

ICAR-Vivekananda Parvatiya Krishi Anusandhan Sansthan
Almora-263 601, Uttarakhand
Section 4 of Right to Information Act – 2005

ICAR-Vivekananda Parvatiya Krishi Anusandhan Sansthan (ICAR-VPKAS), Almora, is a premier institution conducting agricultural research mainly for the hilly region of North-Western (NW) Himalayan states (*viz.*, Himachal Pradesh and Uttarakhand) and Union Territories (*viz.*, Jammu-Kashmir & Ladakh) of India. It also extends its technological support to other hilly regions (*viz.*, North Eastern States) of the country. The growth and development of the institute over the years has been phenomenal. Established by *Padma Bhushan* Professor Boshi Sen, the institute originally functioned as a 'one man' laboratory with limited resources. In 1959, the laboratory was transferred to U.P. Government, and subsequently to ICAR in 1974. The institute headquarter is located at Almora (29°33' N and 79°39' E and 1,600 m amsl) in Uttarakhand. The experimental farm is located at Hawalbagh, 13 km away from Almora on Kausani/Ranikhet Road at an altitude of 1,250 m amsl (29°56' N and 79°40' E). Being a multi-crop and multi-disciplinary research institute, research work is carried out under four divisions/sections, *viz.*, Crop Improvement, Crop Production, Crop Protection and Social Sciences.

The ICAR-VPKAS, in the last 99 years of service to the nation, has several pioneering achievements to its credit. The most notable ones are:

- i.** Development of first hybrid of maize (VL *Makka* 54), onion (VL *Piaz* 67) and extra early grain and baby corn (VL *Makka* 42) of the country.
- ii.** Development of first dual-purpose wheat varieties (VL *Gehun* 616 and VL *Gehun* 829) for grain and green fodder of the country.
- iii.** Conversion of normal maize inbreds into quality protein maize through molecular marker assisted selection and consequent release of *Vivek* QPM 9, the first Mas product of the country.
- iv.** Development of *Vivek* thresher-cum-pearler for finger and barnyard millet, which has helped in reducing drudgery of the hill farm women.
- v.** Devising a two-pronged strategy for managing the adult beetles and subterranean larvae of the menacing pest 'white grub'.
- vi.** Development of completely metallic plough *VL Syahi Hal*, which is helping in checking deforestation.
- vii.** Development of protected cultivation hub and uplifting daily wage earners to entrepreneurs.
- viii.** Insect trap (White Grub Beetle Trap) (Patent IN290170) patented.
- ix.** Formulation of *Bacillus thuringiensis* (VLbt6) (Patent IN336230) patented.
- x.** A sampling apparatus for *in situ* volatile collection (Patent IN 373714) patented.
- xi.** Development of wheat variety VL Cookies (VL 2041) with excellent biscuit quality and have spread factor value of 11.7 (highest in country).
- xii.** Development of MAS-derived Provitamin A versions hybrid maize VL Vit A (FPVH 1) with a provitamin A content of 7.48 µg/g.
- xiii.** Development of an edible pod pea variety VL *Madhuri* (VPSP 906-1).

Vision

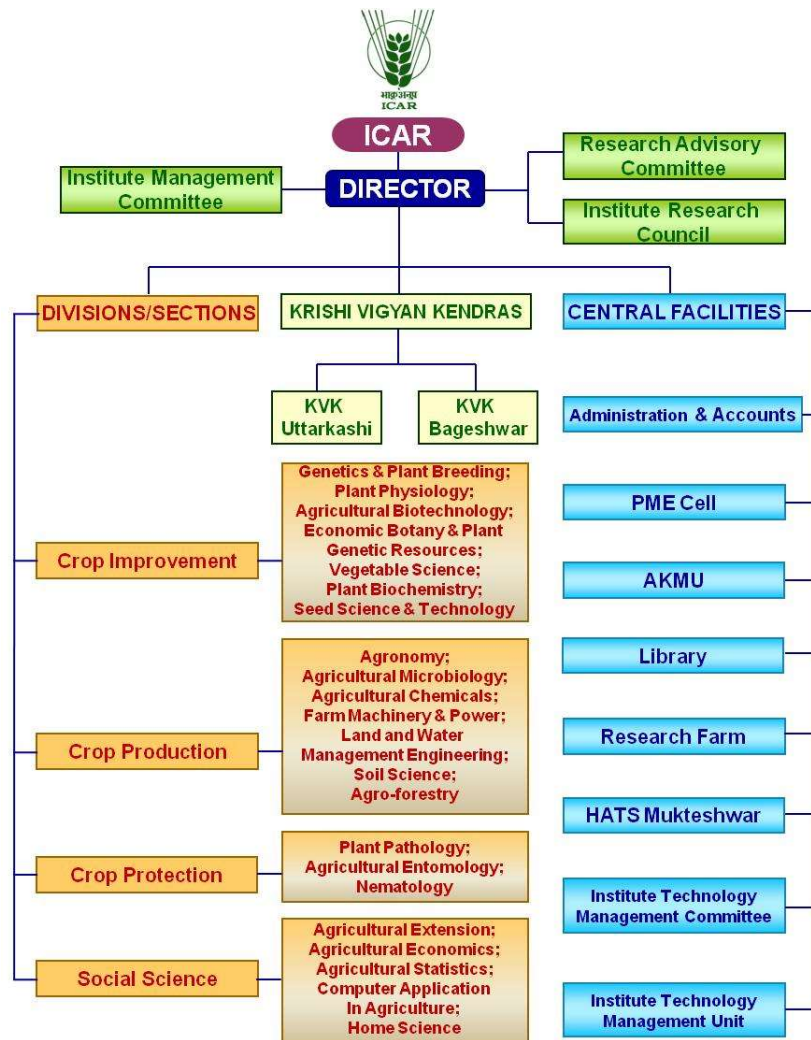
Changing the face of hill agriculture from subsistence to sustainable. Our target would be areas where private sector is unlikely to play a big role in the near future and without our intervention doubling farmers income may not be a reality.

Mission

Enhancing productivity and ecological sustainability of hill agriculture through niche-based diversification.

Mandate

- Basic, strategic and adaptive research for improving productivity and quality of important hill crops with emphasis on conservation and efficient utilization of natural resources.
- Development of post-harvest technologies and value addition.
- Dissemination of technology and capacity building on hill agriculture.



Organizational Setup, ICAR-VPKAS, Almora, Uttarakhand

Institute Facilities

Administrative cum Laboratory building

Newly constructed Administrative cum Laboratory building was inaugurated on 100th Foundation Day of ICAR-VPKAS on July 04, 2023 by Dr. Himanshu Pathak, Hon'ble Secretary (DARE), GoI and DG, ICAR in presence with Dr. T.R. Sharma, DDG (CS), Dr. D.K. Yadav, ADG (Seed) of ICAR and Dr. Lakshmi Kant, Director, ICAR-VPKAS, Almora at Experimental Farm, Hawalbagh.

Laboratories

The institute has well-equipped laboratories for biotechnology, agricultural chemistry and microbiology at Almora campus and Boshi Sen Field Research Platinum Jubilee Laboratory with plant breeding, entomology, plant pathology, biochemistry, agronomy, soil science, quality testing, agricultural engineering, mushroom spawn production, germplasm storage module, seed processing plant at Hawalbagh.

Research Farm

The experimental farm is located at Hawalbagh about 13 km from Almora on the Almora-Kausani-Ranikhet Road at an elevation of 1250 m amsl. The Research Farm of the Institute has 92 ha of total land with about 44.5 ha (including fodder) of cultivable land. In addition, a number of new laboratories were developed to accommodate the activities of various disciplines in the Field Research Laboratory at Hawalbagh. These include short-term cold storage module, post-harvest technology unit, mushroom composting tunnel, high tech polyhouses *etc.*

Incubation Centre–Cum- Fabrication Unit

Institute has established one Incubation Centre cum Fabrication Unit under the Scheduled Caste Sub Plan (SCSP) programme. The centre has been established to update the skill of local blacksmiths/artisans and to train the unemployed youth of the Scheduled Caste (SC) in the field of mechanization. The centre has been equipped with major machines like lathe machine, shaper machine, numerically controlled hydraulic sheet cutting machine, milling machine, radial drill machine and other small day to day use machines/tools.

Millet Value Chain

An infrastructure has been created in the form of millet value chain. This infrastructure has three parts. First part is for primary processing, second part is for sample preparation and quality control and third part is dedicated for making value added products and packaging. Machinery installed in the primary processing part are bucket elevators, de-stoner cum grader, de-hulling machine, polishing machine, auto cool flour mill *etc.* for cleaning, de-stoning, grading, de-hulling, polishing and flour making. Sample preparation section includes machines like weighing balance, flour mixture and kneading machine, rotary mixture *etc.* Machines installed in the third segment are hot extrusion (for making puffed items), cold extrusion (for making pasta and noodles), wire cutting and dropping machine (form making biscuit and cooking), rotary oven and packaging machine *etc.*

Media Lab

Media Lab is established at Experimental Farm, Hawalbagh to facilitate the audio-visual aids development for videos as a learning tool for hill farmers. The Media Lab is well equipped with video production facilities, editing software and a photography drone. The services of the media lab will open up new avenues for improving reach of agricultural

extension services to rural farmers through digital media and empower the farming community with an enhanced access to information on improved agricultural technologies. This will also motivate the farmers to adopt the technologies by gaining a better understanding through ICTs.

Rain-out Shelter

The institute has developed rain-out shelter facility in the rainfed area of Kanigair sector at Experimental Farm, Hawalbagh. This facility has been constructed in approximately 616 m² area wherein 308 m² (28m x 11m) is the experimental area meant for screening crops and similar area (in size) is for the parking of the facility. The facility was formally inaugurated by Dr. T. R. Sharma, DDG, Crop Science, ICAR, New Delhi on 5th July 2023. Initially the land was reclaimed through adequate supply of organic matter and taking a green manuring crop (Dhaincha) in the experimental area during *kharif* 2023. It is an automatic rain protection system which consists of a main control unit, a sensor for detecting rain drops, and a movable protective dome shaped roof which covers the crops in case of rain. In hills, 85 to 90 per cent of agriculture is rainfed and many a times crops have to face drought like situation. Therefore, under these circumstances, it becomes important to identify accessions and crops which are drought resistant and has the ability to give higher yields even under moisture deficit conditions. Thus, this facility will be useful to identify drought resistant accessions in various cereal and pulse crops, and hence, will help in development of varieties suitable for rainfed agriculture especially in hill ecology.

Institute Library

A total of 4,213 books of various subjects related to the scientific activities of the institute are available in the library. In addition, reports and bulletins were received on exchange /complementary basis from other institutions of the country and abroad. The library subscribed 16 foreign and 57 Indian periodicals. At present the library subscribes to 10 Indian journals. There are about 4,000 bound periodicals in the library. The library is also providing current awareness services to the scientists of the institute and other outside research and development professionals visiting the institute. The Institute as a whole is a member of ICAR e-resource network CeRA.

Agricultural Knowledge Management Unit (AKMU)

Local Area Network has been set up at the institute consisting of more than 100 nodes with 50 Mbps Internet Lease line connections at Almora and Hawalbagh campuses. AKMU maintains institute website which can be accessed at <http://vpkas.icar.gov.in>. AKMU also provides toll free Farmers' Helpline Service for farmers. Farm advisory services are provided regularly through toll-free Farmers' Helpline Service (Telephone No. 18001802311). Institute is also serving farmers through Need Based Mobile SMS services since July 2016. Farmers are registered for receiving SMS and are grouped based on crop grown, location and activities engaged in. Total 45,205 farmers are receiving agri-advisories services. Presently 43,205 farmers are registered for *m Kisan*, 1064 for Whatsapp and 936 farmers are registered need based SMS services. Need based information are being sent to the farmers on different contents like crop varieties, crop protection measures, nutrient management, farmers fairs/field days, seed production and availability, government schemes etc.

Institute Technology Management Unit (ITMU)

The unit co-ordinates activities of institute technologies to showcase institute technologies to industry and other stakeholder for further mass multiplication and commercialization either directly or through Agri-innovate India Ltd, New Delhi. During the period under report MoA for manufacturing and commercialization of VL Polytunnel was signed with Agri Kasar Greentech Solution, Arya Bhawan, Ghaneli, Hawalbagh, Almora, Uttarakhand and M/s Parashar Agrotech Bio Pvt. Ltd., Mohankunj Apartment, Ghausabad, Varanasi, Uttar Pradesh for 3 years. Vivek Millet Thresher-cum Pearler is another popular implement developed and its MoA was signed with M/s Punjab Agricultural Implements (P) Ltd., Saharanpur for 03 years. Another MoA was signed with M/s Nilanchal Agriscience LLP, Sri Kamakhya Tower, Christian Basti, G.S. Road, Guwahati, Assam for the manufacturing and commercialization of VLQPM Hybrid 45 for 5 years. MoA for commercialization of VL Polyhouse and VL Polycement tank was signed with M/s Parashar Agrotech Bio Pvt. Ltd., Mohankunj Apartment, Ghausabad, Varanasi, Uttar Pradesh for 3 and 5 years, respectively.

Gene Bank/ Medium Term Storage (MTS) Module

In the MTS module of ICAR-VPKAS, Almora, presently 17,242 germplasm accessions of more than 25 crops have been maintained. The germplasm comprised land races, obsolete varieties, genetic stocks, promising breeding lines and seed of national and international nurseries. A total 144 germplasm accessions, comprising garden pea (18), radish (60) leafy mustard (48), *Dolichos* bean (17) and horse gram (1) were deposited in the gene bank during 2022-23 for further utilization in crop improvement programme.

Rajbhasha Section

This section takes care of Rajbhasha related activities. It also helps the administration and other sections to do their work in Hindi. This Section also celebrates Hindi Pakhwara from 14-21 September every year. Also 4 quarterly meetings of Hindi Samiti of the institute are regularly being organized. This institute is the Nodal institute of Nagar Rajbhasha Karyanvayan Samiti (NARAKAS). The two meetings of NARAKAS are being organized in a year. Apart from this the institute organizes trainings, kisan mela in Hindi. Also, many popular articles in Hindi are also being published in reputed magazines.

Administration & Audit

The three sections Admn. I, II and III of Administration and Audit section provide very crucial and critical support to entire research programmes of the institute and render required assistance to the institute management activities.

Women Cell

Women cell has been set up at the institute to maintain congenial working environment for women employee, in accordance with the guidelines provided by the Supreme Court of India (Article 11, <http://wcdhry.gov.in>). The International women day was celebrated on 8th March every year.

Future prospects:

The research achievements of the institute have been playing a significant role in changing the face of hill agriculture from sustenance to sustainable. The example of model

villages developed by the institute has proven that hill agriculture can be a profitable venture and has attracted the migrated youths back to the villages. But the changes which are expected in future hill agriculture are going to be much more challenging. The climate changes, experienced in recent past and much more predicted in future, pose new challenges like shift in crop seasons. Therefore, the search for suitable varieties and management techniques, alternative crops to respond better to the climate change situation to feed the ever-increasing population, threats of new diseases and pests or new races of already existing diseases and pests and their management strategies, changed socio-economic scenario due to globalization and strategies for their management, etc., are the major tasks ahead to be tackled.

Research on physiological mechanism of crop growth in major hill crops under organic and inorganic conditions and evaluation of effects of multiple stresses, elevated CO₂ levels and low light intensities on grain yield for "**CLIMATE SMART AGRICULTURE**" and contingency crop planning to mitigate the aberrations of the climate change in which studies on root architecture and rhizosphere engineering for higher abiotic stress tolerance and resource use efficiency would be of great importance. Molecular profiling and allele mining in major hill crops for in-depth understanding of the molecular mechanism and their exploitation for higher grain yield, bio-fortification of crops for micronutrients, QTL mapping for agronomic traits, disease resistance and quality traits in major hill crops will help in MAS.

GIS-based digital evaluation models and other tools would help in precise measurement of resource base. Conservation agriculture, zero tillage, water harvesting and micro-irrigation have great potential in future particularly in view of climate change and these needs to be perfected for different future production conditions of hills. Efficient farming systems, incorporating integrated crop, nutrient, pest and water management, need to be further fine-tuned for wider adaptability. In future, natural resource management will have to play a pivotal role. Therefore, conservation and optimal utilization of natural resources and enhancement in water and nutrient use efficiency would have to be researched upon. To create job opportunities and attract youth to agriculture and allied industries, concerted research efforts would be made to refine value addition and other post harvest technologies to make them more user-friendly and affordable to small farmers. Mechanization in hill farming is required to extenuate drudgery with the simultaneous increase in productivity through use of integrated farming system approach. Focus will continue to be on developing light-weight, affordable and efficient tools and equipment required for farm operations and post-harvest handling. Information will hold the key in future, thus, efficient utilization of ICT and futuristic information technology tools for dissemination of agricultural information will also be investigated.

Duties of Director

- To Plan/coordinate research programmes
- To Coordinate the work of different Divisions/ Sections of the institute
- To provide consultancies to Universities /Research institutes
- To carry out duties as may be assigned from time to time by any authority delegated power in this regard

Duties of Scientific Staff

- To guide, lead and contribute in training/research/consultancy in the areas of hill agriculture.
- To facilitate bringing about inter-institutional linkages and collaboration.
- To carry out duties as may be assigned from time to time by the Director of the Institute or any authority delegated power in this regard.

The procedure followed in the decision making process, including channels of supervision and accountability

The Director is assisted in the execution and implementation of various programmes by his subordinates' namely senior colleagues, PME Cell, SAO, AAO, DDO and F&AO. The Administration and Finance Sections of this Institute provide the needed support. The Institute Management Committee (IMC) guides and supports the Director by periodic review of programmes and approval of investments in new area of research. The Research Advisory Committee (RAC) and Institute Research Council (IRC) provide broad guidelines and assist in developing and implementing specific research programmes and projects.

The norms set by it for the discharge of its functions

The norms are set by the ICAR Headquarters, New Delhi. The various functions carried out by this institute are indicated in the vision, mission and mandate. The major achievements of the institute are provided on its website www.vpkas.icar.gov.in

The rules, regulations, instructions, manuals and records, held by it or under its control or used by its employees for discharging its functions

ICAR-VPKAS is a Unit of ICAR, New Delhi. ICAR follows GOI rules mutatis mutandis, besides Agricultural Research Service Rules, Technical Service Rules specially designed for Scientists and Technical personnel in ICAR. This Institute follows the rules, regulation, and instructions as followed by ICAR, and as indicated in the manuals and records of ICAR, New Delhi.

List of Rules, regulations, instructions manuals and records

- Establishment and Administrative Manual
- Fundamental Rules and Supplementary Rules (General rules)
- Fundamental Rules and Supplementary Rules (Travelling Allowance Rules)
- Fundamental Rules and Supplementary Rules (Leave Rules)
- General Financial Rules & Delegation of Financial Power Rules
- Pension Rules
- Seniority and Promotion Rules
- Manual of Office Procedure
- Conduct Rules
- House Building Rules
- CCS(CCA) Rules
- Brochures on Verification of Character & Antecedents
- Instruction, Guidelines issued by the Department of Personnels & Training (DoPT) and Ministry of Finance time to time

- Rules and By rules of ICAR Society
- Delegation of Power
- ARS Rules
- Handbook of Technical Service Rules
- Recruitment rules framed for different post in ICAR
- Seniority list in respect of various cadres/posts

A statement of the categories of documents that are held by it or under its control

Vision 2030- <https://vpkas.icar.gov.in/vision-2030>

Vision 2050- <https://vpkas.icar.gov.in/vision-2050>

Project reports -Under the Project Monitoring & Evaluation (PME) Cell

Annual Reports-<https://vpkas.icar.gov.in/publication-annual-reports>

News Letters -<https://vpkas.icar.gov.in/publication-newsletters>

Publication for Sale- <https://vpkas.icar.gov.in/publication-publications>

Research Framework Documents- <https://vpkas.icar.gov.in/publication-research-framework-documents>

Research Articles - <https://vpkas.icar.gov.in/publication-research-articles>

The particulars of any arrangement that exists for consultation with or representation by, the members of the public in relation to the formulation of its policy or implementation thereof

This institute is guided and supported by Institute Management Committee (IMC) and Research Advisory Committee (RAC). Both the IMC and RAC have two members in its composition who are drawn from the public who take active part in the deliberations and decisions of these committees.

The IMC guides and supports the institute by periodic review of programmes and approval of investments in new areas of research and training programmes. The Research Advisory Committee (RAC) and Institute Research Council (IRC) Provide broad guidelines and assist in developing and implementing specific research programmes and projects

A statement of the boards, councils, committees and other bodies consisting of two or more persons constituted as its part or for the purpose of its advice, and as at whether meeting of those boards, councils, committees, and other bodies are open to the public, or the minutes of such meeting are accessible for public

The IMC, RAC and IRC are the committees, which help the institute in guiding and implementing its various programmes and activities.

The composition of these committees is as per the guidelines of ICAR Headquarters, New Delhi.

A directory of its officers and employees

Director - <https://vpkas.icar.gov.in/director-staff>

Scientists of Crop Improvement Division -<https://vpkas.icar.gov.in/crop-improvements-staff>

Scientists of Crop Production Division- <https://vpkas.icar.gov.in/crop-production-staff>

Scientists of Crop Protection Division - <https://vpkas.icar.gov.in/crop-protection-staff>

Scientists of Social Sciences Section - <https://vpkas.icar.gov.in/social-science-staff>

Technical - <https://vpkas.icar.gov.in/technical-staff-staff>

Administrative - <https://vpkas.icar.gov.in/administrative-staff>

Supporting - <https://vpkas.icar.gov.in/supporting-staff>

Particulars of concessions, permits, or authorizations granted by it

LTC concession as per admissibility under Government of India Rules/Orders.

Details in respect of the information, available to or held by it, reduced in an electronic form

ICAR-VPKAS Internet web: www.vpkas.icar.gov.in

- About ICAR-VPKAS, Almora Research
- Services
- Extension
- For farmers
- Publications
- Downloads
- Announcements

The particulars of facilities available to citizens for obtaining information, including the working hours of a library or reading room, if maintained for public use

Contact Details:

Director

ICAR-Vivekananda Parvatiya

Krishi Anusandhan Sansthan,

Almora- 263 601 Uttarakhand

Phone: 059626-230 208/230 060;

Fax: 05962-231 539

Email: director.vpkas@icar.gov.in

The information about the various details of the institute is available on website www.vpkas.icar.gov.in

This information, provided on the web is accessible to the public.

The library of this institute is kept open from 09.00 hrs to 17.30 hrs. The library is open for the staff, students and the participants undergoing training at this institute.

Krishak Helpline toll free number 1800-180-2311 is available from 09:00 hrs to 17.30 hrs. On this toll-free number farmers/ public may receive the solution/ answer of their agriculture etc. related questions from the expert.

Staff

The staff position of the Institute as on March 31, 2024 is given below

Position	Sanctioned	Filled	Vacant
R.M.P.	01	01	0
Heads of Division	03	03	0
Principal Scientist	02	02*	0
Senior Scientist	10	05*	5
Scientist	40	20	20
Technical	44	26	18
Administrative	35	14	21
Supporting	35	26	09
Supporting (CLTS)	-	08	0
Total	170	97 (without adding Supporting - CLTS)	73

*03 Sr. Scientists and 1 Pr. Scientist from the institute have joined the posts of HoDs and Director in the same institute so their lien have been maintained in the institute.

THE FINANCIAL PROFILE

The financial profile of the institute for the last three plan period is presented below:

XI Plan

Years	Expenditure (Rs.in lakhs)			
	Non Plan	Plan	Others Schemes	Total
2007-08	539.16	300.00	548.36	1387.52
2008-09	739.29	413.00	1710.43	2862.72
2009-10	843.12	370.00	544.01	1757.13
2010-11	911.33	223.00	495.17	1629.50
2011-12	986.35	150.00	624.83	1761.18
Total	4019.25	1456.00	3922.80	9398.05

XII Plan

Years	Expenditure (Rs.in lakhs)			
	Non Plan	Plan	Others Schemes	Total
2012-13	1111.42	213.00	453.50	1777.92
2013-14	1220.33	167.15	462.34	1849.82
2014-15	1328.10	168.00	380.11	1876.21
2015-16	1400.80	330.00	648.71	2379.51
2016-17	1334.30	474.50	854.70	2663.50
Total	3694.95	1352.65	2799.36	10546.96

XIII Plan

Years	Expenditure (Rs.in lakhs)			
	Non Plan	Plan	Others Schemes	Total
2017-18	1,545.50	244.00	378.03	1,789.50
2018-19	-	3,012.19	128.50	3,012.19
2019-20		2,953.95	154.76	2,953.95
2020-21		2,263.52	307.36	2,263.52
2021-22		2,716.03	163.29	2,716.03
2022-23		2,540.95	192.37	2,540.95
2023-24	-	3443.32	607.06	4050.38
Total	1,545.50	17173.96	1931.37	19326.52

Weather

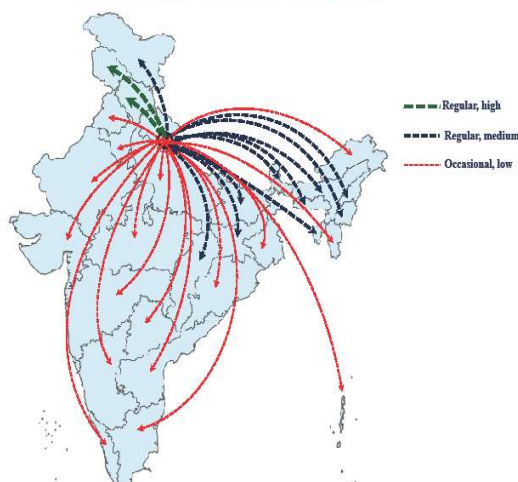
The mean maximum temperature ranged from 19.2°C (December) to 31.9°C (June) and mean minimum temperature varied from 2.0°C (January) to 18.6°C (July) in Almora. During the month of July, 269.8 mm rainfall was received.

At Experimental farm, Hawalbagh, mean maximum temperature ranged from 20.4°C (January) to 32.1°C (June) and mean minimum temperature varied from -0.3°C (January) to 20.6°C (July). During the month of July, maximum 219.7 mm rainfall was received.

Recommendation Domain of the Varieties Developed during Last Five Years outside the Mandated Area

Since 2019, 37 improved varieties of various crops were developed. The recommendation domain of these varieties includes the states beyond the mandate area of institute *viz.*, western and southern states of the country including Gujarat, Rajasthan, Chattisgarh, Madhya Pradesh, Punjab, Delhi Haryana, Western Uttar Pradesh, Karnataka, Tamilnadu, Telengana, Andhra Pradesh, Maharashtra, Bihar, Jharkhand, Odisha and states of North-Eastern hill region and Andaman Nicobar island. This indicates the strength of varietal improvement programme of the institute and success of well-planned strategies adopted by the scientists to develop widely adapted varieties for the entire hill region as well as various plain regions of the country. It also showed that the institute is marching towards a status of Centre of Excellence in varietal development for hills.

Technology dissemination map



List of In-house Projects (2021-26)

<i>Programme 1: Enhancing genetic gain in important crops of North- Western Himalayan region for productivity, quality traits and multi stresses resilience through pre breeding, conventional and accelerated breeding tools</i>
Project 1: Enhancement of Wheat and barley for productivity, quality traits, biotic and abiotic stresses through conventional and molecular tools in Northern Hills Zone Sub project: Breeding for reduced anti-nutritional factors and improved grain quality through integrated approaches
Project 2: Rice breeding for escalating productivity and resistance to biotic and abiotic stress for Himalayan Region
Project 3: Breeding maize for diverse end-uses using a combination of conventional and accelerated breeding approach Sub-Project: Genetic enhancement of maize for micronutrients and methionine using an integrated breeding approach
Project 4: Genetic Enhancement of Small Millets and Potential Crops to Strengthen Climate Resilience and Nutritional Security in North-West Himalayas Sub Project: Genetic Improvement of Quinoa for High Yield, Nutritional Quality and Tolerance to Biotic Stresses
Project 5: Genetic Improvement in Vegetable Crops for North West Himalayan Ecosystem through Conventional and Mutagenesis (Sub-project 2) Sub Project: Collection, evaluation, identification and documentation of underutilized vegetable crops for North-West Himalayan Ecosystem
Project No. 6: Enhancing Pulses & Oilseeds Productivity and Profitability through Improved Varietal Technologies in NW Himalayan hills (Sub Project – 1)
Project No. 7: Evaluation and Identification of Major Hill Crops for Abiotic Stresses and Quality Traits through Basic Techniques
<i>Programme 2: Ensuring food and nutritional security in North West Himalayas through climate resilient enhanced production of millet and potential crops by post-harvest management, value addition and commercialization</i>
Flagship project: Ensuring nutritional and Food security in North West Himalaya through climate resilient enhanced millet production and value addition technologies and their dissemination
<i>Programme 3: Strategies for improving productivity of important hill cropping systems through efficient resource utilization, diversification, mechanization and efficient water management</i>
Project 1: Strategies for improving productivity of important hill cropping systems through efficient resource utilization Sub-Project: Identification of Suitable Botanicals for Inducing/Enhancing Nitrogen Use Efficiency through development of coated urea fertilizer Sub-Project: Dynamics of Soil Carbon Pools and its Sequestration Pattern under Different nutrient management options in Hill Cropping System
Project 2: Evaluation of Multifaceted Microbial Inoculants for Improving Soil Health and Yield of Crops in Hilly Areas (Sub Project 2) Sub-Project: Development of Nano-Bioformulation to alleviate drought stress in hill crops
Project 3: Design and development of pre and post-harvest mechanization technologies for hill Agriculture Sub project: Development of post-harvest processing machineries for enhanced utilization of traditional hill crops

Project 4: Agro Forestry and Fodder Management with emphasis on Utilization of Marginal Lands and Hills
Project 5: Integrated Development of water resources and management for optimizing production and use efficiency Sub Project: Development of sensor network-based automation system for improving water productivity
<i>Programme 4: Development of crop production and protection technologies to reduce the impact of global climate change on hill agriculture</i>
Project 1: Race distribution pattern, diversity and eco-friendly management of economically important diseases of hill crops
Project 2: Management of insect pests of hill crops through integrated approach
Project 3: A high value medicinal fungus (<i>Cordyceps militaris</i>): Characterization & Commercial exploitation
Project 4: Crop Pollination through <i>Apis</i> and <i>Non-Apis</i> Bee Pollinators
Project 5: Exploring potential bio-inoculants and host resistance for management of blast disease
Project 6: Comprehensive assessment of diversity of agriculturally important nematode and their management under hill agriculture
<i>Programme 5: Strengthening outreach programme to disseminate the technologies to farmers, industry linkages and impact assessment</i>
Project 1: Addressing gender concerns for household food security in hill regions of Uttarakhand