her that the ... See more

CSKHPAU: A Leading University on Hill Agriculture
Hirday Paul Singh · 30 Mar ·

Ph.D. Students of Department of Entomology Himanshu Thakur and Ekta Kaushik, who recently attended international training in Japan and Taiwan, respectively, under NAHEP-CAAST, presented their "Foreign Deputation Report." Dr.S.P.Dixit, Director of Research and Dr. RS Chandel, Head, Department of Entomology thanked the Vice Chancellor for the international exposure of students.

ANNEXURE-VII
International Trainings

Sr. No.	Name	Institute/ Country Visited	Purpose of Visit	Duration	Period of Training
Faculty					
1.	Dr. H.K. Chaudhary	University of Leicester, UK	Explore possibility of collaboration and identify different laboratories of University of Leicester, UK	10 days	07-07-2022 to 27-07-2022
2.	Dr. S.P. Dixit, Director of Research	University of Melbourne	For undertaking cutting edge research in Agricultural Sciences especially on Carbon sequestrations and Nano technologies application in Agricultural Sector	7 days	21-11-2022 to 27-11-2022
3.	Dr. Mandeep Sharma, Dean COVAS	University of Melbourne	For undertaking cutting edge research in Veterinary Sciences specially to facilitate blended education delivery and digital content creation in the context of veterinary education.	7 days	21-11-2022 to 27-11-2022
4.	Dr. Akhilesh Sharma, Professor (Department of Vegetable Science)	University of Wisconsin, Madison, USA	Techniques in resistance breeding with special reference to molecular techniques,	3 months	12-08-2022 to 15-11-2022
5.	Dr. Parveen Sharma, Professor (Department of Vegetable Science)	The Volcani Centre, ARO, Rishon LeZion, Israel	New approaches to extend the shelf life and maintain fruit quality of sweet peppers grown in protected cultivation at	3 months	01-12-2022 to 28-02-2023
6.	Dr Rishi Mahajan, AssttProf. (Microbiology)	UMR CNRS 5557 Ecologie Micro Bienne Universite de Lyon, France	Experimental evolution coupled with comparative genomics with special focus on Plant Microbiomes	02 Months	21st July to 21st Sep 2023
7.	Dr Ajay Sood, Prof. Department of Entomology,	University of Minnesota, United States	Biocontrol and Conservation of beneficial insects in greenhouses	45 days	16th August to 30th Septembe r 2023

8.	Dr Vedna Kumari, Principal Scientist, Department of Genetics and Plant Breeding	Iowa State University of Science and Technology, USA	Genome Editing and Molecular Mapping	45 days	15th August to 29th Sept, 2023
9.	Dr NK Sankhayan, Department of Soil Science	IRRI, Philippines	Modelling impact of climate change w.e.t Nitrogen simulations in DSSAT	02 Months	24th July to 22nd Sep 2023
10.	Dr Gopal Katna, Department of Organic and Natural Farming	CIMMYT, EI Batan, Mexico	Genetics and breeding for Disease Resistance	01 Month	23rd Sep to 23rd Oct 2023
11.	Dr RS Rana Sr Scientist, CGRT, CSKHPKV	University of Tuebingen, Geschwister-School-Platz 72074 Tubingen, Germany	Crop simulation modelling for climate change adaptation	01 Month	27th Sep to 27th October 2023
12.	Dr Pardeep Kumar, Department of Soil Science	University of Tuebingen, Geschwister-School-Platz 72074 Tubingen, Germany	Digital Soil Mapping (DSM) and climate change using Big Data	01 Month	27th Sep 2023 to 27th October 2023
PG Students					
1	Ms. Payal Sharma, Ph.D., Department of Vegetable Science	World Vegetable Centre, Taiwan	Mapping heat stress tolerance in a tomato MAGIC population	01 month	01-10-2022 to 31-10-2022
2	Ms. Alisha Thakur, Ph.D., Department of Vegetable Science	World Vegetable Centre, Taiwan	Mapping Mungbean Yellow Mosaic: virus resistance in Mungbea	01 month	01-10-2022 to 31-10-2022

3	Ms. Srishti, Ph.D., Department of Vegetable Science	World Vegetable Centre, Taiwan	Mapping heat stress tolerance in a tomato MAGIC population,	01 month	01-10-2022 to 31-10-2022
4	Mr. Himanshu Thakur, Ph.D., Department of Entomology	Okinawa Institute of Science and Technology,1919 Tancha, Onna-son,Kunigami-gun, Japan	DNA sequencing techniques and evaluation of results of chemical ecology studies on termites conducted in India at	01 month	01-12-2022 to 31-12-2022
5	Ms Khushwinder Kaur, Ph.D., Department of Plant Pathology	Directorate of Plant Protection Central Research Institute Turkey	Training in Isolation and characterization of *Pseudocercospora griseola* populations	01 month	01-12-2022 to 31-12-2022
6	Ms. Ekta Kaushik, Ph.D.,Department of Entomology	World Vegetable Centre, Shanhua, Tainan, Taiwan	Evaluation of selected tomato genotypes for their resistance to Bemisia tabaci and Phthorimaea absoluta	3 months	13-12-2022 to 12-03-2023
7	Mr Akash Deep, Ph.D., Department of Agronomy	University of Southern Queensland (Australia)	Modelling of rice cropping system	01 month	28-01-2023 to 01-03-2023
8	Mr Shubham Verma, Ph.D., Department of Genetics and Plant Breeding	University of Melbourne (Australia)	Modern phenomics approaches to study different morph-physiological traits conferring drought tolerance, and hands on with different techniques at	01 month	14 Feb 2023 to 31 March 2023
9	Ms. Minam Gamoh Ph.D. Scholar Department of Agriculture Economics	World Vegetable Centre at Bangkhen campus Bangkok, Thailand	Training in Data analysis techniques for impact assessment at regional	01 month	16 June 2023 to 16 July, 2023

10	Ms. Ronika Ph.D. Scholar, Department of Genetics & Plant Breeding	Laboratory of Plant Genetics and Genomics, Kazusa DNA Research Institute, Japan	Training in Molecular genetic analysis of crop species	01 month	20th June 2023 - 20th July, 2023
11	Ms. Priyanka Ph.D. Scholar Department of Genetics & Plant Breeding	South Dakota state university, Brookings, USA	Advanced breeding and genomic techniques for characterizing and enhancing disease resistance	2 Months	28 June 2023 to 25 August, 2023
12	Ms. Supriya Kaldate Ph.D. Scholar Department of Genetics & Plant Breeding	South Dakota state university, Brookings, USA	Advanced breeding and genomic techniques for characterizing and enhancing disease resistance	2 Months	25 June 2023 to 25 August, 2023
13	Mr. Vivek Ph.D. Department of Genetics & Plant Breeding	CIMMYT international Maize and Wheat Improvement Centre, El Batan, Mexico	Genetics and Breeding for disease Resistance	45 days	10 July 2023 to 25th August, 2023
14	Mr. Tarun Sharma Ph.D. Department of Agronomy	The University of Sydney, Australia	Big Data modelling for yield forecasting	2 Months	16th July 2023-15th September, 2023
15	Ms.Gaytri Hetta Ph.D. Department of Agronomy	IRRI Philippines	Training in “Estimation of Carbon footprints, GHG emissions & Mitigation”	2 Months	16th July 2023-15th September, 2023
16	Ms.Bhawna Babal Ph.D. Department of Soil Science	IRRI Philippines	Training in “Estimation of Carbon footprints, GHG emissions & Mitigation”	2 Months	16th July 2023-15th September, 2023
17	Ms. Avnee Ph.D. Department of Agronomy	IRRI Philippines	Training in “Crop growth simulation Modelling using DSSAT”	2 Months	16th July 2023-15th September, 2023

18	Ms. Aanchal Ph.D. Department of Soil Science	IRRI Philippines	Training in "Nutrient management vis-à-vis climate change"	2 Months	16th July 2023-15th Septembe r, 2023
19	Ms. Pratibha Thakur Ph.D. Department of Soil Science	IRRI Philippines	Training in "Crop growth simulation Modelling using DSSAT"	2 Months	16th July 2023-15th Septembe r, 2023
20	Mr. Gaurav Sharma Ph.D. Department of Plant Breeding and Genetics	IRRI Philippines	Training in "Harnessing plant growth facility for climate SMART plant breeding"	2 Months	16th July 2023-15th Septembe r, 2023
21	Ms. Sonali Parwan, Ph.D. Department of Plant Pathology	CIMMYT international Maize and Wheat Improvement Centre, El Batan, Mexico	Genetics and Breeding for Disease Resistance	45 days	6th Septembe r 2023 to 23rd Oct, 2023
22	Ms. Isha Thakur, Ph.D., Department of Soil Science	Hawkesbury Institute for the Environment, Western Sydney University (Hawkesbury Campus) Australia	Soil Science studies in Relation to Climate Change	02 months	26 August 2023- 26 Oct 2023
23	Ms. Arshia Prashar, Ph.D., Department of Vegetable Science & Floriculture	Oregon state University, USA	Vegetable Breeding and Genetics	01 month	1st Oct 2023 to 31st Oct 2023
24	Mr. Vivek Singh, Ph.D., Department of Vegetable Science & Floriculture	World Vegetable Centre Taiwan	Genome -wide association studies to unravel the population structure and genetic basis of yield attributes in Chilli	01 month	10th Septembe r 2023-11th Oct 2023

25	Mr. Kulveer Singh Dhillon PhD., Department of Genetics and Plant Breeding	Laboratory of Plant Genomics and diseases resistance, University of Haifa, Israel	Characterization and mapping of Wheat Landraces against prevalent diseases with a focus on powdery mildew and rusts	01 months	1st Oct 2023-31st Oct,2023
26	Ms. Jyoti Kumari Ph.D., Department of Genetics and Plant Breeding	Kazusa DNA Research Institute, Japan	Plant Genome sequencing and molecular genetics using NGS technologies	01 month	1st September 2023-30th Sep. 2023
27	Ms. Akriti Sharma Ph.D. Department of Genetics and Plant Breeding	Kazusa DNA Research Institute, Japan	Plant genome sequencing and molecular genetics using NGS technologies	01 month	1st September 2023-30th Sep. 2023
28	Mr. Shorya Kapoor, Ph.D., Department of Vegetable Science & Floriculture	World Vegetable Centre, Taiwan	Cost -efficient genotyping of vegetable crops	01 month	10th September 2023-11th Oct 2023
29	Ms. Chetna Mahajan, Ph.D., Department of Plant Pathology	CIMMYT, HQ, EI, Batan, Mexico	Genetics and Breeding for disease resistance	01 month	25th September 2023-26th Oct, 2023
30	Ms. Anshumali Ph.D., Department of Agronomy,	CIMMYT Mexico	Estimation of GHG footprint of major food systems in India	20 days	10Dec to 29th dec, 2023
31	Mr Karthik R, Ph.D., Department of Entomology	Xalapa, Veracruz, Mexico D	Taxonomy and diversity of Phytophagous beetles of Rutelinae (Anomalini)	01 month	26 Nov-26 Dec, 2023
32	Ms Deeksha Thakur PhD., Department of Agronomy,	CIMMYT Mexico	Identify the NUE hotspots and site- specific nutrient management for addressing food, fertilizer and climate crises”	20 days	10Dec to 29th dec, 2023

33	Ms. Mridula Ph D, Department of Agronomy,	IRRI Philippines	Climate Change Mitigation and crop simulation Modelling	01 month	28th Nov to 27th Dec,2023
34	Ms Mandakranta Chakraborty PhD., Department of Agronomy,	CIMMYT Mexico	Analysing low – emission food systems to address climate change	20 days	10Dec to 29th dec, 2023
35	Ms Pooja Kumari, PhD Department of Soil Science	CIMMYT Mexico	Estimation of Nutrient loading footprints for Indian food production system	20 days	10Dec to 29th dec, 2023
36	Ms. Shivani Bhatia Ph.D, Department of Genetics & Plant Breeding,	IRRI Philippines	Molecular Breeding and Genome Editing	01 month	28th Nov to 27th Dec,2023
37	Mr Manoj Kumar Saini Ph.D., Department of Genetics & Plant Breeding	IRRI Philippines	Molecular Breeding and Genome Editing	01 month	28th Nov to 27th Dec,2023
38	Ms Garima Chauhan PhD., Department of Agronomy,	CIMMYT Mexico	Comprehensive assessment of water footprint of different cropping systems in India	20 days	10Dec to 29th dec, 2023
39	Ms. Shabnam Kumari Ph D Department of Agronomy,	IRRI Philippines	Climate Change Mitigation and crop simulation Modelling	01 month	28th Nov to 27th Dec,2023
40	Mr. Sachin, PhD Department of Agronomy	IRRI Philippines	Crop simulation modelling & nutrient management	01 month	28th Nov to 27th Dec,2023
41	Mr. Prikshit, Ph.D Department of Genetics & Plant Breeding,	IRRI Philippines	Molecular breeding for product development in Rice	01 month	28th Nov to 27th Dec,2023
42	Mr. Bharat Bhushan Rana,	IRRI Philippines	Crop simulation modelling (ORYZA)	01 month	28th Nov to 27th Dec,2023

	PhD, Department of Agronomy,				
43	Mr. Ankit Kumar PhD Department of Vegetable Science & Floriculture	IRRI Philippines	Seed production technology	01 month	28th Nov to 27th Dec,2023

Annexure-VIII

In House National Trainings and webinars

Sr. No.	Title	Speaker(s)	Date	Total Participants	MALE	FEMALE	SC	ST
National Trainings (In House)								
1	Training programme on Strategic Plan to double farm income through protected cultivation of vegetables		31-08.2020 to 0.09.2020	316	**196**	**120**	**34**	**42**
2	Management of biotic & abiotic stresses in protected agriculture	Dr Naved Sabir, Dr S.Kumar, Dr R. Varshney, Dr Vinay Singh, Dr Amar Kumar, Dr SSriram, Dr DK Banyal, Dr PN Sharma, Dr NK Sankhyan, Dr Vikas Sharma, Dr BB Vashisht, Dr SK Sandal	22.09.2020 to 24.09.2020	1432	**856**	**576**	**153**	**55**
3	One weeek training programme on "Experimental Design and Analysis through statistical softwares"	Dr Manpreet Singh Kheeva, Dr Navneet Kaur, Dr AS Brar, Dr Sukhpreet Singh, Dr Sukanta Dass, Dr KN Singh, Dr Sudeep Marwah, Dr RC Goyal	24-05-2022 to 30-05-2022	304	**177**	**127**	**23**	**9**
4	Six days hands on training on Insect Systematics	Dr Rajamani swaminathan, Mrs Tatiana Swaminathan, Dr Vikas Jindal, Dr Geetika Banta, Dr Prasad Shrikrishna Burange	18-/19-06.2022;01/02-07-2022;9/10-07-2022	111	**57**	**54**	**5**	**9**
5	Application of Nanotechnology on crop pest management	Dr Manish Kumar, Dr Vijaya Kumar, Dr Sanjay Guleria, Dr M kannan, Dr Pranab Dutta;	14-10-2022 to 15-10-2022	98	**45**	**53**	7	**6**

		Dr Subash Chander Bhan						
6	National trainng cum webinar on "Buzz pollination:Role of bumble bees in polllination of crops in protectd agriculture"	Dr Harish K Sharma, Dr RajK Thakur, Dr Kiran Rana	05-03-2023	306	**175**	**131**	**23**	**5**
Webinars/Brain storming /Seminars								
1	Enhancement of spoken skills in English	Dr Prajya Mishra	12-08-2020	109	**67**	**42**	**10**	**3**
2	Vegetable cultivation under protected environments	Dr Balraj Singh	28-08-2020	283	**155**	**128**	**20**	**8**
3	Implementation of new education policy-2020: the way ahead	Dr. H.K. Choudhary	14-09-2020	46	**25**	**21**	**5**	**2**
4	Laboratory safety standards vis-a vis new agricultural research andeducation	Dr. Yogita Kharayat	03-10-2020	62	**36**	**26**	**6**	**4**
5	Geographical indications: registrationand processing and role of HPPIC (HIMCOSTE)	Mr. Shashi Dhar	08-10-2020	49	**35**	**14**	**3**	**3**
6	Webinar on “Rainwater harvesting and its application through drip irrigation”	Dr. U. S. saikia Dr. R. T. Thokkal, Dr. M. J. Kaledhonkar Dr. R. K. Thakuria	22-12-2021	102	**58**	**49**	**5**	**7**
7	Webinar on “Soil testing- a vital tool for soil health monitoring and sustenance”	Dr. K.P. Tripathi, Dr. Satish Bhardwaj Dr. Vikas Sharma, Dr. K.M. Manjaiah	08-01-2021	158	**91**	**67**	**22**	**7**
8	Webinar on “Prospects of natural farming in India”	Dr. Rajeshwar S Chandel	28-01-2021	220	**118**	**102**	**25**	**20**

9	Webinar (Talk 2) on “Soil-less vegetable cultivation”	Dr. Brahma Singh	05-02-2021	78	**40**	**38**	**7**	**4**
10	Webinar on “Fertigation Technologies for enhancing crop and water productivity”	Dr. Sanjeev S Sandal, Dr. B. D. Bhakhre, Dr. K. S. Sekhon, Dr. N. K. Sankhyan, Dr. Prabhakar Nanda	10-02-2021	70	**33**	**37**	**6**	**6**
11	Webinar on “Principles of good laboratory practices”	Dr. A. Ramesh	10-02-2021	89	**49**	**40**	**8**	**5**
12	Webinar “Bovine Tuberculosis: A zoonosis”	Dr Umesh Kumar Bharti	12.03.2021	8	**4**	**4**	**1**	**0**
13	Webinar on “Brain Storming Session to finalize Certificate Courses- 1.Hybrid Seed Production 2.Protected Cultivation in Vegetable Crops”	Dr. Brahma Singh Dr. Pritam Kalia Dr. A.S. Dhatt Dr. T.K. Behera Dr. Rajesh Singh Dr. D.K. Singh Dr. Hare Krishna Dr. Indivar Prasad	11-02-2021	14	**12**	**2**	**0**	**0**
14	Webinar on “Microbial strategies for improving soil health and crop productivity under protected cultivation”	Dr. (Mrs.) Radha Prasanna	10-03-2021	76	**30**	**46**	**2**	**2**
15	Webinar on “World Environment Day”	Prof.H.K.Chaudh ary Dr. S.S. Samant Dr. Hemant Gupta	05-06-2021	117	**63**	**54**	7	**5**
16	Webinar on "World Milk Day"	Dr Anil Kumar Srivastav	01.06.2021	105	**67**	**38**	**6**	**3**
17	‘National Webinar on Evolution of Statistics.’	Prof. Narinder Kumar	29-06-2021	272	**148**	**124**	**22**	**19**

	National Statistics Day- 2021							
18	Webinar (Talk-3) "Global Update of Cucurbits Breeding"	Dr. Narinder Dhillon (Word Vegetable Centre)	14-10-2021	113	**65**	**47**	**8**	**12**
19	Nano fertilizers: Potential Material for Global Farming	Dr. J.C. Tarafdar	22-10-2021	93	**57**	**36**	**10**	**4**
20	Soil Quality Management vis-à-vis Climate Change	Dr. K.L. Sharma	23-10-2021	68	**40**	**28**	**9**	**4**
21	Nutraceutical breeding and biofortification of vegetable crops for health and nutritional security	Dr. Pritam Kalia	18-10-2021	52	**20**	**32**	**4**	**3**
22	One Health	Dr. Sunil Raina	01-11-2021	98	**55**	**43**	7	**3**
23	Substance Abuse Prevention	Ms. Jyoti Bhardwaj	29-11-2021	100	**25**	**75**	**12**	**5**
24	Natural Farming: a new paradigm for Climate Resilient Agriculture	Dr. J.P. Saini Dr. Manoj Gupta	03-03-2022	100	**64**	**36**	**16**	**4**
25	Application of Drone Technology in Agriculture	Col. Arun Sharma	13-05-2022	158	**67**	**91**	**15**	**9**
26	Recent advances in developing vegetables suitable for protected environment	Dr. Hans Raj Bhardwaj	17-05-2022	109	**48**	**61**	7	**3**
27	Role of Institution for ATMANIRBHAR BHARAT through Innovation and Policy Reforms	Dr. P.K. Ghosh	15-06-2022	247	**149**	**98**	**34**	**22**
28	Plant Biotechnology Approaches for crop improvement	Dr. R.C. Yadav	20-06-2022	95	**52**	**43**	**8**	**17**
29	Application of Artificial Intelligence and Remote Sensing in Agriculture	Ms. Chandraballli Karmakar	20-09-2022	90	**38**	**52**	**4**	**2**

30	International expert talk on 'species diversity and evolutionary history of termitophilous rove beetles'	Dr Taisuke Kanao, Asstt. Prof., Yamagata Univ., Japan	04-11-2022	142	**61**	**81**	**10**	**15**
31	Curtain Raiser program on role of Radhanath Sikdar in India's Freedom Struggle	Prof. B.C. Chauhan (CUHP Dharamshala)	29-10-2022	75	**33**	**42**	**6**	**8**
32	Role of Nutrition and Physical Activity for Boosting Immunity	Dr. Kiran Bains, PAU, Ludhiana	07-11-2022	170	**27**	**143**	**14**	**11**
33	A Global Perspective for Future Food Security-Challenges and Opportunities (International Webinar)	Dr. Dorin Gupta, Melbourne	10-11-2022	96	**20**	**76**	**20**	**12**
34	Role of Nutrition and Physical Activity for Boosting Immunity	Dr Kiran Bains	07-11-2022	170	**27**	**143**	**14**	**11**
35	Awareness program on "Soil testing labs under Soil Health Card Scheme"	Dr N Venkatesswaran	30-09-2022	60	**33**	**27**	**5**	**3**
36	Indian Dairy Sector Opportunityies for Enterprenureship development	Dr Hem Raj Khanna	21.03.2023	91	**38**	**53**	**10**	**3**
37	Brief about the Zoonotic diseases and strategies t prevent and Control	Dr Prabhakar Jha	22.03.2023	73	**38**	**35**	**4**	**1**
38	Benefits and Challenges to One health Approch in India	Dr Atual Anand	23.03.2023	76	**44**	**32**	**10**	**2**
39	DST funding scope for faculty and PhD Scholar	Dr Susheela Negi	06-04-2023	150	**89**	**61**	**12**	**5**
40	Seminar on "One Health and Nutritional Securiy"	Prof Chander Kumar	18-07-2023	170	**84**	**55**	**14**	**2**
41	Expert lecture on Soilless cultivation	Dr A.K.Mehta	03-03-2023	80	**64**	**16**	**12**	**9**

	of high value cash crops- A Profitable Enterprise”							
42	Knowledge Management for Sustainable Development of Horticulture"	Dr. S.K. Sharma	03-04-2023	68	**48**	**20**	**15**	**3**
43	” The role of motivation in Education”	Dr. S.K. Sharma	21-07-2023	80	**51**	**29**	**29**	**4**
44	”How First 30 days in Army "	Brigadier Sanjeev Soni	27-07-2023	85	**48**	**37**	**16**	**6**
45	“Expectations of society from armed forces ”	Brigadier Sanjeev Soni	27-07-2023	85	**48**	**37**	**16**	**6**
46	“Promising post-harvest technologies for managing fresh horticulture produce”	Dr. Ram Asrey	08-01-2023	42	**23**	**19**		
47	“Storage of fruits and vegetables”	Dr. Ram Asrey	08-01-2023	42	**23**	**19**		
48	“Ripening regulation in harvested fruits”	Dr. Kalyan Barman	08-03-2023	23	**11**	**12**		
49	“Value addition in fruits and vegetables”	Dr. Kalyan Barman	08-03-2023	23	**11**	**12**		
50	“Who am I?”	Col. Vivek Singh	08-04-2023	182	**173**	**9**	**21**	**8**
51	“Respect earned not commanded”	Col. Vivek Singh	08-04-2023	182	**173**	**9**	**21**	**8**
52	“Exciting career opportunities for Graduates in Agricultural Sciences”	Dr. Susheel Sharma	08-05-2023	47	**34**	**13**		
53	“Feeding nation with quality nutritious food: Paradigm shift in Indian Agriculture”	Dr. Susheel Sharma	08-05-2023	47	**34**	**13**		
54	Somaclonal Variations and Chimera Formation in Fruit Crops”	Dr. Chavlesh Kumar	19-08-2023	31	**19**	**12**		

55	"Cellular Basis of the Plant Propagation"	Dr. Chavlesh Kumar	19-08-2023	31	**19**	**12**		
56	"Exotic Vegetables an emerging option for public health and youth entrepreneurship"	Dr. Shrawan Singh Sirowa	09-02-2023	99	**70**	**29**	**12**	7
57	"Advances in breeding of cole crops"	Dr. Shrawan Singh Sirowa	09-02-2023	99	**70**	**29**	**12**	7
58	"Breeding for Multiple Disease Resistance Tomato"	Dr. Salesh Kumar Jindal	25-09-2023	50	**39**	**11**	**9**	**4**
59	Breeding for Leaf Curl in Chilli	Dr. Salesh Kumar Jindal	25-09-2023	50	**39**	**11**	**9**	**4**
Total				**8367**	**4708**	**3632**	**825**	**451**

National Trainings organized at National Institutes of Repute:

S. No	Name of Student	Name of Department	Contact No.	Purpose	Place of Training	Date of Training
1	Mr. Chhaviraj Baghel	Soil Science	9770038429	Application of Geospatial technology, tools, fertility mapping and advance instrument handling	IISS, Bhopal	5-11 Dec, 2023
2	Mr. Saurabh Thakur	Soil Science	9518118388	---do---	---do---	---do---
3	Ms. Kritika Dogra	Soil Science	7018317917	---do---	---do---	---do---
4	Ms. Shivani	Soil Science	9459743944	---do---	---do---	---do---
5	Ms. Prakriti	Soil Science	8219125767	---do---	---do---	---do---
6	Ms. Anshu	Soil Science	9418525217	---do---	---do---	---do---
7	Ms. Prikxit	Soil Science	7018352075	---do---	---do---	---do---
8	Ms. Sagun Mahajan	Soil Science	7018971630	---do---	---do---	---do---
9	Ms. Priyanka	Soil Science	8091723974	---do---	---do---	---do---
10	Ms. Shilpa Kumari	Soil Science	8219756801	---do---	---do---	---do---
11	Ms. Sugandha Chauhan	Soil Science	8219969164	---do---	---do---	---do---
12	Ms. Saroj Kumari	Agronomy	8219827692	---do---	---do---	---do---
13	Ms. Divya Parashar	Agronomy	9459043942	---do---	---do---	---do---
14	Ms. Anchal Sharma	Agronomy	9418059827	---do---	---do---	---do---
15	Ms. Vaishali	Agronomy	8219391046	---do---	---do---	---do---

16	Ms. Shivali Rana	Agronomy	7018161091	---do---	---do---	---do---
17	Ms. Anchal Sharma	Agronomy		National Conference on "Climate Smart Agronomy for Resilient production systems and likelihood security"	ICAR-CCARI, Goa	22-24, Nov 2023
18	Ms. Anjali Rawat	Agronomy		---do---	---do---	---do---
19	Ms. Shivali Rana	Agronomy		---do---	---do---	---do---
20	Ms. Tania Singh	Agronomy		---do---	---do---	---do---
21	Ms. Shabnam Thakur	Agronomy		---do---	---do---	---do---
22	Ms. Vaishali	Agronomy		---do---	---do---	---do---
23	Ms. Bhuvnesh Upmanyu	Agronomy		---do---	---do---	---do---
24	Ms. Divya Prashar	Agronomy		---do---	---do---	---do---
25	Ms. Saroj Kumari	Agronomy		---do---	---do---	---do---
26	Ms. Kajal Bhardwaj	Genetics and Plant Breeding		National Seminar on "Plant Biodiversity for food, Nutrition and Health Security in North West Himalayas"	Shoolni University HP	27th -28th Nov 2023
27	Ms. Rishita Kapoor	Genetics and Plant Breeding		---do---	---do---	---do---
28	Ms. Jyoti Kumari	Genetics and Plant Breeding		---do---	---do---	---do---
29	Ms. Poonam Sharma	Genetics and Plant Breeding		---do---	---do---	---do---
30	Ms. Ananya Thakur	Genetics and Plant Breeding		---do---	---do---	---do---
31	Ms. Priyanka	Genetics and Plant Breeding		---do---	---do---	---do---
32	Mr. Akash Deep	Agronomy		National Conclave	CCS HAU Hisar	9-10th Dec 2023
33	Ms. Avnee	Agronomy		---do---	---do---	---do---

34	Mr Shubham Verma	Genetics and Plant Breeding		---do---	---do---	---do---
35	Ms. Ronika	Genetics and Plant Breeding		---do---	---do---	---do---
36	Ms. Aanchal	Soil Science		---do---	---do---	---do---
37	Ms. Pratibha Thakur	Soil Science		---do---	---do---	---do---
38	Ms. Isha Thakur,	Soil Science		---do---	---do---	---do---
39	Ms.Bhawna Babal	Soil Science		---do---	---do---	---do---
40	Mr. Vivek Singh	Vegetable Science & Floriculture		---do---	---do---	---do---
41	Mr. Shorya Kapoor	Vegetable Science & Floriculture		---do---	---do---	---do---
42	Yamini Joshi	Entomology	8894881357	National Training on “Crop Protection for Sustainable Agriculture”	ICRISAT Patancheru, Hyderabad	14-19th December,2022
43	Tanisha Gupta	Plant Pathology	8350978400	---do---	---do---	---do---
44	Gaurav Katoch	Plant Pathology	7018678964	---do---	---do---	---do---
45	Diksha Sinha	Plant Pathology	8789263058	---do---	---do---	---do---
46	Gaurav Sharma	Genetics and Plant Breeding	9459761751	---do---	---do---	---do---
47	Ronika	Genetics and Plant Breeding	9805558214	---do---	---do---	---do---
48	Kavita Kushwaha	Plant Pathology	9606235799	---do---	---do---	---do---
49	Riya	Plant Pathology	8894489223	---do---	---do---	---do---
50	Mansi Arora	Plant Pathology	8476029687	---do---	---do---	---do---
51	Somya Hallan	Plant Pathology	8628932035	---do---	---do---	---do---
52	Sonali Parwan	Plant Pathology	8627005897	---do---	---do---	---do---
53	Suresh Kumar Mahala	Entomology	9588827917	---do---	---do---	---do---
54	Diksha Kharwal	Entomology	9606235799	---do---	---do---	---do---
55	Akshay Pathania	Plant Pathology	9459761751	---do---	---do---	---do---

56	Ekta Kaushik	Ph.D. Entomology	9459248759	---do---	---do---	---do---
57	Divyavani	Ph.D. Entomology	9459083874	National Training on Mite Taxanomy	NBAIR, Bengaluru	2-7 May, 2022
58	Shyam lal	M.Sc. Entomology	8219482249	---do---	---do---	---do---
59	Akshita	M.Sc. Entomology	8219387587	National Training "Production and Use of Biological Control Agents including Microbials"	NBAIR, Bengaluru	2-7 May, 2022
60	Gurpreet	M.Sc. Entomology	7814623306	---do---	---do---	---do---
61	Nishant Singh	M.Sc. Entomology	8894019842	---do---	---do---	---do---
62	Ronika	M.Sc. Entomology	9015273595	---do---	---do---	---do---
63	Sushmita	M.Sc. Entomology	7018918477	---do---	---do---	---do---
64	Vishrava	M.Sc. Entomology	9805436046	---do---	---do---	---do---
65	Yashasvi Goswamy	M.Sc. Entomology	7006327299	---do---	---do---	---do---
66	Ankit Kumar	M.Sc. Veg Sci Second Year	8894019842	National Training on Molecular breeding and Protected cultivation of Vegetable Crops	IIVR, Varanasi	28Apr-11May,2022
67	Ankush Sharma	M.Sc. Veg Sci Second Year	9015273595	---do---	---do---	---do---
68	Himanshu Sharma	M.Sc. Veg Sci Second Year	7018918477	---do---	---do---	---do---
69	Neha Rana	M.Sc. Veg Sci Second Year	9418849802	---do---	---do---	---do---
70	Prhas pathania	M.Sc. Veg Sci Second Year	-	---do---	---do---	---do---
71	Shorya Kapoor	M.Sc. Veg Sci Second Year	9459852180	---do---	---do---	---do---
72	Shriya Walia	M.Sc. Veg Sci Second Year	-	---do---	---do---	---do---
73	Tamanna Sood	M.Sc. Veg Sci Second Year	8350910078	---do---	---do---	---do---
74	Ambika Sharma	M.Sc. Veg Sci Second Year	-	---do---	---do---	---do---
75	Anuradha Sharma	Ph.D. Veg Sci	-	---do---	---do---	---do---

76	Mr Vivek Singh	PhD Plant Breeding		Advance molecular techniques in agriculture (ICAR- National Bureau of Agriculturally Important Microorganism	NBAIM, Mau, UP	20th Oct to 3rd Dec, 2022
77	Mr Tarun	PhD Agronomy		Hands on training on Remote Sensing and GIS using QGIS	NAHEP-CAAST, College of Agricultural Engineering JNKVV Jabalpur	3rd to 23rd Jan, 2022
78	Amit Rana	PhD Plant Breeding		NAHEP sponsored Training on CRISPER based plant Genome editing: Tools and techniques, IARI, New Delhi	IARI New Delhi	11-21st Oct, 2022
79	Priyanka	PhD Plant Breeding		---do---	---do---	---do---
80	Mr Shyam Lal	M.Sc. Entomology	8219482249	Hands on Training on Mite Taxonomy at	Punjab Agricultural University, Ludhiana	27-31 March, 2023
81	Ekta	PhD Entomology		Workshop on Presentation Skills	CSIR-Indian Institute of Toxicology Research, Lucknow	26th Nov, 2021
82	Deepak	M.Sc. Entomology		-----do---	-----do---	-----do---
83	Gurpreet	M.Sc. Entomology		-----do---	-----do---	-----do---
84	Javez Daju	M.Sc. Entomology		-----do---	-----do---	-----do---
85	Nishant	M.Sc. Entomology		-----do---	-----do---	-----do---
86	Nitika	M.Sc. Entomology		-----do---	-----do---	-----do---
87	Ronika	M.Sc. Entomology		-----do---	-----do---	-----do---
88	Sushmita	M.Sc. Entomology		-----do---	-----do---	-----do---
89	Vishrava	M.Sc. Entomology		-----do---	-----do---	-----do---

90	Yashasvini	M.Sc. Entomology		-----do---	-----do---	-----do---
Faculty						
1	Mr Sunny	Assistant Librarian	-	The Festival of libraries 2023 organized by the Ministry of Culture	New Delhi	05-06, Aug 2023
2	Dr. Gurudev Singh	Scientist (Agronomy)	-	National Training on Natural Farming: Present status and FutureProspects	CSKHPKV Palampur	14-27 Sept, 2023
3	Dr. Deep Kumar	SMS (Agronomy)	-			
4	Dr. Subhash Kumar	SMS (Soil Science)	-	-----do---	-----do---	-----do---
5	Dr. Radhika Negi	SMS (Vegetable)	-	-----do---	-----do---	-----do---
6	Dr. Neha Chauhan	SMS (Soil Science)	-	-----do---	-----do---	-----do---
7	Dr. Ashish Kumar	Asst. Prof. Agronomy	-	-----do---	-----do---	-----do---
8	Dr. Gaurav	SMS Soils	--	-----do---	-----do---	-----do---
9	Dr. Saurabh Sharma	SMS Agronomy	-	-----do---	-----do---	-----do---
10	Dr. Chhavi	Extension Specialist	-	-----do---	-----do---	-----do---
11	Dr. Minakshi Saini	SMS	-	-----do---	-----do---	-----do---
12	Dr. Bilal Ahmad Zargar	KVK, Shopian, SKUAST, Srinagar	9622927491	-----do---	-----do---	-----do---
13	Dr. Khursheed Ahmad Sheikh	AARS, Pohnu, SKUAST Srinagar	7006517971	-----do---	-----do---	-----do---
14	Dr. Mir Ghulam Hassan	ARSS &SS. Dusso, Konibal, Pampore SKUAST-K, Srinagar	-	-----do---	-----do---	-----do---
15	Dr. Nazir Ahmad Mir	KVK, Bandipora, Gurez, Srinagar	6005564241	-----do---	-----do---	-----do---
16	Dr. Nazir Ahmad Bumla	KVK, Kupwara, Srinagar	9622263339	-----do---	-----do---	-----do---

17	Dr. Ulhas Surve	Professor, Agronomy, MPKV Rahuri	9822606511	-----do---	-----do---	-----do---
18	Dr. V P Bhalerao	Associate Professor MPKV Rahuri	9420661258	-----do---	-----do---	-----do---
19	Dr. S.K. Ghodake	Scientist, MPKV Rahuri	9960482780	-----do---	-----do---	-----do---
20	Dr. C.T. Kumbhar	Associate Professor, MPKV Rahuri	9766746666	-----do---	-----do---	-----do---
21	Dr. D H. Phalke	Assistant Professor, MPKV Rahuri	9890475464	-----do---	-----do---	-----do---
22	Dr. Krishan Kumar	Scientist (Horticulture) PAU Ludhiana	9463663194	-----do---	-----do---	-----do---
23	Dr. K.S. Bhullar	Fruit Scientist PAU Ludhiana	94179 15516	-----do---	-----do---	-----do---
24	Dr. Amit Choudhary	Entomologist PAU Ludhiana	8283810668	-----do---	-----do---	-----do---
25	Dr. Neemisha Pathania	Microbiologist PAU Ludhiana	8427390448	-----do---	-----do---	-----do---
26	Dr. Pankaj Sharma	Plant Breeder PAU Ludhiana	8528221501	-----do---	-----do---	-----do---
27	Dr Ajay Kumar Chaudhary	Plant Pathologist PAU Ludhiana	94639 74499	-----do---	-----do---	-----do---
28	Dr Rishi Mahajan	Assistant Professor		National Conclave	CCS HAU Hisar	9-10th Dec 2023
29	Sh Sunder Lal Negi	SVC	-	Training on Smart governance in office system & official procedure	New Delhi	10-12 Oct, 2022
30	Dr Parveen Sharma	Professor	-	Strategic Plan to Double Income through Protected Cultivation of Vegetable Crops	Department of Veg Sci, CSKHPKV Palampur	31 Aug to 07 Sept, 2020
31	Dr Akhilesh Sharma	Professor	-	-----do---	-----do---	-----do---
32	Dr R.S.Rana	Professor	-	-----do---	-----do---	-----do---
33	D R Chaudhary	Professor		-----do---	-----do---	-----do---
34	Dr Ajeet singh	Professor		-----do---	-----do---	-----do---

35	Dr Bhallan Singh Sekhon	Professor		-----do---	-----do---	-----do---
36	Dr D R Chaudhary	Professor		-----do---	-----do---	-----do---
37	Dr Neelam Bhardwaj	Professor		-----do---	-----do---	-----do---
38	Dr Sonia Sood	Professor		-----do---	-----do---	-----do---
39	Dr Suman Sanjta	Professor		-----do---	-----do---	-----do---
40	Dr RK Gupta	Professor		-----do---	-----do---	-----do---
41	Dr Sanjeev Sandal Palampur	Professor		-----do---	-----do---	-----do---
42	Dr Sayeed A H Patel	Professor		-----do---	-----do---	-----do---
43	Dr Suman Kumar, PC KVK Bilaspur	Professor		-----do---	-----do---	-----do---
44	Dr Suresh Upadhyay	Professor		-----do---	-----do---	-----do---
45	Dr Udit Kumar	Professor		-----do---	-----do---	-----do---
46	Dr Vikas Tandon			-----do---	-----do---	-----do---
47	Dr VK Sharma			-----do---	-----do---	-----do---
48	Dr. Ankit Panchbhaiya			-----do---	-----do---	-----do---
49	Dr. Ashish Shigwan			-----do---	-----do---	-----do---
50	Dr. Bhallan Singh Sekhon			-----do---	-----do---	-----do---
51	Dr. Gopal Katna			-----do---	-----do---	-----do---
52	Dr. Mahantesh Kamatyanatti			-----do---	-----do---	-----do---
53	Dr. Mangaldeep Sarkar			-----do---	-----do---	-----do---
54	Dr. Manoj Deelip Mali			-----do---	-----o---	-----do---
55	Dr. Manoj Kumar Sharma			-----do---	-----do---	-----do---
56	Dr. Mehraj			-----do---	-----do---	-----do---
57	Dr. Muhammad Rabi			-----do---	-----do---	-----do---
58	Dr. Mujtaba Aezum			-----do---	-----do---	-----do---
59	Dr. Ranjit Patil			-----do---	-----do---	-----do---
60	Dr. Sanvar Mal Choudhary			-----do---	-----do---	-----do---
61	Dr. Sayeed A H Patel			-----do---	-----do---	-----do---
62	Dr. SHAILENDRA MANE			-----do---	-----do---	-----do---

63	Dr. Tajamul			-----do---	-----do---	-----do---
64	Dr. Vijaykumar Bodkhe			-----do---	-----do---	-----do---
65	Dr.J.K.Dhemre			-----do---	-----do---	-----do---
66	dr.kc sharma			-----do---	-----do---	-----do---
67	Dr. Sayeed A H Patel			-----do---	-----do---	-----do---
68	Dr.Lavlesh			-----do---	-----do---	-----do---
69	Dr Anupama Sandal	Professor		Milk Vs Plant based Beverages- Bursting all myths	DUVASU Mathura	9-12 Dec, 2022
70	Dr YS Dhaliwal	Professor		Training on Achieving zero hunger by 2030 critical role of Agriculture & Allied Sectors		17-27 Aug, 2020
71	Dr Anupama Sandal	Professor		-----do---	-----do---	-----do---
72	Dr Anjali Sood	Professor		-----do---	-----do---	-----do---
73	Dr Sapna Gautam	Professor		-----do---	-----do---	-----do---
74	Dr Ranjana Verma	Professor		-----do---	-----do---	-----do---
75	Dr. Anil Kumar	Chief Scientist (Agronomy)		NABL Accreditation and its benefits for Soil Testing Laboratories	CSKHPKV Palampur	30.09.2022
76	Dr. Gurudev Singh	Sr. Scientist (Agronomy)		-----do---	-----do---	-----do---
77	Dr. Sanjay Kumar	SMS (Agronomy)		-----do---	-----do---	-----do---
78	Dr. Sushil Dhiman	Scientist (KVK Chamba)		-----do---	-----do---	-----do---
79	Dr. Sanjay Kumar Sharma	Prof. (Soil Science)		-----do---	-----do---	-----do---
80	Dr. Lav Bhushan	ES (Soil Science)		-----do---	-----do---	-----do---
81	Dr. Gopal Katna	Principal Scientist (Plant Breeding)		-----do---	-----do---	-----do---
82	Neha Chauhan	SMS (Soils) KVK Mandi		-----do---	-----do---	-----do---
83	Subhash Kumar	SMS (Soils) KVK Bajaura		-----do---	-----do---	-----do---
84	Dr. Naveen Dutt	Principal Scientist (Soil Science)		-----do---	-----do---	-----do---

85	Dr. Dhanbir Singh	Assistant Soil Chemist		-----do---	-----do---	-----do---
86	Dr. Sant Prakash	Consultant, NAHEP-CAAST		-----do---	-----do---	-----do---
87	Dr. Ibajanai Kurbah	Scientist, KVK Shimla (YSPUHF, Solan)		-----do---	-----do---	-----do---
88	Meenakshi	SMS, KVK Una (Agronomy)		-----do---	-----do---	-----do---
89	Dr. Pankaj Chopra	Scientist HAREC, Kukumseri		-----do---	-----do---	-----do---
90	Dr. G.D. Sharma	Principal Scientist (Agronomy)		-----do---	-----do---	-----do---
91	Dr. Sandeep Manuja	Prof. (Agronomy)		-----do---	-----do---	-----do---
92	Dr. S.S. Paliyal	Associate Director, HAREC Dhaulakuan		-----do---	-----do---	-----do---
93	Dr. S.C. Negi	Consultant, NAHEP-CAAST		-----do---	-----do---	-----do---
4	Dr. Jagriti Thakur	Assistant Professor (Soil Science)		-----do---	-----do---	-----do---
95	Dr. Navneet Jaryal	SMS, KVK Hamirpur		-----do---	-----do---	-----do---
96	Dr. Kanika Baghla	HAREC, Dhaulakuan		-----do---	-----do---	-----do---
97	Dr. R.P. Sharma	Principal Scientist (Soil Science)		-----do---	-----do---	-----do---
98	Ashish Dhiman	Assistant Professor (COCS)		-----do---	-----do---	-----do---
99	Dr. Gourav	Soil Scientist		-----do---	-----do---	-----do---
100	Dr. Sanjeev K. Sandal	Principal Scientist (Soil Science)		-----do---	-----do---	-----do---
101	Dr. Rakesh	Assistant Professor (OANF)		-----do---	-----do---	-----do---
102	Dr. Nilakshi	Assistant Professor (COCS)		-----do---	-----do---	-----do---
103	Dr. Janardan Singh	HOD, OANF		-----do---	-----do---	-----do---
104	Dr. Meena	Soil Scientist		-----do---	-----do---	-----do---

105	Dr. Anil Kumar	Chief Scientist (Agronomy)		Drone Flying Training Program	-----do---	10-12th Oct, 2022
106	Dr. Dhanbir Singh	Assistant Soil Chemist		-----do---	-----do---	-----do---
107	Dr. Sandeep Manuja	Prof. (Agronomy)		-----do---	-----do---	-----do---
108	Dr. Jagriti Thakur	Assistant Professor (Soil Science)		-----do---	-----do---	-----do---
109	Ashish Dhiman	Assistant Professor (COCS)		-----do---	-----do---	-----do---
110	Dr. R.P. Sharma	Principal Scientist (Soil Science)		-----do---	-----do---	-----do---
111	Dr. Suman Sanjta	Assistant Professor (Entomolgy)		-----do---	-----do---	-----do---
112	Dr. Abhishek Guleria	Assistant Professor (Maths)		-----do---	-----do---	-----do---
113	Dr. Bindia Dutt	Assistant Professor (COCS)		-----do---	-----do---	-----do---
114	Dr. Sanjeev K. Sandal	Principal Scientist (Soil Science)		-----do---	-----do---	-----do---
115	Dr. Sushant Bhardwaj	Assistant Professor		-----do---	-----do---	-----do---
116	Dr. Shikha Sharma	Assistant Professor		-----do---	-----do---	-----do---
117	Dr Ajay K Sood	Principal Scientist		Diagnosis and management of diseases and insect, mite and nematode pests of vegetable crop in protected agriculture and natural farming	-----do---	25-26 February & 4-5 March 2022
118	Dr Surjeet Kumar	Principal Scientist		-----do---	-----do---	-----do---
119	Dr K S Verma	Principal Scientist		-----do---	-----do---	-----do---
120	Dr Anjana Thakur	Associate Prof		-----do---	-----do---	-----do---
121	Dr. Sharmishtha Thakur	Assistant Scientist		-----do---	-----do---	-----do---
122	Dr Suman Sanjta	Assistant Scientist		-----do---	-----do---	-----do---
123	Dr Amar Singh	Associate Prof		-----do---	-----do---	-----do---

124	Dr Joginder Pal	Associate Prof		-----do---	-----do---	-----do---
125	Dr Shabnam Katoch	Associate Prof		-----do---	-----do---	-----do---
126	Dr Deepika Sud	Associate Prof		-----do---	-----do---	-----do---
127	Dr Shikha Sharma	Assistant Prof		-----do---	-----do---	-----do---
128	Dr. R.S. Chandel	Principal Scientist	Entomology	Buzz Pollination	-----do---	5 April, 2022
129	Dr S K Sharma	Principal Scientist	Entomology	-----do---	-----do---	-----do---
130	Dr Ajay K Sood	Principal Scientist	Entomology	-----do---	-----do---	-----do---
131	Dr Surjeet Kumar	Principal Scientist	Entomology	-----do---	-----do---	-----do---
132	Dr PC Sharma	Principal Scientist	Entomology	-----do---	-----do---	-----do---
133	Dr K S Verma	Principal Scientist	Entomology	-----do---	-----do---	-----do---
134	Dr Anjana Thakur	Associate Scientist	Entomology	-----do---	-----do---	-----do---
135	Dr. Sharmishtha Thakur	Assistant Scientist	Entomology	-----do---	-----do---	-----do---
136	Dr Suman Sanjta	Principal Scientist	Entomology	-----do---	-----do---	-----do---
137	Dr Rishi Mahajan	Assistant Scientist	Microbiology	-----do---	-----do---	-----do---
138	Dr Virender Kumar	Principal Scientist	Agriculture Economics	-----do---	-----do---	-----do---
139	Dr Sanjay Chadha	Principal Scientist	Vegetable science	-----do---	-----do---	-----do---
140	Dr Sanjeev K Sandal	Principal Scientist	Soil Science	-----do---	-----do---	-----do---
141	Dr Narender Sankhyan	Principal Scientist	Soil Science	-----do---	-----do---	-----do---
142	Dr Akhilesh Sharma	Principal Scientist	Vegetable science	-----do---	-----do---	-----do---
143	Dr Amar Singh	Principal Scientist	Plant Pathology	-----do---	-----do---	-----do---
144	Dr Sant Parkash	Consultant	Vegetable science	-----do---	-----do---	-----do---
145	Dr Praveen Sharma	Principal Scientist	Vegetable science	-----do---	-----do---	-----do---
146	Dr S C Negi	Consultant	Soil Science	-----do---	-----do---	-----do---
147	Dr Ajay K Sood	Principal Scientist		Training on Insect Systematics	-----do---	18-19 June, 1-2 July and 9-10 July, 2022
148	Dr K S Verma	Principal Scientist	Entomology	-----do---	-----do---	-----do---
149	Dr S.D. Sharma	Principal Scientist	Entomology	-----do---	-----do---	-----do---
150	Dr Anjana Thakur	Associate Scientist	Entomology	-----do---	-----do---	-----do---

151	Dr Surjeet Kumar	Principal Scientist	Entomology	-----do---	-----do---	-----do---
152	Dr. Sharmishtha Thakur	Assistant Scientist	Entomology	-----do---	-----do---	-----do---
153	Dr Suman Sanjta	Assistant Scientist	Entomology	-----do---	-----do---	-----do---
154	Dr P S Burange	Assistant Scientist	Entomology	-----do---	-----do---	-----do---
155	Dr Ajay K Sood	Principal Scientist	Entomology	Application of Nano-technology in crop pest management	-----do---	14-15 October, 2022
156	Dr S.D. Sharma	Principal Scientist	Entomology	-----do---	-----do---	-----do---
157	Dr Surjeet Kumar	Principal Scientist	Entomology	-----do---	-----do---	-----do---
158	Dr K S Verma	Associate Scientist	Entomology	-----do---	-----do---	-----do---
159	Dr Anjana Thakur	Principal Scientist	Entomology	-----do---	-----do---	-----do---
160	Dr. Sharmishtha Thakur	Assistant Scientist	Entomology	-----do---	-----do---	-----do---
161	Dr Suman Sanjta	Assistant Scientist	Entomology	-----do---	-----do---	-----do---
162	Dr Amar Singh	Principal Scientist	Plant Pathology	-----do---	-----do---	-----do---
163	Dr Deepika Sud	Principal Scientist	Plant Pathology	-----do---	-----do---	-----do---
164	Dr Shikha Sharma	Assistant Scientist	Plant Pathology	-----do---	-----do---	-----do---

Annexure-IX

List of Equipment purchased under Capital Head (F.Y. 2020-21, 2021-22) NAHEP-CAAST Project, CSKHPKV Palampur		
Sr. No.	**Equipment/Item Name**	**Passed Amount**
	Equipment, plant & Machinery	
1	Food Waste Compost Machine	494340
2	High–Tech Polyhouse for soilless cultivation	2499000
3	Naturally Ventilated Polyhouse of 250 sqm	798000
4	Plant Growth Chamber	2525100
5	Hi Tech Planting Material Unit	8850000
6	Phytotron	8249200
7	Bio-agent production unit size	329000
8	Strengthening of Polyhouse2	1526500
8	Strengthening of Polyhouse1	89250
9	Power tiller (4000 Installing Charges)	669244
10	Soil Nutrient based fertigation system	898801
11	**Spectrophotometer (Expenditure out of savings)**	**262500**
	Office Equipment	
1	Xerox machine	199500
2	Digital Camera 80D	80500
3	high speed high through the printer	149900
4	Video Camera 90D	126000
	Laboratory Equipment	
1	Stereo zoom Microscope	998025
2	Potter Spray Tower	760416
3	BOD Incubator	329280
4	Autoclave	159600
5	Laminar Airflow	121170
6	All glass filtration	61394
7	Pressure Bomb	721350
8	Gradient Thermal Cycler	593250
9	Gel Electrophoresis	292918
10	Millipore water purification System	599970
11	Top Refrigerated Centrifuge	450450
12	Ultra-water Purification System	599970
13	Gel Doc Chemi doc	1397681
14	Micropipette	168000
15	Liquid Nitrogen Container	102270
16	Analytical Balance Model No. ATX-324R	103845
17	Digital Burette	146849
18	Magnetic Stirrer	88673
19	Spectrophotometer	548100
20	IAK Vortex Shaker	61133
21	Automatic Weather Station	388365
22	Installation, Testing and Commissioning of 3 phase power generator	655200
23	Blue Star Refrigeration deep freezer	259350
24	Proflex 96 well PCR System Thermal Cycler	588000
25	Ice Flaking	154980
26	Food Packaging Machine	782250
27	Peeling Unit & Cutting Unit	176968
27	Food Waste Shredder	270375
28	Bio Safety Cabinet	494970
29	Shaking incubator with refrigeration	975000
30	Texture Analyser	1099500
31	Digital Colony Counter	109500
32	Real-Time PCR Detection System	1310000

33	Fluorescence Microscope	787238
34	FT-IR	1500000
35	Solar Lights	537597
36	Plant Canopy Imager and Analyser Model: - CI-110	997500
37	Root Analyzer & Root Scanner	997500
	Furniture and Fixtures	
1	Touch interactive flat panel Display	406875
2	Almirahs	40635
3	Table	104000
4	Chair	97500
5	Conference room table & chair	209580
6	Lecture Theatre Seating, Furniture etc	661082
	Computer & Peripheral	
1	HP Laser Printer 14	184800
	UPS (150s.)	60000
	Desktop (15 nos.)	1128875
	HP Pavilion, hp LaserJet, zebronics UPS	86144
2	Computer, Printer & UPS	343119
	Civil Works	
	Ramps and Toilet for Disabled Person	153550
1	Ramps and Toilet for Disabled Person	971654
2	Renovation/Upgradation of Lecture Theatre (vegetable Science and Floriculture)	594544
3	Renovation of PG Labs 6 no. Under the Project + Deductions (Others)	4718963
	Total (A):	**57896793**
	Books and Journals	39800
	Total (B):	**39800**
	Sub Total (C=A+B):	**57936593**

List of Equipment purchased under Capital Head (F.Y. 2022-23)
NAHEP-CAAST Project, CSKHPKV Palampur

Sr. No.	Equipment/Item Name	Passed Amount
1	Air conditioner @ 5.5 tonnes with accessories	362250
2	Compact bench top cooling microcentrifuges	164388
3	Double Walled Autoclave vertical GMP model	98438
4	Electrophoresis large with power supply and other accessories	174300
5	Laboratory centrifuge medium-high speed	42313
6	Generator @ 62-65 KVA (Backup system) along with accessories	971250
7	Water bath with digital microprocessor control GMP Model	52500
8	Renovation of labs: Public health lab (Biosafety)- lab (Civil work)	66000
9	Books and Journals	425461
10	PAR lights for polyhouse	205692
	Total (D):	**2562592**
	Grand Total (E=C+D):	**60499185**

Annexure X

The detailed characteristics of the varieties are:

1. **Garden pea variety Him Palam Matar-1(DPP-SP-22)** (The Gazette of India 20 July, 2022 Sr No77)**:** Line has been developed by hybridization of 'Palam Sumool × Palam Priya' followed by pedigree method of selection. Medium growth habit, flower a week earlier than Pb-89 and about two weeks over Azad P-1; synchronized flowering; ready for first harvest in about 70 days in high hills and 100-125 days in low to mid hills; pods are long (10-12 cm), lush green, and attractive; 8-12 seeds/pod (10 seeds) and fresh seeds are comparatively bold; 2 pods/node; High pod yield potential (120-130 q/ha as off-season summer crop and140-165 q/ha as main season during winters); moderately resistant reaction to powdery mildew disease; suitable for main season cultivation in low, mid and high hills of Himachal Pradesh. It is also suitable for cultivation as off-season during summer in Lahaul & Spiti and during July/August sown crop in high and mid hills (Mandi & Chamba districts)
2. **Garden pea variety Him Palam Matar-2(Line-1-2)** (The Gazette of India 20 July, 2022 Sr No78)**:** First garden pea variety harbouring er_2 gene exhibiting complete resistance to powdery mildew disease; mid maturity; ready for first harvest in about 75 days in high hills and 110-134 days in low to mid hills. pods are medium long (9-10 cm), green in colour bearing 8-10 seeds/pod. High yield potential (150-160 q/ha), suitable for main season cultivation in low, mid and high hills of Himachal Pradesh.
3. **Edible pod pea/Snow pea variety Him Palam Meethi Phali-2 (DPEPP-10-1)** (The Gazette of India 20 July, 2022 Sr No76)**:** Line has been developed by hybridization of "Pb-89 × DPEPP-2' followed by pedigree method of selection. Medium tall (60-80 cm), afilla plant (reduces lodging losses); Medium maturity (mid season); Ready for first harvest in about 70-75 days during off-season in high hills and 110-125 days as main season crop in low and mid hills after sowing. Pods are attractive, lush green, medium long (8-10 cm), flat and free from parchment layer. High pod yield potential (80-100 q/ha) about 10-20% higher over Arka Apoorva and 30-40 % over Meethi Phali. Moderately resistant reaction to powdery mildew disease and low incidence of leaf miner on account of afilla plant characteristics. Suitable for main/off-season cultivation in low, mid and high hills of Himachal Pradesh.
4. **Chilli variety Him Palam Mirch-1(DPCh-27)** (The Gazette of India 20 July, 2022 Sr No 6)**:** Line has been developed by hybridization of 'Pusa Jwala × Surajmukhi' followed by pedigree method of selection. Fruits are medium long (6-7 cm), slender (fruit width 0.95 cm), bright green, attractive and pungent. Cluster bearing fruit habit as that of 'Surajmukhi' but comparatively longer in size. Plants erect in growth and medium tall (50-55 cm).

Flowers in 45-50 days after transplanting and ready for first harvest in 60 days, a week earlier than 'Surajmukhi'. High fruit yield potential (120-140 q/ha) about 20% higher over 'Surajmukhi'. It shows tolerance to bacterial wilt and also showed low incidence of fruit rot. Suitable for cultivation in low and mid hills of Himachal Pradesh. Also, suitable for cultivation during rainy season due to its erect plant and fruit bearing characteristics that is beneficial to handle fruit rot/anthracnose disease.

5. **Chilli variety Him Palam Mirch-2 (DPCh-38)** (The Gazette of India 20 July, 2022 Sr No7)**:** Line has been developed by hybridization of 'LCA-436 × Pant C-1' followed by pedigree method of selection. Plants erect in growth and medium tall (55-70 cm); Fruits are long (8-9 cm), broad (fruit width 1.15 cm), bright green, attractive and pungent. Single erect bearing fruit habit. Flowers in 45-50 days after transplanting and ready for first harvest in 60 days, a week earlier than 'Surajmukhi'. Harvest duration is 40-60 days depending upon the prevailing climatic conditions. High fruit yield potential (130-160 q/ha) with average fruit yield of 140 q/ha about 40% higher over 'Surajmukhi'. It shows tolerance to bacterial wilt and also showed low incidence of fruit rot. Suitable for cultivation in low and mid hills of Himachal Pradesh. It is suitable for cultivation during rainy season due to its erect plant and fruit bearing characteristics that is beneficial to handle fruit rot/anthracnose disease.
6. **Parthenocarpic Cucumber Variety 'Him Palam Kheera-1' (DDPCG1)** (The Gazette of India 20 July, 2022 Sr No48)**:** This is the first parthenocarpic cucumber variety recommended for cultivation in Himachal Pradesh under protected environment. It is a selection from segregating material. Fruits are dark green in colour, cylindrical in shape and straight, attractive and crispy. Fruits mature for first harvest in 42-45 days after planting. Moderately resistant (MR) to Downey mildew and Powdery Mildew diseases. Average fruit yield 750-900 q/ha under protected conditions. Recommended for cultivation in all agro-climatic zones of Himachal Pradesh under protected conditions.
7. **Cherry Tomato Variety 'Him Palam Cherry Yellow' (DDCTY1)** (The Gazette of India 20 July, 2022 Sr No13)**:** This is the first recommendation of yellow colour cherry tomato for protected cultivation. Beta-carotene rich, fruits are yellow in colour, oval shaped, sweet and attractive, cluster bearing habit (19-20 fruits/cluster). Indeterminate growth habit with average yield of 500-600 q/ha.
8. **Radish variety Him Palam Mooli 1 (DPR-1)** (The Gazette of India 20 July, 2022 Sr No52)**:** It is developed through selection from a local land race "Nadauni". It is a medium maturing variety which mature in 60-70 days after sowing under normal sown condition. Roots are purple (Anthocyanin rich), white fleshed, very long (20-25 cm) with top length

40 cm, bear around 12-15 leaves, average root weight 250-300g, average marketable yield 460-480 q/ha including leaves. The roots are crispy in taste and remain non-pithy for a long time. It is recommended for sowing in low and mid hills of the state.

9. **Onion Variety Him Palam Shweta (DPWO-1)** (The Gazette of India 20 July, 2022 Sr No38)**:** This is the first white coloured variety of onion for the state and developed through selfing and massing method of the original seed material (EC 218534). Attractive white colour bulbs, round shape and narrow neck bulbs, more shelf life; low post harvest losses, higher total soluble solids [TSS], Average bulb yield is 270q/ha. It is suitable for low and mid hills of Himachal Pradesh.

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Annexure XI

Students undertaking research under protected cultivation and natural farming aspects

S.No.	Name of student	Programme	Admission No.	Department	Thesis title	Completed/Pursuing
1.	Ms. Manisha	M.Sc.	A-2019-30-027	Entomology	Distribution and bioecology of tomato pinworm, *Tuta absoluta* (Meyrick) in Himachal Pradesh	Completed
2.	Ms. Shalika Kumari	M.Sc.	A-2019-30-031	Entomology	Biointensive management of greenhouse whitefly, *Trialeurodes vaporariorum* (Westwood) on cucumber under protected environment	Completed
3.	Ms. Ekta Kaushik	Ph.D.	A-2019-40-009	Entomology	Studies on novel approaches for the management of greenhouse whitefly, *Trialeurodes vaporariorum* (Westwood) on tomato under protected environment	Completed
4.	Ms. Ronika	M.Sc.	A-2020-30-031	Entomology	Studies on *Encarsia formosa* Gahan based management of greenhouse whitefly under protected environment	Completed
5.	Ms. Vishrava	M.Sc.	A-2020-30-033	Entomology	Biocontrol potential of *Chrysoperla*	Completed

					zastrowi sillemi (Esben-Peterson) against greenhouse whitefly	
6.	Ms. Devika	Ph.D.	A-2020-40-009	Entomology	Studies on biointensive management of *Tuta absoluta* in tomato	Pursuing
7.	Ms. Prakash Kumar	M.Sc.	A-2021-30-104	Entomology	Effect of different insecticides on green lacewing, *Chrysoperla zastrowi sillemi* (Esben-Peterson)	Completed
8.	Ms. Akhil Thakur	M.Sc.	A-2022-30-027	Entomology	Biocontrol potential of green lacewing, *Chrysoperla zastrowi sillemi* (Esben-Peterson) against *Myzus persicae* (Sulzer)	Pursuing
9.	Ms. Ankita Rana	M.Sc.	A-2022-30-030	Entomology	Efficacy of mycorrhizae for the management of *Meloidogyne incognita* Chitwood in cucumber under protected environment	Pursuing
10.	Ms. Akshita	Ph.D.	A-2022-40-010	Entomology	Bioecology and management of sap sucking pests of sweet pepper under protected environment	Pursuing
11.	Ms. Simran Kotia	M.Sc.	A-2023-30-039	Entomology	Management of *Meloidogyne incognita* Chitwood	Pursuing

					infecting tomato under protected environment	
12.	Ms. Ritika	Ph.D.	A-2023-40-014	Entomology	Bioecology and management of russet mite, *Aculops lycopersici* (Try on) in tomato under protected environment	Pursuing
13.	Ms. Shimalika Sharma	M.Sc.	A-2019-30-060	Vegetable Science	Assessment of genetic diversity in garden pea (Pisum sativum L.) using agro-morphological and molecular markers	Completed 2021
14.	Ms. Anshula Kumari	M.Sc.	A-2021-30-077	Vegetable Science	Stability of garden pea genotypes for yield components under conventional and natural farming cultivation systems	Completed 2023
15.	Ms. Srishti	Ph.D.	A-2021-40-029	Vegetable Science	Mapping of quantitative trait loci for yield attributing traits of garden pea (*Pisum sativum* L.)	Pursuing
16.	Ms. Arshia Prashar	Ph.D.	A-2022-40-022	Vegetable Science	Genome-wide association mapping for pod attributes and powdery mildew resistance in garden pea (Pisum sativum L.)'	Pursuing

17.	Ms. Neha Rana	M.Sc	A-2020-30-072	Vegetable Science	Genetic diversity using morphological and molecular markers in mid late and late cauliflower	Completed 2022
18.	Ms. Nancy Banyal	M.Sc	A-2019-30-055	Vegetable Science	Genetic diversity in chilli (Capsicum annuum L.) genotypes using agro-morphological and molecular markers	Completed 2021
19.	Ms. Upendra Kumar	M.Sc	A-2021-30-077	Vegetable Science	Genetic diversity and population structure of chilli (*Capsicum annuum* L.) genotypes	Completed 2023
20.	Ms. Hem Lata	Ph.D.	A-2018-40-019	Vegetable Science	Heterosis and combining ability studies in male sterility based F_1 hybrids of chilli (*Capsicum annum* L.)	Completed 2022
21.	Ms. Vivek Singh	M.Sc.	A-2020-30-077	Vegetable Science	Stability analysis for fruit yield and component traits in GMS based hybrids of chilli (*Capsicum annuum* L.)	Completed 2022
22.	Ms. Vivek Singh	Ph.D.	A-2023-40-18	Vegetable Science	Genome-wide association study to unravel the population structure and genetic basis of the agronomical traits of	Pursuing

					Capsicum annuum	
23.	Ms. Alisha Thakur	Ph.D.	A-2020-40-020	Vegetable Science	Molecular characterization of CMS inbred lines of mid-late/late cauliflower and their utilization in heterosis breeding	Pursuing
24.	Ms. Rafiullah Noori	Ph.D.	A-2019-40-032	Vegetable Science	Varietal sequence response in diverse nutrient management practices in chilli-garden pea cropping system	Completed 2023
25.	Kanchhi Maya Waiba	M.Sc.	A-2018-30-055	Vegetable Science	Genetic evaluation of tomato (Solanum lycopersicum L.) hybrids under protected environment	Completed
26.	Manpreet Kaur	Ph.D.	A-2018-40-020	Vegetable Science	Genetical studies in parthenocarpic cucumber (Cucumis sativus L.)	Completed
27.	Vandana Thakur	Ph.D.	A-2018-40-022	Vegetable Science	Rootstock and scion compatibility studies in pomato	Completed
28.	Muhammad Juma	M.Sc.	A-2019-30-054	Vegetable Science	Study of effect of plant growth regulators in polyhouse grown on tomato (Solanum lycopersicum L.)	Completed

29.	V.M. Rashmi	M.Sc.	A-2019-30-065	Vegetable Science	Morphological and molecular characterization of tomato (Solanum lycopersicum L.) genotypes	Completed
30.	Ankit Kumar	M.Sc.	A-2020-30-068	Vegetable Science	Evaluation of lettuce (Lactuca sativa L.) genotypes in a controlled hydroponic system	Completed
31.	Payal Sharma	Ph.D.	A-2020-40-021	Vegetable Science	Genetic studies in cucumber (Cucumis sativus L.) using gynoceious line	Continuing
32.	Bindiya Mukamian	M.Sc.	A-2021-30-055	Vegetable Science	Heterosis and combining ability for fruit yield and its attributes in parthenocarpic cucumber (Cucumis sativus L.)	Completed
33.	Priyanshi Koul	M.Sc.	A-2021-30-058	Vegetable Science	Performance of lettuce (Lactuca sativa L.) under hydroponic system and naturally ventilated polyhouse	Completed
34.	Vansangkimi	M.Sc.	A-2022-30-074	Vegetable Science	Comparative performance of coriander (*Coriandrum ativum* L.) genotypes for off season cultivation	Continuing

					under hydroponic and geoponic environments	
35.	Ankit Kumar	Ph.D.	A-2022-40-021	Vegetable Science	Comparative assessment of lettuce based cropping sequences under hydro and geoponic environments	Continuing
36.	Avni Gupta A-2023-30-074	M.Sc.	A-2023-30-074	Vegetable Science	Assessing stability and genetic diversity in cucumber for yield and related traits under protected	Continuing
37.	Deepak	M.Sc.	A-2023-30-076	Vegetable Science	Genetics Diversity Analysis in Tomato (*Solanum lycopersicum*) using morphological and molecular markers under protected cultivation	Continuing
38.	Anushka Sood	Ph.D.		Vegetable Science	Mapping of QTLs for parthenocarpy in cucumber (*Cucumis sativus* L.)	Continuing
39.	Manisha	Ph.D.		Vegetable Science	Genetic analysis of fruit yield components and Bacterial wilt resistance in tomato (*Solanum lycopersicum* L.) under	Continuing

					protected environment	
40.	Ms. Rishika Mahajan	M.Sc	S-2021-30-005	Microbiology	Exploring Niche Specific Bacterial Communities in Phyllosphere of Traditional Red Rice (*Oryza sativa* L.) Varieties from Chamba district of Himachal Pradesh	Completed
41.	Mr Kishor Kumar Sahu	PhD	A-2019-40-030	Soil Science	Effect of drip irrigation and jeevamrit application schedules on water and crop productivity of tomato under protected environment	Completed
42.	Ms. Bhawna Babal Mr Saurabh Thakur	PhD	A-2020-40-025	Soil Science	Effect of surface and sub - surface drip irrigation and fertigation using organic and inorganic sources on productivity of tomato under protected environment	Thesis submitted
43.	Ms. Varsha Rattan	PhD	A-2020-40-025	Soil Science	Effect of drip line placement organic layering and fertigation on productivity of tomato under protected conditions	Pursuing
44.	Mr Saurabh Thakur	PhD	A-2021-40-041	Soil Science	Effect of drip irrigation and integrated nutrient	Pursuing

					management fertigation on productivity of capsicum and cucumber + lettuce under protected conditions	
45.	Mr Priksit	PhD	A-2022-40-032	Soil Science	Effect of ETc based drip irrigation and crop growth wise fertigation on productivity of tomato and cucumber under protected conditions	Pursuing
46.	Ms Namrata Sharma	PhD	A- 2022-40-031	Soil Science	Effect of sub surface ETc based drip irrigation and IPNS fertigation on productivity of tomato and cucumber under protected conditions	Pursuing
47.	Ms Shikha Patyal	MSc	A-2021-30-092	Soil Science	Effect of sub surface drip irrigation and fertigation on soil properties and productivity of tomato under protected environment	Completed
48.	Mr. Nareshkumar V	Ph.D.	A-2020-40-015	Genetics and Plant Breeding	Heterosis and combining ability for grain yield along with genetic assessment of blast resistance in rice (Oryza sativa L.)	Pursuing

49.	Ms. Ronika	Ph.D.	A-2020-40-017	Genetics and Plant Breeding	Molecular diversity and genetic analysis of seed yield components and disease resistance in soybean (Gycine max L. Merrill)	Pursuing
50.	Mr. Vivek Singh	Ph.D.	A-2020-40-019	Genetics and Plant Breeding	Genetic analysis for yield and its attributing traits in buckwheat (Fagopyrum tataricum Gaertn.)	Pursuing
51.	Mr. Abhishek Kumar	M.Sc.	A-2020-30-035	Genetics and Plant Breeding	Gene action, combining ability and heterosis studies for yield and its component traits in rice for upland and rainfed conditions	Completed
52.	Ms. Kritika	Ph.D.	A-2017-40-014	Genetics and Plant Breeding	Molecular maker assisted gene pyramiding for yellow rust resistance conferring genes Yr5 and Yr10 in agronomically superior and potential cultivar HS 240 and doubled haploid DH-40	Completed
53.	Mr. Ritesh Kaushal	M.Sc.	A-2020-30-044	Genetics and Plant Breeding	Genetic amelioration of kala zeera (Bunium persicum) using biotechnological approach	Completed

54.	Mr. Gaurav Sharma	Ph.D.	A-2020-40-014	Genetics and Plant Breeding	Line × Tester analysis for yield traits and factors influencing haploidy in oat (*Avena sativa L.)*	Completed
55.	Ms. Rhitisha Sood	Ph.D.	A-2020-40-016	Genetics and Plant Breeding	Identification of Quantitative Trait Loci (QTLs) for quality traits in oat (*Avena sativa* L.)	Pursuing
56.	Ms. Mridula	M.Sc.		Agronomy	Effect of planting patterns and ghanjeevamrit on maize+ soybean cropping system under natural farming	Completed
57.	Ms. Priyanshi Sood	M.Sc.		Agronomy	Evaluation of garden pea variety under pea-onion intercropping system and different farming practices	Completed
58.	Ms. Anchal Sharma	M.Sc.		Agronomy	Performance of okra (*Abelmoshus esculentus* (L.) Moench) under organic, natural and conventional farming practices	Completed
59.	Mr. Bheem Pareek	Ph. D		Agronomy	Modeling crop water requirement using weather model and	Completed

					spatial data of wheat under limited irrigation in western Himalayas.	
60.	Ms. Avnee	Ph.D		Agronomy	Modelling crop water requirement of garden pea in north-western Himalaya.	Completed
61.	Ms Himani Sharma	MSc		Agronomy	Mapping the present and futuristic crop water requirement of potato using FAO-CROPWAT in mid hills sub-humid region of H	Completed
62.	Mr. Sarthak Walia	M.Sc		Agronomy	Simulating crop water requirement of potato under Natural Farming environment in North-Western Himalaya	Completed
63.	Ms. Jagriti Sharma	M.Sc		Agronomy	Mapping the present and futuristic crop water requirement of mustard (brassica juncea l.) Using fao-cropwat model	Completed
64.	Ms. Jaina Patel	M.Sc.	A-2017-30-070	Plant Pathology	Biological control of damping off of okra (Abelmoschus esculentus L.)	Completed
65.	Ms. Divya Bhandari	M.Sc.	A-2018-30-063	Plant Pathology	Biology of Phytophthora colocasiae Raci. causing blight of	Completed

					colocasia and its eco-friendly management	
66.	Ms. Ayushi Sharma	M.Sc.	A-2019-30-067	Plant Pathology	Biological control of pea root rot caused by Fusarium solani f.sp. pisi	Completed
67.	Ms. Parul Upadhyay	M.Sc.	A-2020-30-052	Plant Pathology	Etiology ad epidemiology of Ascochyta leaf spot of Urdbean	Completed
68.	Ms. Sachin Sharma	M.Sc.	A-2020-30-054	Plant Pathology	Eco-friendly management of bacterial wilt of tomato	Completed
69.	Ms. Pragti Shree	M.Sc.	A-2021-30-047)	Plant Pathology	Ecofriendly management of false smut of rice caused by Ustilaginoidea virens (Cke) Tak.	Completed
70.	Ms.Shiwali Thakur	M.Sc.	A-2021-30-071	Plant Pathology	Eco-friendly management of collar rot of soybean caused by Sclerotium rolfsii Sacc.	Completed
71.	Ms. Kavita Kushwaha	M.Sc.	A-2021-30-118	Plant Pathology	Fungal root endophytes mediated management of pea root rot in Himachal Pradesh	Completed
72.	Ms Abhilasha Sharma	Ph.D	A-2018-40-023	Plant Pathology	Characterization of variability in Cercospora sojina Hara causing frogeye leaf spot and identification of resistant sources in soybean	Completed
73.	Ms. Khushwinder Kaur	Ph.D	A-2019-40-025	Plant Pathology	Diversity analysis of Pseudocercospora griseola	Completed

					populations causing angular leaf spot of common bean and identification of resistant sources	
74.	Ms. Diksha Sinha	Ph.D	A-2019-40-024	Plant Pathology	Biology and management of early blight of tomato caused by Alternaria Solani	Completed
75.	Mr. Vakul Sood	Ph.D	A-2019-40-026	Plant Pathology	Studies on variability in pathogen(s) causing root rot of okra and its integrated disease management	Completed
76.	Ms. Sonali Parwan	Ph.D	A-2021-40-033	Plant Pathology	Epidemiology, variability and management of purple blotch of garlic cused by *Alternaria porri* (Ellis) Cif.	Ongoing
77.	Ms. Chetna Mahajan	Ph.D	A2021-40-031	Plant Pathology	Epidemiology and manament of brown spot of maize (Zea mays L.) caused by Physoderma maydis (Miyabe) Miayabe	Ongoing
78.	Ms. Pragai Gautam	M. Sc.	A-2022-30-088	Plant Pathology	Deciphering endophyteic fungi for the management of damping-off of okra caused by Rhizoctonia solani Kuhn	Ongoing

Annexure-XII

The list of Students enrolled in the **Certificate Course "Protected Cultivation of Vegetable Crops"** developed under PANF-CAAST

Sr no.	Name of Student	Admission No	Name of Department	Programme
1	Abdullah Saqib	A-2021-40-001	Agronomy	Ph.D.
2	Abozar Rowshan	A-2021-40-018	Genetics and Plant Breeding	Ph.D.
3	Ankit Kumar	A-2022-40-021	Vegetable Science and Floriculture	Ph.D.
4	Anoushka Sharma	A-2022-30-047	Genetics and Plant Breeding	M.Sc.
5	Anish Dhiman	A-2022-30-046	Genetics and Plant Breeding	M.Sc.
6	Arshia Prashar	A-2022-40-022	Vegetable Science and Floriculture	Ph.D.
7	Avantika Sharma	A-2022-30-066	Vegetable Science and Floriculture	M.Sc.
8	Avni Gupta	A-2023-30-074	Vegetable Science and Floriculture	M.Sc.
9	Belal Ahmad	A-2021-40-005	Agronomy	Ph.D.
10	Deepak	A-2023-30-076	Vegetable Science and Floriculture	M.Sc.
11	Gaurav Sharma	A-2020-40-014	Genetics and Plant Breeding	Ph.D.
12	Harish. B.M	A-2021-40-050	Vegetable Science and Floriculture	Ph.D.
13	Jasdeep Kaur	A-2021-40-024	Vegetable Science and Floriculture	Ph.D.
14	Kaja	A-2022-30-067	Vegetable Science and Floriculture	M.Sc.
15	Nitika Thakur	A-2022-30-70	Vegetable Science and Floriculture	M.Sc.
16	Neha Sharma	A-2022-40-023	Vegetable Science and Floriculture	Ph.D.
17	Palvi Thakur	A-2021-40-026	Vegetable Science and Floriculture	Ph.D.
18	Payal Sharma	A-2020-40-021	Vegetable Science and Floriculture	Ph.D.
19	Priyanka	A-2022-40-033	Soil Science	Ph.D.
20	Pramod	A-2022-30-071	Vegetable Science and Floriculture	M.Sc.
21	Prikxit	A-2022-40-032	Soil Science	Ph.D.
22	Pratibha Sharma	A-2022-40-024	Vegetable Science and Floriculture	Ph.D.
23	Poonam Sharma	A-2022-40-017	Genetics and Plant Breeding	Ph.D.
24	Pratibha Thakur	A-2021-40-040	Soil Science	Ph.D.
25	Poonam Rana	A-2022-40-016	Genetics and Plant Breeding	Ph.D.
26	Pramod Kumar Meg	A-2022-30-055	Genetics and Plant Breeding	M.Sc.
27	Rishita Kapoor	A-2022-40-019	Genetics and Plant Breeding	Ph.D.
28	Sagun Mahajan	A-2022-40-034	Soil Science	Ph.D.

29	Shweta Sharma	A-2022-40-036	Soil Science	Ph.D.
30	Shiwani	A-2022-30-059	Genetics and Plant Breeding	M.Sc.
31	Suman Kuma	A-2022-30-117	Soil Science	M.Sc.
32	Srishti	A-2021-40-029	Vegetable Science and Floriculture	Ph.D.
33	Shorya Kapoor	A-2022-40-025	Vegetable Science and Floriculture	Ph.D.
34	Shilpa kumari	A-2022-40-035	Soil Science	Ph.D.
35	Shivam Sharma	A-2020-40-022	Vegetable Science and Floriculture	Ph.D.
36	Saurabh Thakur	A-2021-40-041	Soil Science	Ph.D.
37	Shatakshi	A-2022-30-073	Vegetable Science and Floriculture	M.Sc.
38	Shilpa	SRF	Vegetable Science and Floriculture	Ph.D.
39	Tamanna Sood	A-2022-40-026	Vegetable Science and Floriculture	Ph.D.
40	Tariq	A-2021-40-030	Vegetable Science and Floriculture	Ph.D.
41	Uma Bharti	A-2022-40-020	Genetics and Plant Breeding	Ph.D.
42	V.Vijay	A-2022-30-076	Vegetable Science and Floriculture	M.Sc.
43	Vansangkimi	A-2022-30-074	Vegetable Science and Floriculture	M.Sc.
44	Vivek Singh	A-2022-40-027	Vegetable Science and Floriculture	Ph.D.

The list of Students enrolled in the **Certificate Course "Pest Management under Protected Cultivation"** developed under PANF-CAAST

Sr No	Name of Student	Admission No	Programme
1	Sheetal Kashyap	A-2021-30-031	M.Sc. (Entomology)
2	Shyam Lal	A-2021-30-032	M.Sc. (Entomology)
3	Manisha Chaudhary	A-2021-40-014	Ph.D. (Entomology)
4	Shalika Kumari	A-2021-40-017	Ph.D. (Entomology)
5	Vanshdeep	A-2021-40-047	Ph.D. (Entomology)
6	Akshay Pathania	A-2021-40-051	Ph.D. (Plant Pathology)
7	Akhil Sharma	A-2022-30-026	M.Sc. (Entomology)
8	Ananya Kumar	A-2022-30-028	M.Sc. (Entomology)
9	Aniket	A-2022-30-029	M.Sc. (Entomology)
10	Ankita Rana	A-2022-30-030	M.Sc. (Entomology)
11	Arpit Chopra	A-2022-30-031	M.Sc. (Entomology)
12	Dixsha Jamwal	A-2022-30-032	M.Sc. (Entomology)
13	Himanshu	A-2022-30-033	M.Sc. (Entomology)
14	Khushboo	A-2022-30-034	M.Sc. (Entomology)

15	Kumari Ashamukhi	A-2022-30-035	M.Sc. (Entomology)
16	Manthan Sood	A-2022-30-036	M.Sc. (Entomology)
17	Nancy Chaudhary	A-2022-30-037	M.Sc. (Entomology)
18	Ritesh Kumar	A-2022-30-038	M.Sc. (Entomology)
19	Salunkhe Manoj B.	A-2022-30-039	M.Sc. (Entomology)
20	Sanat Kalia	A-2022-30-040	M.Sc. (Entomology)
21	Shashwat Sood	A-2022-30-041	M.Sc. (Entomology)
22	Shreya Guleria	A-2022-30-042	M.Sc. (Entomology)
23	Shubham Dogra	A-2022-30-043	M.Sc. (Entomology)
24	Vankadavathu Somi	A-2022-30-044	M.Sc. (Entomology)
25	Arushi Chauhan	A-2022-30-083	M.Sc. (Plant Pathology)
26	Mahima Sharma	A-2022-30-085	M.Sc. (Plant Pathology)
27	Mukul Sharma	A-2022-30-086	M.Sc. (Plant Pathology)
28	Piyush	A-2022-30-087	M.Sc. (Plant Pathology)
29	Pragati Gautam	A-2022-30-088	M.Sc. (Plant Pathology)
30	Ritvik Katoch	A-2022-30-089	M.Sc. (Plant Pathology)
31	Sonali Katoch	A-2022-30-090	M.Sc. (Plant Pathology)
32	Akshita	A-2022-40-010	Ph.D. (Entomology)
33	Debamitra	A-2022-40-011	Ph.D. (Entomology)
34	Pallavi	A-2022-40-012	Ph.D. (Entomology)
35	Prajjval Sharma	A-2022-40-013	Ph.D. (Entomology)
36	Shubham Sharma	A-2022-40-014	Ph.D. (Entomology)
37	Tanvi Vashisth	A-2022-40-029	Ph.D. (Plant Pathology)

Annexure-XIII

Accreditation Certificates of the University