SKUAST-J

15th ANNUAL REPORT
2014-15

SHER-E-KASHMIR
UNIVERSITY OF AGRICULTURAL SCIENCES & TECHNOLOGY OF JAMMU

SHER-E-KASHMIR
UNIVERSITY OF AGRICULTURAL
SCIENCES & TECHNOLOGY OF JAMMU
Chatha, Jammu (J&K) - 180009

"An Institution of Sustainable Agriculture for Food and Nutritional Security"

CREDIT LINE

Correct Citation	:	Annual Report 2014-15 Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu, Main Campus Chatha, Jammu - 180 009, India
Contributors	:	Officers of the University HOD's/ Incharge/ Stations/Substations/ Centres / Programme Coordinators KVK's
Prepared by	:	**Dr. Deepak Kher** **Project Planning and Monitoring Officer**
Type Setting	:	Sh. Vinod Kumar / Sh. Neeraj Gupta Sr. Stenographer, PPMO
Cover Photograph	:	New variety **PMH- 12**, Single cross maize hybrid has been notified and recommended for cultivation in the State
Published by	:	Vice Chancellor, SKUAST-Jammu Email: vc@skuast.org Fax: 0191-2262073
Printed by	:	**Jandiyal Printing Press** Mohinder Nagar, Canal Road, Jammu Ph. : 0191-2553140 (M) : 9419185277

ALL RIGHT RESERVED . NO PART OF THE REPORT MAY BE REPRODUCED IN ANY MANNER OR BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM THE PUBLISHER

15th

ANNUAL REPORT

SKUAST-J

2014-15

SHER E KASHMIR
UNIVERSITY OF AGRICULTURAL
SCIENCES & TECHNOLOGY OF JAMMU (J&K)

"An institution for sustainable agriculture for food and nutritional security"

PREFACE

It gives me immense pleasure to present the 15th Annual Report of Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu (SKUAST-J) reflecting salient achievements of the University during the year 2014-15. The University continues to fulfill its mandated responsibilities of HRD, basic, strategic and applied research issues and dissemination of innovations to farming community. The University during the period, has satisfactorily fulfilled its objectives of teaching, research & extension, and has remained front-runner for the cause of Agriculture and allied sectors, despite extensive damage it suffered due to flash floods on September, 5-6, 2014.

Development of skilled human resource through class room teaching and on-farm trainings remains the prime focus of SKUAST-J. The University is offering Undergraduate Programmes viz., B.Sc.(Hons.) Agriculture, B.Sc (Hons.) Biotechnology, B.V.Sc & A.H. and Programmes at Master and Doctorate level in 37 and 21 disciplines, respectively, in two academic campuses. The admission to Under Graduate and Master Programmes were made through Common Entrance Test (CET) conducted by University itself. During the year under reference, 180 students were admitted to various UG programmes and 113 to PG programmes. Besides, extracurricular activities, including sports and cultural activities, are also being encouraged.

Research in the fields of field crops, horticulture, animal husbandry and basic sciences is a significant activity of the University. Crop improvement programmes focuses on developing new varieties / hybrids of cereals, pulses, oilseed and commercial crops. New variety PMH- 12, Single cross maize hybrid has been notified and recommended for cultivation in the State. Molecular characterization of local basmati grown in Jammu region has been done. Germplasm of ginger has been collected and maintained from different parts of the country. The University successfully operated 99 Research Projects (AICRP/Adhoc) worth Rs. 4.89 crores during the year under report, sponsored by various agencies viz. ICAR,DBT, DST, MES etc. University produced 57.70 quintals of breeder seed, 1019 quintals of foundation seed and 1034 quintals of certified seeds of oilseeds, pulses and cereals during the year under report. Research activities on many location specific problems are being intensified with the funds received from Indian Council of Agricultural research (ICAR), State Government and other funding agencies.

SKUAST-J has a strong and effective network of extension services with a Directorate of Extension and six Krishi Vigyan Kendras (KVKs), disseminating latest technology and relevant skills to the farmers and extension functionaries. These units perform important tasks of assessment and refinement of technologies, organizing training programmes for farmers, extension personnel and NGOs; undertaking diagnostic field visits, veterinary clinical camps and information also dissemintated through technology demonstrations; group discussions and organizing field days and kissan melas, popular articles, information bulletins, press notes, radio and TV programmes to enlighten the farming community on agricultural developments.

The University has been able to make strides mainly because of patronage and guidance received from the Chancellor of SKUAST-J, The Governor of Jammu & Kashmir, Padam Vibhushan Sh. N.N.Vohra, Pro-Chancellor Jenab Omar Abdullah, The Hon'ble Chief Minister of Jammu & Kashmir State and Dr. S.Ayyapan, Hon'ble Secretary, DARE & DG, ICAR during the year under report as well as for their whole hearted financial and technical support to the university. Special thanks are due to Sh. B.R. Sharma, Financial Commissioner, Planning & Development Department, Sh. B.B.Vyas, Principal Secretary, Finance Department and Dr. A. H. Samoon, Commissioner / Secretary, Agriculture Production Department, J&K Govt. for their cooperation and personal efforts for the betterment of the University. My thanks are due to the Statutory Officers and staff members of the University for their Cooperation in sincere efforts made for the progress of SKUAST-J.

I hope this publication will be useful to teachers, scientists, students, administrators and planners. We always look forward to their valuable support and suggestions in accomplishing our mission.

Jammu

(Pradeep K. Sharma)

Vice Chancellor

CONTENTS

SKUAST-J: AN INTRODUCTION

SKUAST-J: AN INTRODUCTION

Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu (SKUAST-Jammu) was established on 20th September, 1999 following the amendment in Sher-e-Kashmir university of Agricultural Sciences and Technology Act, 1982 through the State Legislature. The prime objective of setting up of SKUAST-Jammu was to cater to the aspirations and needs of the distinctly different and uniquely variable animal and agriculture sector of the Jammu Division, with focus on agricultural and veterinary education, research and extension. The university is mandated to address the basic, strategic and applied research to step-up production in agriculture and allied sectors, livestock health improvement, and quality products. SKUAST- Jammu since its establishment has promoted excellence in academics, research and outreach activities for the betterment of farming community of the region.

SKUAST-Jammu is a multi-campus university with two faculties, six research stations and six KVKs, providing education, carrying out research and serving extension needs of the region. The university has it's headquarter located at Chatha. Right from its inception, the University has grown at a rapid pace with respect to infrastructure and human resource. The campus at Chatha comprises of Administrative block, modern Faculty building, an independent School of Biotechnology building, Sports complex, Student's centre, Examination halls, Seed processing unit, Seed and farm machinery stores and Health centre, besides research and instructional farm. The campus also has residential facilities, comprising of teaching and non-teaching staff quarters, hostels for girl students and farmers. The Central library of the University located at Chatha is unique modular and highly functional three storey building. It has online facility to access more than 2700 e-journals through CeRA Consortium. Apart from that the library has 22192 text and reference books. The library has adopted electronic cataloging using SOUL software. Solar panels have been installed recently in the library to meet its power requirement. Cyber facility has also been established to access internet and data processing. Furthermore, the other campuses of the University are connected through LAN and WAN setup. An international Guest House and an ultra-modern auditorium is also under construction and will be ready very shortly. A university examination cell has been established for centralized conduct of examinations.

The Faculty of Veterinary Sciences and Animal Husbandry, located at R.S. Pura, has an academic block, a classroom cum examination complex and a separate library catering to the needs of the faculty and students undergoing various degree programme in the field of Veterinary & Animal Science. This campus too has residential facilities for staff, a farmers' guest house and hostels for girls and boys. A modern facility funded by the Agricultural Services Recruitment Board (ASRB), ICAR has also been created for conduct of online examinations. The faculty has a modern veterinary referral hospital housing state-of-the-art equipment for diagnosis and treatment of animals, belonging to the farmers of the region as well as army, BSF and police. It is open on all days including holidays. The veterinary clinical and teaching hospital is also routinely organizing clinical camps.

The university runs under-graduate programmes in agricultural sciences, veterinary and animal husbandry, and biotechnology. Post graduate programmes are also offered in various sub-discipline of agriculture and veterinary sciences, as well as in biotechnology and Agri-Business Management. The university has adopted a semester based academic programme and conducts its own entrance examination for admissions to under-graduate and post-graduate programmes.

Food production in the state has not matched the growth in human population making the state deficient in food grains, pulses, oilseeds, vegetables, and animal and poultry products. In this context, the University has adopted frontier science and innovative approaches like maneuvering genetic resources, breaking yield ceiling, biotechnology, bio-safety, quality improvement, biotic and abiotic stresses, integrated pest management, managing soil health for improved fertility, value addition, post-harvest technology, impact of climate change and global warming on agriculture, epidemiological mapping of diseases of livestock and analysis of chemical residues for xenobiotic free milk and meat products, vaccine development for various infectious bacterial and viral diseases. In addition the university is also paying attention to various forms of IPRs as well as issues related to new trade regime.

University is pursuing high quality research through numerous projects funded by different funding agencies of the state and center. Sincere efforts are being put to develop technologies and make scientific interventions for achieving higher levels of productivity. One of the major components contributing towards higher productivity is the availability of quality seed and planting material. University has taken many steps for enhancing production of quality nucleus and breeder seed to meet the requirements indented by the State Government Department of Agriculture. The university is contributing significantly towards the seed replacement in the State by producing quality certified seed of cereal crops, pulses and oilseeds, through a modern seed processing and packaging facility created with financial assistance from the ICAR. The university is also engaged in the supply of quality planting material with respect to horticultural crops. Hi-tech poly houses, mist chamber and hardening units have been pressed into service for generating quality planting material of vegetables, ornamentals, fruits and medicinal plants.

The university has made keen efforts in developing technologies and making scientific interventions for achieving higher levels of productivity. The University has developed and released various crop varieties with improved agronomical traits and resistant to diseases and insect pests. Various varieties of rice, wheat, oilseeds and pulses have been released. Multi-location testing at Poonch, Chatha and Udhampur of 13 newly developed Maize composites/hybrids were conducted. Yellow grain hybrid PHM-12, UDMH-101 and UDMH 108 has shown promising increase in maize yield over check variety. White grain composite PMSY-4 and hybrid PHM-11 have also shown significant increase in yield. Efforts have been made to improve the production of world famous basmati rice through development of new varieties like Basamati 564 (RR 564). Other important varieties like SJR 5 (rice), RSP 561 (wheat), PHM 12 (Maize), RSPN 25 (Rapeseed mustard) and G-40 (knol khol) have been developed by the university and subsequently released by State Seed Sub-committee. Subsequently these varieties stand notified by central sub-committee on crop standards, notification of varieties for agriculture crops. Apart from development of new varieties, the university is playing an active role in screening and selection of existing cultivars of fruits crops, flowers and agro-forestry-based plant species with a view point to reduce disease and pest incidence and enhance the quantity and quality of the product.

University has significantly contributed to the advancement in knowledge of agriculture, horticulture, floriculture, olericulture, mushroom cultivation, bee keeping, medicinal and aromatic plants, forestry, animal husbandry and veterinary sciences. Innovative techniques like 'top working technology' has been developed for wild olive. A rejuvenation technique has been developed for mango trees who have completed their productive life. Enhancing the shelf life of horticultural products is an important goal for the University. Post-harvest management of produce for extension of shelf life and value added products from fruits have been demonstrated in different fruit crops.

SKUAST-Jammu has laid emphasis on diversification in farming and have developed an Integrated Farming System model for small and medium farmers. The farming enterprises in the model include field crop + horticulture + animal unit + vermicompost unit + Apiary + Mushroom unit +Bio-gas plant. This sustainable and economically sound model is developed in such a way that the waste output of one enterprise is used as an input in another unit, fetching up to three times the returns over a traditional agricultural system. Efforts have been made to work out the economics of other farming systems as well. It is commonly observed that some of the resources are over utilized and some underutilized thereby indicating scope for the rational allocation of resources, and thereby enhancing returns for every rupee spent. Production function analysis and Marginal Value Productivity techniques are used to examine input-output relationship and productivity of different inputs used in production process. Studies have revealed that with one per cent increase on expenditure of labour and fertilization, there is an increase in returns to the extent of 0.45 per cent and 0.67 per cent, respectively in case of fruit crops. The marginal value productivity of irrigation and plant protection was found to be negative in case of citrus orchards, indicating that the cost of cultivation can be reduced by curbing their excess use. Water management is another aspect that has received due attention. Benchmarking of Ranbir canal command area of Jammu region has been carried out for performance indicators of rice and wheat crop. Efficient irrigation schedules have been worked for enhancing water productivity in various cropping systems, especially that of the commonly followed rice-wheat rotation. Micro-irrigation systems, like drip irrigation and sprinkler systems, are being promoted in areas where there is water scarcity and uneven terrain conditions. A unique technique called trench cultivation for utilizing sub-surface water on the banks of river Chenab and Tawi for production of off-season vegetables have been developed and promoted.

Mechanization in farming can reduce human drudgery to a large extent and can improve productivity of the farm land. Small land holdings and undulating topography have hindered mechanization of farming in the region as the heavier equipment is difficult to maneuver as well as its use is uneconomical. To counteract that, the university is promoting animal drawn improved implements for regular farm operations as well as self-propelled machines fitted with mechanical and electrical power sources, like power tillers, for select farm operations.

Non-culture diagnostic technique for foot-rot disease in sheep has been developed for early detection of infection in sheep and goat flocks. Locally available feed resources have been mapped as well as area specific mineral mixture have been developed for amelioration of macro and micro nutrient imbalance in cross-bred cattle, buffaloes, sheep and goat for various districts of Jammu division. Various agents for amelioration of toxicities of molybdenum, fluoride, pyrethroids and organo-phosphorus in animals have been identified. The pharma co-kinetics of various anti-microbial drugs has been worked out for their safe and judicious use. The university has been identified as nodal centre for veterinary pathogens under veterinary type culture collection (VTCC) project of ICAR, New Delhi. Molecular methods of diagnostics for animal diseases like FMD, Foot rot, Hemorrhagic septicemia etc. have been developed. The University is also working on an assigned project of Ministry of Agriculture, Government of India, on genetic improvement of sheep using embryo transfer technology (ETT) for producing superior quality lambs with better growth rates which will go a long way in making the state self-sufficient in mutton production. The faculty is also a Nodal Centre for Advanced Disease Monitoring and Surveillance. The University is also working on different social projects for empowerment of rural women like backyard poultry farming, development of value added animal products, adoption of breeding and management strategies in diary animals etc.

Modern approaches are being screened and adopted for maximizing productivity per unit of

input added. Computer based approaches like remote sensing, geographical information system (GIS), modelling etc. are being extensively used in different fields. GIS based soil fertility maps of Jammu district have been produced. Based on these preliminary studies, the university has been awarded an RKVY project for complete and detailed mapping of soil properties for the entire Jammu division. Pre-season yield estimation through remote sensing has gained importance in recent times due to its advantages over traditional systems. The university is presently handling the FASAL project for pre-season estimation of maize and wheat yields. The university is studying climate change and its impending impact on agriculture and animal production. A number of initiatives in this regard have been carried out through awareness programmes and crop-weather relation studies under NICRA (National Initiative on Climate Resilient Agriculture) and other schemes. The Agromet Field Unit (AMFU) Jammu at present is issuing biweekly Agromet advisory bulletins for the farmers of sub-tropical areas of Jammu region i.e whole of Jammu and Samba Districts and parts of Kathua and Reasi districts in order to apprise them about the various crop related field activities to be undertaken in accordance with the weather forecast.

The university is also involved in extension activities for the benefit of the farming community and line departments. The Directorate of Extension popularly known as the "Field Extension Wing" through its various sections such as the Krishi Vigyan Kendras (KVKs) in different districts of the Jammu division as well as Faculties at Chatha and RS Pura is taking care of farm advisory services in several villages. Apart from the six existing KVKs in different districts, three more KVKs are in the process of establishment. Regular trainings, field visits, clinical camps, kisan ghosti's, demonstrations etc. are being conducted to raise awareness among the farmers regarding improved practices in agriculture, horticulture, animal care and diversification. Apart from creating awareness on existing technologies in agriculture, allied occupations like bee keeping, mushroom cultivation, back yard poultry etc. are also being promoted, especially among farm women and rural youth, as an alternate source of income. Directorate of Extension through its KVKs is also engaged in imparting skill oriented and need based trainings to rural youth for entrepreneurship development. The skill upgradation of the field functionaries of agriculture and allied departments is carried out by regular in service trainings being conducted by KVKs at district level; and Directorate of Extension and State Agriculture Management & Training Institute (SAMETI) at the divisional level.

The KVKs are also engaged in the assessment and refinement of generated technologies through on farm testing (OFT's) to suit specific locations. The proven technologies are disseminated through frontline demonstrations (FLDs). The scientists posted in these KVKs are in direct contact with the farmers of their jurisdiction and render necessary advices about crop and livestock production and protection; soil and water management; family and farm resource management etc., at their doorsteps. The university extension wing has been well oriented to face new challenges on day to day basis in view of weather/climate changes so that the farmers and field functionaries are given advisories and strategic plans as per situations prevalent. The university is also offering diploma courses viz. Basic Agriculture Training (BAT) and Basic Horticultural Training (BHT) at the district level at its KVKs. The organization of Kissan Mela-cum-exhibitions at the head quarter of the University as well as at its KVKs has become a regular feature. Technical information is disseminated to the farmers, field functionaries and agripreneurs through printed pamphlets, bulletins etc. Updated package of practices for field crops, fruit crops, vegetables and floriculture are made available to all stake holders. All necessary efforts are made with the goal of agricultural technology led economic

development of farmers and enhance production and productivity of various crops as well as animal production in the region working hand in glove with the state line departments. The feedback from farmers and field functionaries are collected for refinement of available technologies for making them area specific and need based. The university also provides consultancy services to various line departments, Indian Army, NGOs etc.

OUR MISSION:

Ensuring food and household security of Jammu and Kashmir by enhancing the productivity and profiatability on an ecologically and economically sustainable basis.

MANDATE

- Advancement of education in ahgriulture, Animal Husbandry, Veterinary Sciences and other allied branches.
- Conduct basic, strategic and applied research in agriculture and allied sectors.
- Dissimination of knowledge and technology to the farming community.
- Collobaorate with National and International Organizations for enhancing the knowledge, expertise and excellence for the well being of the people of Jammu and Kashmir in particular and country in general.

UNIVERSITY AUTHORITIES

University Council

The University Council is the apex advisory body of the University. It reviews policies and programmes of the University and advises in its future plans, development & expansion as well as examines the annual accounts and audit report of the University.

Board of Management

The Board of Management is the principal executive body of the University. It has the power of management and administration of all the affairs of the University, including finance, revenue, property and academic affairs.

Academic Council

The Academic Council is the principal academic body responsible for academic policies, rules and regulations of the University. All matters relating to academic programmes are regulated by the Academic Council.

Research Council

The Research Council is responsible in respect of research programmes and projects undertaken by various university units with a view to promote effective coordination in the field of Agriculture, Veterinary & Animal Husbandry and other allied sciences.

Extension Education Council

The Extension Education Council is responsible in respect of coordinating Extension Education activities for improvement of Agriculture and Animal Husbandry for development of rural communities. Development of farmers' education and training and advisory services, identification and resolution of field problems in transmission of information and integration of extension education with teaching and research are other responsibilities of Extension Education Council.

Faculties and Schools

The Faculties comprise the Divisions of studies in various disciplines of Agriculture, Veterinary & Animal Husbandry and allied sciences. The faculties are basic academic units responsible for the formulation of academic programmes. The faculties review teaching work and suggest improvements. Each faculty has a Board of Studies. The Board of Studies proposes to the faculty concerned the course of study and curricula for various programmes of instructions offered by the faculty concerned. The University has the following faculties:

i) Faculty of Agriculture

ii) Faculty of Veterinary Sciences & Animal Husbandry

Schools

i) School of Biotechnology

ii) School of Agri Business Management

Planning Committee

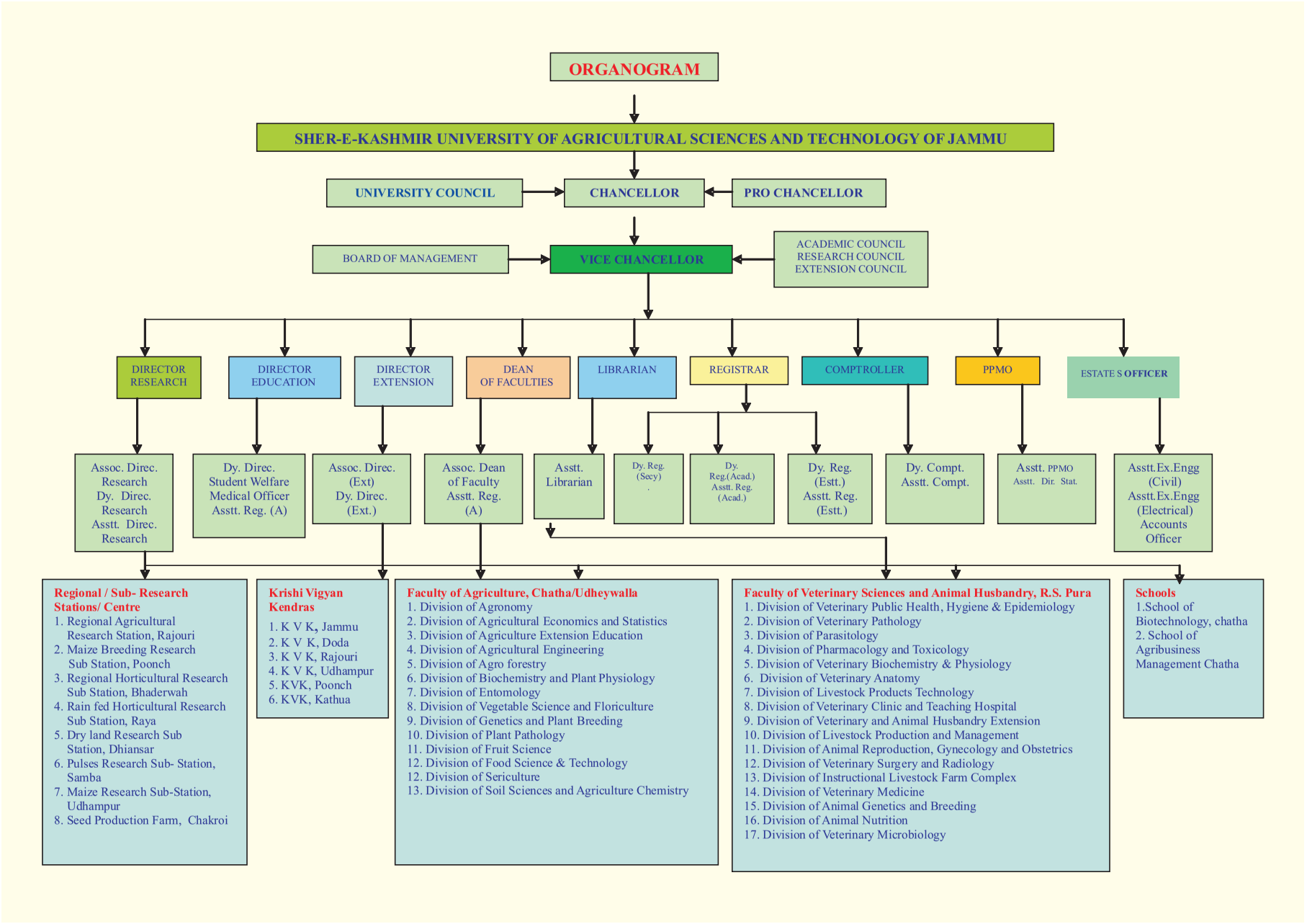
The Planning Committee advises the Board of Management in matters relating to Planning and Development of the University. It is also responsible for programme planning, monitoring and implementation of major projects of the University.

Finance Committee

The Finance Committee advises the Board of Management on all matters concerning financial management of the University and examines the accounts and expenditure of the University.

UNIVERSITY ADMINISTRATION

The Vice-Chancellor is the Chief Executive of the University. He is supported by the Registrar in the administration, Comptroller in financial management, Project Planning & Monitoring Officer in planning and development of the University, Deans with respect to academic activities and Directors for management of research and extension activities in the field of Agriculture and Veterinary Sciences, besides, Librarian assists in library affairs and Estate Officer looks after civil works.


ORGANOGRAM
SHER-E-KASHMIR UNIVERSITY OF AGRICULTURAL SCIENCES AND TECHNOLOGY OF JAMMU
UNIVERSITY COUNCIL
CHANCELLOR
PRO CHANCELLOR
BOARD OF MANAGEMENT
VICE CHANCELLOR
ACADEMIC COUNCIL
RESEARCH COUNCIL
EXTENSION COUNCIL
DIRECTOR RESEARCH
DIRECTOR EDUCATION
DIRECTOR EXTENSION
DEAN OF FACULTIES
LIBRARIAN
REGISTRAR
COMPTROLLER
PPMO
ESTATE S OFFICER
Assoc. Direc. Research
Dy. Direc. Research
Asstt. Direc. Research
Dy. Direc. Student Welfare
Medical Officer
Asstt. Reg. (A)
Assoc. Direc. (Ext)
Dy. Direc. (Ext.)
Assoc. Dean of Faculty
Asstt. Reg. (A)
Asstt. Librarian
Dy. Reg. (Secy)
Dy. Reg.(Acad.)
Asstt. Reg. (Acad.)
Dy. Reg. (Estt.)
Asstt. Reg. (Estt.)
Dy. Compt.
Asstt. Compt.
Asstt. PPMO
Asstt. Dir. Stat.
Asstt.Ex.Engg (Civil)
Asstt.Ex.Engg (Electrical)
Accounts Officer
Regional / Sub- Research Stations/ Centre
1. Regional Agricultural Research Station, Rajouri
2. Maize Breeding Research Sub Station, Poonch
3. Regional Horticultural Research Sub Station, Bhaderwah
4. Rain fed Horticultural Research Sub Station, Raya
5. Dry land Research Sub Station, Dhiansar
6. Pulses Research Sub- Station, Samba
7. Maize Research Sub-Station, Udhampur
8. Seed Production Farm, Chakroi
Krishi Vigyan Kendras
1. K V K, Jammu
2. K V K, Doda
3. K V K, Rajouri
4. K V K, Udhampur
5. KVK, Poonch
6. KVK, Kathua
Faculty of Agriculture, Chatha/Udheywalla
1. Division of Agronomy
2. Division of Agricultural Economics and Statistics
3. Division of Agriculture Extension Education
4. Division of Agricultural Engineering
5. Division of Agro forestry
6. Division of Biochemistry and Plant Physiology
7. Division of Entomology
8. Division of Vegetable Science and Floriculture
9. Division of Genetics and Plant Breeding
10. Division of Plant Pathology
11. Division of Fruit Science
12. Division of Food Science & Technology
12. Division of Sericulture
13. Division of Soil Sciences and Agriculture Chemistry
Faculty of Veterinary Sciences and Animal Husbandry, R.S. Pura
1. Division of Veterinary Public Health, Hygiene & Epidemiology
2. Division of Veterinary Pathology
3. Division of Parasitology
4. Division of Pharmacology and Toxicology
5. Division of Veterinary Biochemistry & Physiology
6. Division of Veterinary Anatomy
7. Division of Livestock Products Technology
8. Division of Veterinary Clinic and Teaching Hospital
9. Division of Veterinary and Animal Husbandry Extension
10. Division of Livestock Production and Management
11. Division of Animal Reproduction, Gynecology and Obstetrics
12. Division of Veterinary Surgery and Radiology
13. Division of Instructional Livestock Farm Complex
14. Division of Veterinary Medicine
15. Division of Animal Genetics and Breeding
16. Division of Animal Nutrition
17. Division of Veterinary Microbiology
Schools
1.School of Biotechnology, chatha
2. School of Agribusiness Management Chatha

UNIVERSITY COUNCIL
As on 31-03- 2015

Sh. N.N. Vohra His Excellency Governor J&K State (Hon'ble Chancellor, SKUAST-Jammu)	Chairman
Jenab Mufti Mohammad Sayeed Hon'ble Chief Minister, J&K State (Hon'ble Pro-Chancellor, SKUAST- Jammu)	Member
Sh. Ghulam Nabi Lone Hon'ble Minister for Agriculture Production, J&K State	Member
Sh. Bali Bhagat Hon'ble Minister for Social Welfare, forest, Ecology and Environment, J&K State	Member (Co-opted)
Jenab Sajad Gani Lone, Hon'ble Minister for Science & Technology and Animal Husbandry, J&K State	Member (Co-opted)
Dr. Pradeep K. Sharma Hon'ble Vice Chancellor, SKUAST-Jammu	Member
Dr. Tej Partap Hon'ble Vice Chancellor, SKUAST-Kashmir	Member
Dr. A. R. Trag Hon'ble Vice-Chancellor Islamic University of Science & Technology Avantipura, Kashmir	Member
Sh. B.R.Sharma, IAS, Principal Secretary to J&K Govt., Planning and Development Department, Govt. of J&K	Member (Co-opted)
Sh. B.B.Vyas, IAS, Principal Secretary to Govt (Financial Advisor-SKUAST-Jammu) J&K Govt., Jammu	Member
Dr. Asgar Hassan Samoon, IAS, Commissioner/Secretary to J&K Govt., Agriculture Production Department, Govt. of J&K	Member
Dr. B.B. Gupta Registrar, SKUAST-Jammu	Non- Member Secretary

BOARD OF MANAGEMENT
As on 31.03.2015

Dr. Pradeep K. Sharma Vice Chancellor, SKUAST-J	Chairman
Dr. Tej Partap, Hon'ble Vice-Chancellor, SKUAST-K	Member
Sh. B. R. Sharma, IAS Principal Secretary to Govt., Planning and Development Department, Govt. of J&K	Member
Sh. B. B.Vyas, IAS Principal Secretary to Govt., Finance Department, Govt. of J&K,	Member
Dr. Asgar Hassan Samoon, IAS Commissioner/Secretary to J&K Govt., Agriculture Production Department, Govt. of J&K	Member
Dr. Arvid Kumar, Vice-Chancellor, Rani Lakshmi Bai Central Agricultural University, Jhansi	Member
Dr. A.C. Varshney, Vice-Chancellor, Pt. Deendayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, Mathura	Member
Dr. Nazeer Ahmad, Director, CITH, Sringar	Member
S. Tajinder Singh, Progressive farmer	Member
Sh. Rohit Gupta, Agro Industrialisit Jammu	Member
Dr. B.B. Gupta Registrar, SKUAST-J	Non- Member Secretary

OFFICERS OF THE UNIVERSITY
As on 31-03-2015

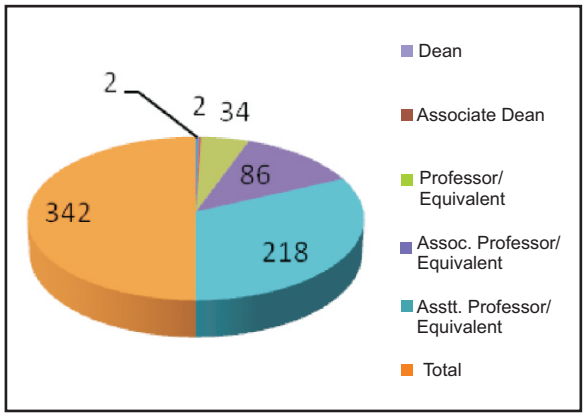
Dr. Pradeep K. Sharma	Vice Chancellor
Dr. K. S. Risam	Director Extension
Dr. J.P. Sharma	Director Research
Dr. T.A.S. Ganai	Director Education
Dr. B. B. Gupta	Registrar
Dr. Deepak Kher	Project Planning & Monitoring Officer
Dr. S.K. Sen	Comptroller
Dr. M.M.S. Zama	Dean, Faculty of Veterinary Sciences & AH
Dr. R.M. Bhagat	Dean, Faculty of Agriculture
Dr. V. K. Razdan	Librarian
Sh. T.R. Bhagat	Estates Officer

1. EXECUTIVE SUMMARY

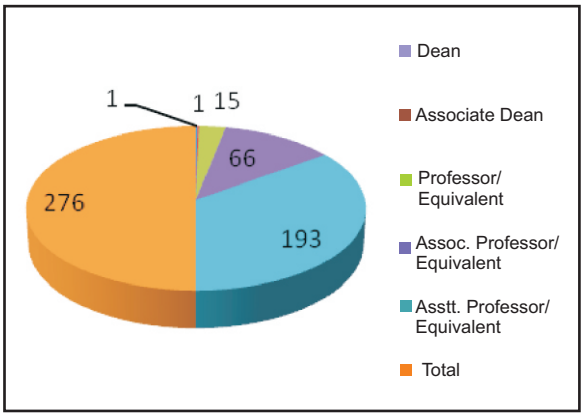
With the generous and constant patronage of Chancellor and Pro-Chancellor; Central & State Governments, Indian Council of Agricultural Research, the University during 2014-15 under the stewardship of Hon'ble Vice-Chancellor continued its strive to achieve the goals for the development of competent and professional human resource, addressing farmers' problems through innovative research and transfer of technology in the fields of Agriculture and Veterinary Sciences. In spite of the various constraints the university successfully completed the academic programmes including B. Sc. (Ag), B.V.Sc. & A.H., M. Sc. (Ag), M.V.Sc., Ph.D (Ag.) and PhD (Vety), carried out assigned research agenda as approved by the Research Council and undertook numerous initiatives for the transfer of technology to the farmers. The brief summary is given as under:

EDUCATION

- The University has total sanctioned strength of 344 faculty position with 229, 71 and 44 in Teaching, Research and Extension Education, respectively. The University has 34 Professors, 86 Associate Professors and 220 Assistant Professor level positions in teaching besides 2 Deans and 2 Associate Deans. Out of 230 faculty members, 108 are in faculty of Veterinary Sciences and Animal Husbandry and 122 are in Agriculture. The academic and the gender wise spectrum of the faculty reveal that more than two-third of the faculty holds Doctoral degrees and the female strength in the faculty is just about 15 per cent.
- The admissions to the bachelor's degree programmes were made through Board of Professional Entrance Examinations of Jammu and Kashmir Government whereas for Master's and Doctoral degree programme, the university itself selected the candidates on the basis of merit. As many as 180 and 113 students were admitted to UG and PG programmes, respectively. The number of students who completed their B.Sc (Ag), B.Sc (Biotech), B.V.Sc & AH, M.Sc (Ag), M.V.Sc., M.Sc (Biotech), Ph.D. (Ag) and Ph.D (Vety) degrees were 19,09, 52 ,48, 41, 05 ,06 and 07 respectively. The total number of students on roll remained 964, comprising of 391 in Agriculture, 421 in Veterinary Sciences, 121 in Biotechnology, 21 in Agri Business Management and 10 Genomics and Molecular/ Micro biology.
- The students of the university continued to participate in local/state/national level events. The university extended all facilities to the students including medical health care through a university dispensary equipped with full time medical officers (male & female) and supporting staff with liberal contingency for medicines. 3066 OPDs were attended out of which approx. 5 0per cent were the students.
- The University has modular libraries at Chatha and R.S. Pura facilitating reference services to our faculty and students. The library has 31689 text and reference books. The library has adopted electronic cataloging using SOUL software. It annually subscribes 20 Indian journals. The University has access to about more than 3500 e-journals through CeRa consortium, CAB abstracts access to over 9 million bibliographic and full text articles related to agriculture and other sciences, CABI e-books access to about 625 CABI e-books related to agriculture and allied disciplines and EBESCO Business Source Elite+ access to 1800+ e journals related to management sciences adn other related disciplines available in computer labs of libraries and all the campuses of SKUAST-J throu NKN. LAN and CD-ROM workstation on CABCD, VETCED and FST, Internet services are also provided to the scholars and faculty. Solar power plant facilitiy with 30KwA and 20KwA are available for the libraries at Chatha and R.S.Pura, respectively.



Faculty Strengh (Sanctioned)



Faculty Strengh (Filled)

RESEARCH

- SJR 51 (IET 21368) a new rice variety has been developed for mid hill ecology with yield potential of 50-55 q/ha. Release proposal of SJR 51 was presented during 7th Research Evaluation Committee (REC) where it was resolved to test the variety at farmers' field through KVK's as well as to generate production package.
- SJR 129 is tested in All India Coordinated Rice Improvement Project (AICRP) as IET 24597. The culture displayed high yield potential (44.39 q/ha) and desirable basmati quality characters like Head Rice Recovery (HRR) (56.3), grain length (7.3 mm), desirable amylose content (22.4), soft gel consistency and aroma and is being tested in the form of minikit trials.
- Four new nominations viz., SJR 129, SJR 70 and SJR 76 in basmati group and SJR 45 in non-basmati were nominated for testing in All India Coordinated trials during kharif 2014. Among these SJR 129 displayed high yield potential (44.39 q/ha) and desirable basmati quality characters like Head Rice Recovery (HRR) (56.3), grain length (7.3 mm), desirable amylose content (22.4), soft gel consistency and aroma and is being tested in the form of minikit trials.
- The variety JAUW-584 was tested in National initial varietal trial-IA and promoted to AVT (timely sown irrigated) in North West plain zone of the country. The minikit trials of this variety had already shown promising performance with grain yield potential of 52 qtls/hac with moderate resistance to stripe and brown rust.
- The wheat entry JAUW 598 surpassed the performance 36 entries including checks and was promoted to AVT (rain fed) in North Western plain zone of the country. The variety has a potential yield of 41.6 qtls/hac based on NWP zonal average.
- PMH-12, a single cross hybrid has been notified and recommended for cultivation in the state. (Grain yield potential: 60 qtls/ha Ecology: Mid hills to plains Duration: 130-135 days)
- A new high yielding Gobhi sarson entry RSPN 28 was evaluated for three years in station trials. The performance over years revealed an average increase of 12.8 per cent over the national check variety GSL-1(1793 kg./ha).It is moderately resistant to aphid and alternaria blight. This entry was evaluated in IVT over eight locations in Zone-II. With an average seed yield of 1893 kg/hac recorded over eight locations.
- A newly CVRC released high yielding variety GSC 101 of gobhi sarson was evaluated continuously for three years(2011 to 2014) and it recorded 10.6 percent higher seed yield (1849kg/ha) over the check variety GSL-1(1670kg/ha) with seed size of 3.7-4.2g. and oil content 40.7 percent.
- Under private sector hybrid testing programme, 2 rice hybrids of Advanta Pvt. Ltd were tested during kharif 2012 (PAC 801 & PAC 807) & 2 during kharif 2014 (PAC 807 & PAC 8744) at Chatha location along with two checks SJR 5 & Jaya. Among these hybrids, PAC 807 completed

two years of testing and this hybrid (5288.89 kg/ha) exhibited 1.74 per cent yield superiority over the best check variety SJR5 (5197.96 kg/ha) and 3.95 per cent yield superiority over Jaya (5087.77 kg/ha).

- Vegetable varieties in Radish (White) SJWR-01, Radish (Red) SJRR-01,Okra (Seli Special) SJB-02,Cherry tomato (SJCT-01) has been nominated for testing under All India Coordinated Research Project during 2014-15. Trials nominated of (Seli Special) SJB-02 and Cherry tomato (SJCT-01) is under IET.
- In tuberose, seven varieties were evaluated namely Shringar, Suvasini, Prajwal, Vaibhav, Nirantara, Calcuttia Single and Calcuttia Double. Among these Nirantara, Calcutta Single and Double performed better than other varieties and has been selected for their commercial cultivation in Jammu region.
- 52 varieties of mulberry germplasm are maintained at Udheywalla Campus. Observations on leaf length, maximum leaf width, sprouting time and rate of growth of 30 varieties of mulberry were studied. Late sprouting varieties had advantage over early sprouting ones in leaf size, leaf area and growth rate. However, for subtropical areas, the late sprouting mulberry varieties are not commercially suitable for silkworm rearing but can be exploited for temperate zones of the Jammu province.
- Among the agro-wastes evaluated for cultivation of Pleurotus spp., paddy straw + wheat bran (20%) + CaCO3 (2%) was observed to be the best substrate followed by wheat straw + wheat bran (20%) + CaCO3 (2%).
- Out of the hundred isolates from the rhizosphere of basmati rice and saffron crop, thirty-five isolates were identified as P. fluorescens by amplification of 850 bps by species specific primer. The sequences of selected isolates were submitted to NCBI Gen Bnak. Out of 14 isolates of P fluorescens tested for suppression of sheath blight of paddy (ShB) in detached leaf assay, only three isolates significantly reduced the ShB lesions with maximum inhibition of lesion development. Integrated application of P. fluorescens as seed treatment + seedling dip + foliar treatment (2 X109 cfu/ml) showed maximum reduction of 48 and 32% of the disease intensity of sheath blight of rice under glass house and field conditions respectively.
- To study the effect of integrated nutrient management in Stevia rebaudiana. Higher values of growth and yield parameters were observed in treatments; (i) vermicompost (VC) @1.5t/ha + 30kg N and Azotobacter (ii) VC@1.5t/ha +30Kg N with dry leaf yield of 4.78q ha-1 and 4.32q ha-1, respectively.
- Eichhornia crassipes + FYM mixed in the ratio 1:2 or Leucaena + FYM was found most suitable weeds flora for incorporation in vermicomposting which has not only helped to realise the NPK status of composting in the range of 1.92-2.42%, 0.87-0.88% and 1.90-1.93% respectively, but also had increased the worm population, number of eggs and vermicompost production in the range of 1738-1798 no./m3, 401-405 no./m3 and 57.0-58kg/m3 respectively, over control (i.e alone application of FYM).
- The hydrogel application @ 2.5Kg/ha along with one irrigation at CRI was found most economical under Jammu conditions while receiving 298 mm average rainfall.
- Herbicidal weed management with application of isoproturon either @ 1kg/ha or 0.75 kg/ha with 1% tank mixed urea or 0.1% surfactant in wheat remained economically superior to mechanical weeding recording relatively higher net returns and B:C ratio. However, lowest net returns and B:C ratio values were observed in weedy check treatment thus making it economically inferior to all other weed management treatments.
- Water Use Efficiency (WUE) of three wheat cultivars (HD-2967,Raj-3077,RSP-

561) grown under four environments (29th Oct,12th Nov,26th Nov and 10th Dec,2014) showed that WUE was highest (15.1 kgha-1mm-1) in 1st crop growing environment (E1) and as far as variety are concerned, Raj 3077 (V2) showed higher water use efficiency followed by HD 2967 (V1). The least WUE was observed in case of var. RSP-561 (V3).

- The Heat use efficiency (HUE) of three wheat cultivars (HD-2967,Raj-3077,RSP-561) grown under four crop growing environments showed that varieties, Raj-3077 recorded highest HUE (0.53 g/m2/degree day) over HD-2967(0.43 g/m2/degree day and RSP-561 (0.37 g/m2/degree day) which decreased with subsequent delay in sowing.
- Maximum LAI was observed under early sown condition (29th Oct), than normal and late sown conditions. Among varieties Raj-3077 produced higher LAI than HD-2967 and RSP-561.
- Seed yield of mustard increased significantly by 11.6% & 13.9% with application of 30 kg and 45 kg sulphur per hectare, respectively as compared to the treatment where no sulphur was applied. Highest increase in total S uptake by 32.7 % was observed in treatment 45 kg S application as compared to treatment where no S was applied. Among boron application, the treatments comprising of 1.5 and 3.0 kg boron application in soil recorded significantly higher seed yield of mustard as compared to the treatment where no boron was applied. B application in soil @ 3.0 kg per hectare recorded the higher B uptake by mustard (13.27 kg/ha).
- Effect of temperature stress on wheat cultivars by changing date of sowing was studied. The SDS-PAGE profiling of Albumin fraction showed difference in banding pattern which may be due to denaturation of starch synthase enzyme under high temperature which occurred during grain filling stages SDS-PAGE Profiling of albumin under timely sown conditions. SDS-PAGE Profiling of albumin under late sown conditions
- The sarson equivalent yield differed significantly with various treatments. The highest sarson equivalent yield of 12.80 q/ha was obtained with the application of FYM @ 10 t/ha (T8) during kharif followed by (T7) 50% recommended NPK + 50% N through (FYM) 11.99q/ha. The lowest sarson equivalent yield of 5.53 q/ha was obtained in the control. The RWUE and B.C ratio was found maximum in T8 while minimum in T1 (Control)
- Data revealed that gobi sarson grown in the alleys of Aonla trees under Agri-Horti-Pastoral (T5) system is the most remunerative system as compared to all other systems which recorded the highest net returns of Rs. 59480/ha with a B:C ratio of 3.53.However, cropping of gobi sarson in the alleys of Aonla trees proved to be more beneficial as the system is also providing fruits
- Data revealed that paired gobi sarson with 2 rows of chickpea (T1) is the most remunerative system as compared to all other systems which recorded the highest net returns of Rs.37321.4/ha with a B:C ratio of 3.23.
- Out of the four maize varieties sown during the onset of monsoon , the hybrid variety Double Dekalb produced maximum yield to the tune of 2190 kg/ha with the highest net returns, B.C ratio and RWUE values of Rs.18849/-, 1.96 and 3.26 kg/ha/mm , respectively.
- Intercropping of mash (Uttara) and moong (SME 668) was done with maize (var. Double Dekalb) crop at DLRSS, Rakh Dhiansar in additive series (2+1) with no extra fertilizers for intercrop (Table 2). Grain yield to the tune of 1590 and 155 kg/ha was obtained for maize and mash crops, respectively. The intercropping system registered a maize equivalent yield (maize + mash) of 2065kg/ha with a B:C ratio of 1.59.
- Under cropping sequence programme, seven different cropping sequences viz: Pulse-Oilseed (Moong-Mustard), Pulse-Pulse (Mash-Chickpea), Pulse-Cereal

(Moong-Wheat), Cereal-Cereal (Maize-Wheat),Cereal-Oilseed (Maize-Mustard), Oilseed-Oilseed (Til-Mustard) and Pastoral-Pastoral (Fodder-Fodder) were tested and Pastoral-pastoral system recorded highest net returns, B.C ratio and RWUE of Rs.16150/- , 2.36 and 42.50 kg/ha/mm, respectively followed by maize crop sown under Cereal-Oilseed and Cereal-Cereal systems which produced net returns of Rs. 16106/- and 14288/- with B.C ratio of 1.83 and 1.74, respectively.

- Aonla + mixed fodder (maize + jowar + bajra) - gobhi sarson was demonstrated at DLRSS, RakhDhiansar and comparison was drawn with farmer's practice. The results revealed that mixed fodder yield to the tune of 212 q/ha with RWUE of 26 kg/ha/mm. The mixed fodder realized B:C ratio of 1.76 with net returns to the tune of Rs 7329/ha.
- The maize yield under Aonla + Maize (100% NPK) system on farmers fields ranged from 1630 to 1715 q/ha with mean yield of 1673 q/ha. RWUE ranged from 2.43 to 2.60 kg/ha/mm with mean RWUE of 2.51 kg/ha/mm. The net returns per hectare ranged from Rs 9194/ha to Rs 10574 /ha with B:C ratio of 1.48 to 1.56 respectively. Mean net returns was found to the tune of Rs 9884/ha with B:C ratio of 1.52.
- Survey was conducted during flowering stage of mango orchard in different areas of Jammu for occurrence and incidence of powdery mildew. The disease ranged to the tune of 2.5- 48.0% per cent. Maximum incidence (48.0%) was recorded in village Kamila in district Samba. It was followed by Badhori (38.7%) and Bishnah (32.8%) powdery mildew incidence. It was also recorded that older and desi mango trees were more susceptible against powdery mildew.
- An integrated Farming System Model for 1.0 ha area has been developed with the scientific integration of different components like crops + horticulture + animal + backyard-poultry + fishery + vermi-compost. The IFS model of 1 ha proposed realized gross return of Rs.419598 from all the above enterprises by investing of Rs. 238283 with B:C ratio of 0.80 following this IFS model the income of the farmer can be increased to Rs. 190765/- per year as compared to nearly Rs. 86000/year with traditional rice wheat system more over this Farming System Model also generates employment of 510 man days per year.
- Tillage treatments differ significantly among themselves and conventional tillage where two cultivator each followed by planking recorded significantly higher chickpea yield (1380Kg/ha) as compared to reduced and zero tillage. The reduced tillage (1107 Kg/ha) is also recorded significant chickpea grain yield over zero tillage (887 Kg/ha).However, the mulching treatments recorded significantly higher chickpea grain yield of 1341Kg/ha than as recorded in without mulching treatments
- Among the nine herbicidal treatments, the application of Pendimethalin 30 EC formulation + Imazethapyr 2 % (Ready mix combination)* @ 1.0 kg/ha PE + one hoeing at 30-35 DAS registered significantly higher grain yield of chickpea (1473.00 kg/ha) over all other treatments followed by Pendimethalin 30 EC formulation + Imazethapyr 2 % (Ready mix combination) @ 1.0 kg/ha PE with 1269 kg/ha grain yield of chickpea.
- Interaction studies were done between efficient Bradyrhizobium phaseoli and Glomus mosseae with ten Black gram genotypes. Genotype Mash-114 along with Bradyrhizobium phaseoli and Glomus mosseae treatment combination performed better with minimum Web blight disease incidence of 2.72 times less than control. The web blight disease incidence varied from 10.72-44.56 % in all genotypes under controlled conditions.
- A method was devised for developing corn flakes using various ratios of germinated and fermented corn flours blended with different ratios of peanut

flour and it was found that a good quality corn flakes can be developed by blending 80% germinated corn flour and 20% roasted peanut flour having nutritional value as 9.94% fat,16.24% protein and 64.27% carbohydrate. The product remained stable for 6 months.

- Supplementation of cereal with legume has recognized beneficial for health well being. Legume rich in proteins compensate the deficient essential amino acids in cereals. So, a method was devised for developing protein enriched cereal breakfast using the processing methods like malting and roasting which further enhanced the nutritional value of cereals and legumes.
- Methods was standardized for developing wine from bael fruit and strawberry fruit.
- Clinical studies on canine tumours indicated that mammary tumours were prevalent the most (24%), followed by tumours of skin and adnexa (20%), transmissible venereal tumour (16%), leiomyomas of female reproductive tract (14%), Sertoli cell tumours and seminoma of male reproductive tract (8%), malignant melanoma and peripheral odontogenic fibroma of oral cavity (8%), osteosarcoma of appendicular skeleton (6%), and splenoma and hepatocellular carcinoma (2% each). Moreover it was also found that chemotherapy alone or as an adjunct to surgical resection in transmissible venereal tumours and surgical treatment alone in all other tumours resulted in more than one year post treatment survival in 76 per cent cases.
- Clinical, radiographical, and haemato-biochemical studies on long bone deformities in growing dogs showed that the incidence of long bone deformities was 8.03 per cent and it was highest in radius ulna of non-descript 0 to 6 months aged male dogs. The common deformities reported were idiopathic osteodystrophy, nutritional secondary hyperparathyroidism, rickets, hypertrophic osteodystrophy and retained cartilage core
- Oral administration of buffalo urine distillate @ 10 per cent and 20 per cent in drinking water was well tolerated by normal Wistar rats except that it depressed the total proteins and elevated the Aspartate amino transferase activity @ 20 per cent of drinking water. It also had a negative effect on reduced glutathione levels in diabetic Wistar rats. Oral administration of buffalo urine distillate @ 10% and 20 per cent of drinking water administration of was not able to alleviate STZ induced hyperglycemia and oxidative stress in Wistar rats.
- The seasonal influences on physiological parameters, total lactation yield and milk composition between dairy cattle and buffaloes in three different seasons i.e. dry hot summers hot humid summer and winter was studied. It was observed that Physiological parameters were significantly increased during DHS in both crossbred cattle and buffaloes. It was also observed that total milk yield was higher during winter season and showed decreasing trend with increase in THI.
- Examination of 250 faecal samples of stray dogs in RS pura and Jammu revealed presence of parasitic eggs /cysts in 90.4% (n=226) animals. Hookworm was the predominant infection (76.10%), followed by ascarid (41.15%), Dipylidium caninum (15.48%), Spirometra spp. (5.30%) and Coccidian cysts (2.21%). Prevalence of eggs of zoonotic parasitesin dogs indicates the public health significance of the study in the area. So, there is utmost need for awareness among people to minimize these zoonotic infections by adopting hygienic measures.
- A total of 65 serum samples comprising of 45 sheep, 13 cattle, 3dogs and 4 human samples were collected and subjected to Rose Bengal Plate Test and Standard Tube Agglutination test for diagnosis of brucellosis. A total of 5 (3 sheep and 2 goats) and 6 samples (4 sheep and 2 goats) were found positive for brucellosis by RBPT and STAT, respectively. None of the samples of dogs and humans was found

positive by RBPT and STAT.

- A total of 50 poultry samples including raw chicken and poultry cloacal swabs were analyzed for Staphylococcus aureus and E. coli.16 per cent samples were positive for S. aureus. 18 per cent samples were positive for E.coli.

EXTENSION

- 7722 farmers/farm women and rural youth were imparted training through 375 different short courses. The trainings were organized in crop production, crop protection, horticulture, home sciences, and soil and fertilizer management.
- The University organized as many as professional trainings for the benefit of farmers and departmental functionaries 124 scientists participated in different seminars/symposia/workshops at state/national level.
- The transfer of technology has been carried out through Krishi Vigyan Kendras and the involvement of subject matter resources personals from the Faculty of Agriculture and Faculty of Veterinary Sciences and Animal Husbandry. A programme "Village Visit and Stay with Farmers" proved very effective. The scientists working at different research stations too participated in various extension activities.

Publications

- Among publications, the university brought out University Newsletter, various technical bulletins, Brochures and folders for dissemination to farmers, stakeholders and resource personnel. As many as 1125 publications including book chapters/bulletins/ manuals/ research papers *etc*. were published by the scientists in various journals of repute.

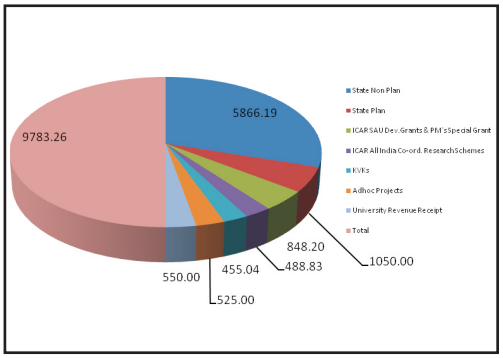
Other Important University Activities

- The university has developed strong linkages with national and international organizations with a view to harness the information, materials, expertise and exchange of scientists and students visits. MoUs have been signed by the University with the national and international organizations.
- Among various Statutory Meetings, University Council, Board of Management and Academic Council were held accordingly.

Sh. N. N. Vohra, Hon'ble Chancellor SKUAST-J and Governor J&K state chairing 11th University Council Meeting

Prof. Pradeep K. Sharma, Hon'ble Vice Chancellor chairing 21st Board of Management Meeting

Kissan Mela



University operated the total budget of Rs 9783.26 lakhs during the year 2014-15

2. EDUCATION

Education programme in Agriculture and other allied branches of learning and scholarship is an important and basic objective of the University. University has made remarkable achievements during the period under report in the field of agriculture education and maintained the standard as per the national level by following up-dated curriculum at under graduate and post graduate level both in agriculture and veterinary sciences as per the recommendations of Education Division of Indian Council of Agricultural Research (ICAR) and Veterinary Council of India (VCI), respectively. Library has been updated through purchase of books, journals, CD ROMs and automated literature search facility.

2.1 Academic programmes run by the university:

UG Programme : B.Sc. (Ag), B.V.Sc & AH and B.Sc (Biotechnology)
PG Programme : M.Sc. (Ag), M.V.Sc. and MBA (ABM)
: Ph.D. (Ag), Ph.D. (Vet) and Ph.D. (Biotechnology)

2.2 Details of P.G. Programme running in the University:

S. No.	M.Sc.(Ag)	Ph.D.(Ag)	M.V.Sc.	Ph.D.(Vet)
1	Soil Science & Agriculture Chemistry	Soil Science & Agriculture Chemistry	Animal Nutrition	Animal Nutrition
2	Genetics & Plant Breeding	Genetics & Plant Breeding	Veterinary Public Health & Epidemiology	Veterinary Public Health & Epidemiology
3	Entomology	Entomology	Veterinary Medicine	Veterinary Medicine
4	Agriculture Extension Education	Agriculture Extension Education	Veterinary Pathology	Veterinary Pathology
5	Vegetable Science	Vegetable Science	Veterinary Gynaecology and Obstetrics	Veterinary Gynaecology and Obstetrics
6	Agriculture Economics	Agriculture Economics	Veterinary Surgery & Radiology	Veterinary Surgery & Radiology
7	Agronomy	Agronomy	Veterinary Parasitology	Veterinary Parasitology
8	Fruit Science	Fruit Science	Veterinary Anatomy	Veterinary Anatomy
9	Post Harvest Technology		Veterinary physiology and Biochemistry	Veterinary physiology and Biochemistry
10	Plant Pathology	Plant Pathology	Livestock Products Technology	Livestock Products Technology
11	Statistics	Biotechnology	Animal Husbandry Extension	Animal Husbandry Extension
12	Biotechnology		Veterinary Pharmacology & Toxicology	-
13	Bio Chemistry	-	Animal Genetics & Breeding	-
14	Forestry	-	Veterinary Microbiology	-
15	Sericulture	-	Live stock Production and Management	-
16	Floriculture	-		-
17.	Microbiology -	-		-

2.3 Faculty Spectrum

The classified information pertaining to the faculty strength cadre wise are given in the table as evident there are 344 faculty positions as sanctioned strength for both the faculties viz Faculty of Agriculture and Faculty of Veterinary Sciences & Animal Husbandry.

Posts	Sanctioned
Dean	2
Associate Dean	2
Professor / Equivalent	31
Associate Professor / Equivalent	71
Asstt. Professor/ Equivalent	124
Total	230

2.4 Student Strengths

The strength of the students admitted to B.Sc (Hons) Agriculture, B.Sc (Biotechnology) and BVSc & AH programme during the academic session 2014-15 were 67, 28 and 85 respectively. The number of students admitted to M.Sc (Ag.) and Ph.D (Ag.) programme were 47 and 27 respectively in different divisions. In Veterinary faculty 48 MVSc and 24 Ph.D students were admitted during the academic session of 2014-15. In M.Sc Biotechnology and Ph.D Biotechnology programme 4 and 5 students were admitted. In Masters degree programme of Agribusiness Management and Genomics and Molecular Biology/ Microbiology 10 and 04 No. students were admitted respectively. The total strength of the students on roll in Post Graduate and undergraduate Degree programme were 380 and 584 respectively. The distribution of the students' strength, intake capacity admitted year-wise and programme wise along with the number of students on roll are given in the following table:

2.5 Under Graduate Programme

S.No.	Name of faculty	Degree Programme	Students strength										Total	
			I year 2014		II year 2013		III year 2012		IV year 2011		V year 2010			
			M	F	M	F	M	F	M	F	M	F	M	F
1	Agriculture	B.Sc. (Hons.) Agriculture	38	29	28	34	19	23	20	17	-	-	105	103
		B.Sc. (Hons.) Biotechnology	08	20	02	24	-	19	-	19	-	-	10	82
2	Veterinary Sciences & Animal Husbandry	B.V.Sc. & A.H.	53	32	34	27	19	28	30	16	22	23	158	126

2.6 Post Graduate Programme

S.No.	Name of Faculty	Master's Programme				Sub Total		Ph.D. Programme						Sub Total		Total	
		I Year		II Year		I Year		II Year		III Year							
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1	Agriculture	36	11	38	19	74	30	12	15	15	19	13	05	40	39	114	69
2	Veterinary Sciences & Animal Husbandry																
3	School of Biotechnology	31	17	28	13	59	30	13	11	06	10	06	02	25	23	84	53
4	School of Agri. Business Management	-	04	-	06	-	10	01	04	01	08	-	05	02	17	02	27
5	School of Genomics and Molecular Biology/ Microbiology	06	04	08	03	14	07	-	-	-	-	-	-	-	-	14	07

2.7 Faculty wise Admission (2012-13)

S.No.	Divisions	Master's Degree	Doctoral Degree
	Agriculture		
1	Agronomy	08	04
2	Entomology	07	03
3	Agril. Extension Education	03	01
4	Agricultural Economics	02	01
5	Vegetable Science	03	01
6	Forestry	01	–
7	PHT/Food Science & Technology	05	03
8	Fruit Science	03	03
9	Soil Science & Agricultural Chemistry	03	02
10	Biochemistry and Plant Physiology	--	02
11	Genetics and Plant Breeding	04	02
12	Plant Pathology	08	03
13	Floriculture & Landscape Architecture	–	–
14	Sericulture	01	01
15	Statistics	--	02
	Total	48	28
	Veterinary Sciences & Animal Husbandry		
1	Animal Nutrition	05	01
2	Veterinary Public Health & Epidemiology	03	02
3	Veterinary Pharmacology & Toxicology	03	01
4	Veterinary Medicine	06	01
5	Veterinary Pathology	02	01
6	Animal Genetics & Breeding	04	01
7	Veterinary Gynaecology and Obstetrics	03	02
8	Veterinary Surgery & Radiology	06	01
9	Veterinary Parasitology	03	01
10	Veterinary Microbiology	01	02
11	Veterinary Anatomy	--	01
12	Veterinary physiology and Biochemistry	01	03
13	Live stock Production and Management	01	02
14	Livestock Products Technology	03	02
15	Animal Husbandry Extension	03	02
	Total	**44**	**23**
	Schools		
1	Biotechnology	06	05
2	Agri. Business Management	04	–
3	Genomics and Molecular Biology/ Microbiology	10	
	Total	20	05

2.8 Number of Students who completed degree programmes (2014-15)

	S.No.	Degree Male	No. of Students Female
	Post Graduate		
1	Ph.D. (Agriculture & Allied Sciences)	03	03
2	Ph.D. (Veterinary)	06	01
3	M.Sc. (Agriculture)	19	29
4	M.V.Sc.	25	16
5	M.Sc (Biotechnology)	01	04
	Under Graduate		
1	B.Sc. (Agriculture)	12	07
2	B.Sc (Hons) Biotech	--	09
3	B.V.Sc. & A.H.	30	22
	Total	96	91

2.9 Thesis accepted (01-04-2014 to 31-03-2015):

M.Sc Agriculture

S.No.	Name of the Student	Regd. No.	Discipline	Name of Major Advisor	Title of the Thesis	Degree
1	Monika Banotra	J-12-M-279	Agronomy	Dr.B.C.Sharma	Performance of sweet corn (*Zea mays* L. var. *Saccharata*) cultivars as influenced by planting time under irrigated sub-tropics of Shiwalik foothills.	M.Sc. (Ag)
2	Parveen Akhtar	J-12-M-280	Agronomy	Dr. Anil Kumar	Bio-efficacy of early post and post emergent application of tembotrione in spring maize (*Zea mays* L.) under irrigated sub-tropical Shiwalik foothill conditions of J&K.	M.Sc. (Ag)
3	Ashu Sharma	J-12-M-278	Agronomy	Dr. Dileep Kachroo	Effect of plant rectangularity, varieties and fertility levels on the growth, yield and quality of spring maize (*Zea mays* L.)	M.Sc. (Ag)
4	Thanlass Norboo	J-12-M-294	Entomology	Dr. Hafeez Ahmed	Insect-pest complex of rose and their management	M.Sc. (Ag)
5	Amit Mondal	J-11-M-247	Entomology	Dr. Uma Shankar	Evaluation of pest management strategies for safety of beneficial insects in vegetable French bean (*Phaseolus vulgaris* L.)	M.Sc. (Ag)
6	Divya Chand	J-12-M-292	Entomology	Dr. Devinder Sharma	Studies on the performance of *Apis melifera* L. under Jammu condition	M.Sc. (Ag)
7	Gourav Bhagat	J-12-M-293	Entomology	Dr. Uma Shankar	Seasonal incidence and management of major insect pests of garden pea, *Pisum sativum* L.	M.Sc. (Ag)
8	Sampat	J-11-M-232	Vegetable Science	Dr. Sandeep Chopra	Influence of herbicidal weed management on growth and productivity of garlic (*Allium sativum* L.)	M.Sc. (Ag)
9	Shipli Khar	J-11-M-231	Vegetable Science	Dr. Satesh Kumar	Genetic Variability Studies and Character Association in Garlic (*Allium sativum* L.)	M.Sc. (Ag)
10	Kanu Sarkar	J-12-M-289	Vegetable Science	Dr. R.K.Gupta	Growth and Multiplication Studies on Tissue Culture Derived Potato Seed Tubers Under Varied Potassium Levels	M.Sc. (Ag)
11	Sharafat Hussain	J-12-M-290	Vegetable Science	Dr. R.K. Samnotra	Effect of climate resilient technologies on the growth yield and quality of tomato (*Solanum lycopersicum* L.)	M.Sc. (Ag)
12	Kausar Fatima	J-12-M-283	Plant Pathology	Dr. Vishal Gupta	Characterization of fluorescent pseudomonads for biocontrol of sheath blight of rice (*Rhizictonia solani*).	M.Sc. (Ag)
13	Seethiya Mahajan	J-12-M-286	Plant Pathology	Dr. Vishal Gupta	Characterization of wheat germplasm for slow rusting and management of stripe rust caused by *Puccinia striiformis*.	M.Sc. (Ag)
14	Om Prakash	J-12-M-285	Plant Pathology	Dr. Sachin Gupta	Studies on cultivation and biochemical analysis of *Pleurotus spp*.	M.Sc. (Ag)
15	Manpreet Kour	J-11-M-226	Plant Pathology	Dr. Sachin Gupta	Evaluation of agrowastes for cultivation and nutritional quality of *Pleurotus eous*.	M.Sc. (Ag)
16	Stanzin Dorjay	J-11-M-228	Plant Pathology	Dr. V. K. Razdan	Studies on plant growth promoting traits of *Pseudomonas fluorescens* and its role as biocontrol agent against soil borne diseases of tomato	M.Sc. (Ag)
17	Anamika Manhas	J-12-M-282	Plant Pathology	Dr. Deepak Kumar	Integrated management of Sclerotinia Stem rot of chickpea (*Cicer arietinum*)	M.Sc. (Ag)
18	Kiran Bala	J-12-M-284	Plant Pathology	Dr. Ranbir Singh	Studies on Potato leaf roll virus disease in Jammu Sub-tropics	M.Sc. (Ag)
19	Morup Dolma	J-10-M-207	Agril. Economics	Dr. Sudhakar Dwivedi	Economics of Production and Marketing of Broiler in and around Jammu City	M.Sc. (Ag)
20	Shyam Sunder	J-11-M-234	Agril. Economics	Dr. Sudhakar Dwivedi	A Study of Progress and Performance of Kissan Credit Card Scheme in Jammu Region of J&K State.	M.Sc. (Ag)
21	Diraj Gangal	J-11-M-246	Agril. Economics	Dr. Jyoti Kachroo	Resource Efficiency and Investment Appraisal of Small Ruminants in Rajouri District of J&K State	M.Sc. (Ag)
22	Zakiya Banoo	J-09-M-185	Soil Science & Agril. Chemistry	Dr. Renu Gupta	Enzyme and nutrient activity in rhizosphere and bulk soil of *Withania somnifera* (L.) Dunal	M.Sc. (Ag)

23	Tajamul Islam shah	J-11-M-249	Soil Science & Agril. Chemistry	Dr.A.P.Rai	Phosphorus fractions in Mothbean [*Vigna aconitifolia* (Jacq.) Marechel] growing soils of district Poonch	M.Sc. (Ag)
24	Dhanish Zari	J-12-M-257	Soil Science & Agril. Chemistry	Dr. Vevek M. Arya	Effect of long term application of organic and inorganic fertilizers on soil properties and yield of maize under rainfed condition	M.Sc. (Ag)
25	Jyoti Devi	J-11-M-250	Fruit Science	Dr. Parshant Bakshi	Propagation of phalsa (*Grewia asiatica* L.) by semi hardwood cuttings	M.Sc. (Ag)
26	Darpreet Kour	J-12-M-265	Fruit Science	Dr. Arti Sharma	Effect of irrigation and calcium sprays on yield, quality and shelf life of litchi (*Litchi chinesnis* Sonn.)	M.Sc. (Ag)
27	Simrandeep Kour	J-12-M-267	Fruit Science	Dr. Rajesh Kumar	Post harvest chemical manipulation in strawberry (*Fragaria x ananassa* Duch.) regeneration under Jammu subtropics	M.Sc. (Ag)
28	Mudasir Iqbal	J-12-M-266	Fruit Science	Dr. V.K.Wali	Effect of mulching materials on tree growth, yield and fruit quality of aonla (*Emblica officinalis* Gaertn.) cv. NA-7 under rainfed conditions of Jammu	M.Sc. (Ag)
29	Arti Devi	J-12-M-264	Fruit Science	Dr. Nirmal Sharma	Effect of plant bioregulators on yield, quality and shelf life of Kinnow mandarin (*Citrus reticulate* Blanco.)	M.Sc. (Ag)
30	Shilpy Kumari	J-12-M-268	Fruit Science	Dr. Deep Ji Bhat	Studies on growth , yield and quality of different cultivars of ber (*Zizyphus mauritiana* Lamk.) under rainfed conditions of Jammu	M.Sc. (Ag)
31	Paramjot Kour Rai	J-11-M-220	Food Science & Technology	Dr. Monika Sood	Product development from pearl millet (*Pennisetum glaucum*) blended composite flours	M.Sc. (Ag)
32	Naseer Ahmed	J-12-M-274	Food Science & Technology	Dr. Jagmohan Singh	Effect of various drying methods on nutritional quality of peach cultivars during storage.	M.Sc. (Ag)
33	Ifrah Khursheed	J-12-M-273	Food Science & Technology	Dr. Julie D. Bandral	Development and evaluation of high fibre meat balls from chicken	M.Sc. (Ag)
34	Neelu Slathia	J-12-M-275	Food Science & Technology	Dr. Julie D. Bandral	Effect of supplementation of mungbean on quality attributes of composite flours.	M.Sc. (Ag)
35	Ritika Sharma	J-12-M-276	Food Science & Technology	Dr. Monika Sood	Development and evaluation of omega-3 fatty acids rich functional food.	M.Sc. (Ag)
36	Avinash Panigrahi	J-12-M-287	Agril. Ext. Edu.	Dr. R.K.Nanda	A study on the adoption of plant protection measures in rice crop by the farmers in Jammu district of the Jammu & Kashmir State	M.Sc. (Ag)
37	Fatima Bano	J-12-M-288	Agril. Ext. Edu.	Dr. Rajinder Peshin	Adoption of the recommended technological innovations by the mango orchardists in Jammu and Samba districts of the Jammu and Kashmir State	M.Sc. (Ag)
38	Rupali Bhandari	J-11-M-221	Sericulture	Dr.R.K.Bali	Evaluation of locally evolved bivoltine Silkworm (*Bombyx mori* L.) under sub-tropical condition	M.Sc Sericulture
39	Asya Razaq	J-12-M-261	Sericulture	Sh. Darshan Singh	Effect of mulberry varieties on commercial characters of bivoltine silkworm	M.Sc Sericulture
40	Pooja Kala	J-12-M-263	Sericulture	Dr. R. K. Bali	Morphological and molecular studies of mulberry varieties (*Morus Sp.*) using markers	M.Sc Sericulture
41	Mohd. Arif Khan	J-12-M-262	Sericulture	Dr. R. K. Bali	Heterosis studies on indigenous bivoltine silkworm hybrids.	M.Sc Sericulture
42	Aamir Raza	J-11-M-222	Forestry	Dr.N.S.Raina	Effect of Growth Regulators on *Litsea chinensis* Lam. Cuttings	M.Sc Forestry
43	Anil Kumar Bhagat	J-11-M-240	Forestry	Dr. L.M.Gupta	Effect of Fertilizers and Irrigation on Growth and Yield of Stevia (*Stevia rebaudiana* Bertoni)	M.Sc Forestry
44	Stanzin Landol	J-12-M-277	Forestry	Dr. Sandeep Sehgal	Performance of Kalmegh (*Andrographis paniculata* Nees) under Aonla (*Emblica officinalis* Gaertn.) based agri-horticultural system in Drylands.	M.Sc Forestry

45	Priya Kumari	J-11-M-237	Biochemistry	Dr.S.A.Mallick	Biochemical studies on the effect of drought stress and Alternaria blight infection on mustard genotypes	M.Sc Biochemistry
46	Anshu Wali	J-12-M-251	Biochemistry	Dr. Moni Gupta	Studies on antioxidants and DNA protective properties of bael (*Aegle marmelos* L.)	M.Sc Biochemistry
47	Tabassum Choudhary	J-12-M-255	Biochemistry	Dr.S.A.Mallick	Biochemical Assessment of High Temperature Responses in IGrain Formation and Nutritional Quality of Wheat Cultivars (*Triticum aestivum*)	M.Sc Biochemistry
48	Arvind Badyal	J-12-M-252	Biochemistry	Dr. Vikas Sharma	Evaluation of *in-vitro* cytotoxic effect of some medicinal plants on human cancer cells	M.Sc Biochemistry

M.Sc. Biotechnology

S.No.	Name of the Student	Regd. No.	Discipline	Name of Major Advisor	Title of the Thesis	Degree
1	Arjun Sharma	J-12-MB-07	Biotechnology	Dr. S.M. Zargar	Molecular Assessment of Genetic Variation in common bean (*Phaseolus vulgaris* L.) using RAPD Markers	M.Sc Biotechnology
2	Ayushi Bhakhri	J-12-MB-08	Biotechnology	Dr. S.M. Zargar	Molecular Assessment of Genetic Variation in common bean (*Phaseolus vulgaris* L.) using SSR Markers	M.Sc Biotechnology
3	Deeksha Arora	J-12-MB-09	Biotechnology	Dr.G.K.Rai	Protein expression analysis in Wheat (*Triticum aestivum* L.) under drought stress condition	M.Sc Biotechnology
4	Sapna Sharma	J-12-MB-11	Biotechnology	Dr. A.K.Singh	Characterization of Basmati rice (*Oryza sativa* L.) germplasm using morphological and molecular markers	M.Sc Biotechnology
5	Neha Reshi	J-12-MB-10	Biotechnology	Dr. Ravinder Singh	Development of SSR markers for *Brassica juncea* using the genome sequence of *Brassica ra a.*	M.Sc Biotechnology

M.V.Sc.

S.No.	Name of the Student	Regd. No.	Discipline	Name of Major Advisor	Title of the Thesis	Degree
1.	Mohd. Shuhab	J-10-MV-201	Vety. Epidemiology & Preventive Medicine	Dr. M.A. Malik	Studies on sub-clinical mastitis in buffaloes	MVSc.
2.	Idrees Arafath	J-11-MV-238	VSR	Dr. A.K. Gupta	Clinical studies on ocular affections in animals.	MVSc.
3.	Amar Deep Singh Sodi	J-10-MV-217	VSR	Dr. A.K. Gupta	Evaluation of xylazine and acepromazine as premedicants to Ketamine anesthesia in dogs unsufflated with CO_2 during laparoscopic vasectomy	MVSc.
4.	Kamil Malik	J-12-MV-289	VSR	Dr. R.B. Kushwaha	Clinical, radiographical and haemato-biochemical studies on long bone deformities in growing dogs.	MVSc.
5.	Neha Sharma	J-12-MV-290	VSR	Dr. Ajay Gupta	Clinical Studies on Canine Tumours	MVSc.
6.	Asma Hamid	J-09-MV-155	Vety. Pathology	Dr. Shagufta Azmi	A study on the spontaneously occurring neoplasms amongst canines in Jammu	MVSc.
7.	Heena Wani	J-12-MV-314	Vety Pathology	Dr. Shafiqur Rahman	Toxico-Pathological studies on experimentally induced Chlorpyrifos toxicity in Broilers	MVSc.
8.	Sahil Dutta	J-12-MV-315	Vety. Pathology	Dr. Shafiqur Rahman	Hematobiochemical and Patho-morphological changes in kidney diseases of sheep and goat in Jammu	MVSc.
9.	Raman Sharma	J-09-MV-131	VCM	Dr. Kafil Hussain	Amelioration of canine allergic dermatitis through nutraceuticals	MVSc.
10.	Atul Anand	J-12-MV-318	VCM	Dr. Abha Tikoo	Studies on Enterotoxemia in Small Ruminants	MVSc.
11.	Rajnikanta Sharma	J-12-MV-317	Vety. Microbiology	Dr. Anil. K. Taku	Molecular and Morphological Characterization of *E.coli* virulence factors by PCR and Electron Microscopy	MVSc.
12.	Rabyia Javed	J-12-MV-316	Vety. Microbiology	Dr. Anil. K. Taku	Molecular detection and virulence characterization of streptococci in equines	MVSc.

13.	Mohsin Ahmad Mir	J-12-MV-308	Animal Nutrition	Dr. R.K. Sharma	Effect of Dietary Incorporation of Walnut cake (*Juglans regia*) on the performance of goats	MVSc.
14.	Vikas Dhupia	J-10-MV-205	Animal Nutrition	Dr. Ankur Rastogi	Assessment of feeding regimen of dairy cattle of R.S.Pura region	MVSc.
15.	Sonu Chaudhary	J-12-MV-309	Animal Nutrition	Dr. Ankur Rastogi	Utilization of Kinnow mandarin (*Citrus Nobilis* Lour x *Citrus Deliciosa* Tenora) Waste as a Component of Paddy Straw based Complete Feed Blocks in Goats.	MVSc.
16.	Navjot Singh Resum	J-12-MV-283	VGO	Dr. Utsav Sharma	Induction of oestrus in post-partum anoestrus buffaloes using intra-vaginal progesterone implant with and without antioxidants	MVSc.
17.	Neeta Rawat	J-12-MV-284	VGO	Dr. Nishi Pande	Reproductive and productive performance of monensin suppleme4nted high yielding crossbred dairy cows	MVSc.
18.	Maleeha Anis Wani	J-12-MV-282	VGO	Dr. Waquar A.A. Razzaque	Effect of CIDR and Vitamin-E-Selenium in treatment of postpartum anestrus buffaloes	MVSc.
19.	Simranjeet Kaur	J-12-MV-303	LPT	Dr. Sunil Kumar	Effect of Pomegranate seed, Grape seed and Tomato on the quality attributes of Chicken Nuggets	MVSc.
20.	Asif Ahmad Bhat	J-12-MV-299	LPT	Dr. Arvind Kumar	Quality attributes of walnut (*Juglans regia*) and almond (*Prunus dulcis*) enriched chevon nuggets	MVSc.
21.	Sourab Dua	J-12-MV-302	LPT	Dr. Zuhaib F Bhat	Studies on the Quality Attributes of Tabaq-Maz	MVSc.
22.	Achir	J-12-MV-298	LPT	Dr. Sunil Kumar	Quality Attributes of Chicken Patties Incorporated with Green Tea, Fig and Red Pepper	MVSc.
23.	Deepak Mahajan	J-12-MV-300	LPT	Dr. Z.F. Bhat	Studies on storage quality of low fat Kalari	MVSc.
24.	Lokesh Kumar	J-12-MV-301	LPT	Dr. Z.F. Bhat	Studies on storage quality of fibre enriched Chicken Harrisa	MVSc.
25.	Mohd. Younas Beig	J-12-MV-287	Vety & Animal Husbandry Ext. Edu.	Dr.S.A.Khandi	Constraint Analysis of Mixed Dairy Farming in Jammu District	MVSc.
26.	Rizwan Jeelani	J-12-MV-288	Vety & Animal Husbandry Ext. Edu.	Dr.S.A.Khandi	Adoption of Improved Animal Husbandry Practices by Gujjars in Jammu District of Jammu and Kashmir	MVSc.
27.	Avinash Neeraj	J-12-MV-285	Vety & Animal Husbandry Ext. Edu.	Dr. Pranav Kumar	An Appraisal of Livestock Extension Delivery System of Animal Husbandry Department of Jammu District of Jammu & Kashmir State	MVSc.
28.	Kawaljeet Kour	J-12-MV-286	Vety & Animal Husbandry Ext. Edu.	Dr. Pranav Kumar	Performance appraisal of Jammu & Kashmir Milk Producer's Cooperative Limited in rural livelihood promotion.	MVSc.
29.	Iqra Khursheed	J-11-MV-254	LPM	Dr. Sahar Masud	Study of some pathogenic bacteria prevailing in cattle cum fish integrated ponds in R.S.Pura of Jammu Region	MVSc.
30.	Sajad Ahmad Yatoo	J-12-MV-312	AGB	Dr. R. K. Taggar	Molecular characterization of FeeB gene in Dorper sheep	MVSc.
31.	Rabab Saleem	J-12-MV-306	Vety. Anatomy	Dr. Shalini Suri	Anatomical studies on the internal female genitalia of adult Bakerwali goat in different phases of estrus cycle	MVSc.
32.	Gagandeep Kour	J-12-MV-304	Vety. Anatomy	Dr. Shalini Suri	Anatomical studies on the adrenal gland of adult Bakerwali goat.	MVSc.
33.	Tanvi Mahajan	J-12-MV-307	Vety. Anatomy	Dr. Kamal Sarma	Anatomical studies on prenatal development of the kidney in goat (*Capra hircus*)	MVSc.
34.	Sanjolly Gupta	J-12-MV-311	VPH & Epidemiology	Dr. S.K. Kotwal	Epidemiological and Bacteriological Studies on Goat and Cattle Mastitis in Organized Farms	MVSc.
35.	Hummera Elahi	J-12-MV-310	VPH & Epidemiology	Dr. Maninder Singh	Exploratory studies on Methicillin Resistant Staphylococcus aureus in animals, foods of animal origin and humans	MVSc.

36.	Irfan Ali Shah	J-12-MV-305	VPH & Epidemiology	Dr. H.K. Sharma	Studies on public health significance of echinococcosis in Jammu	MVSc.
37.	Aajy Deep Singh	J-11-MV-274	Vety Physiology	Dr. Kawardeep Kour	Comparative Study of Seasonal Influence on Various Physiological and Milk Composition Parameters in Dairy Cattle and Buffalo	MVSc.
38.	Alveena Ganai	J-12-MV-293	Vety Parasitology	Dr. Anish Yadav	Molecular characterization and Chemotherapeutic management of bovine cryptosporidiosis	MVSc.
39.	Shiasta Parveen	J-12-MV-296	Vety. Parasitology	Dr. Rakesh Katoch	Efficacy of some herbal acaricides against Jammu isolates of *Rhipicephalus* (*Boophilus*) *microplus*	MVSc.
40.	Ashok Kumar Anand	J-10-MV-188	Vety. Biochemistry	Dr. Pratiksha Raghuwanshi	Study on antidiabetic and antioxidative effects of buffalo urine in Streptozotocin induced diabetes in Wistar rats.	MVSc.

Ph.D (Agri/Vety)

S.No.	Name of the Student	Regd. No.	Discipline	Name of Major Advisor	Title of the Thesis	Degree
1	Irshad Ahmad Mir	J-09-D-117-A	Entomology	Dr. Hafeez Ahmad	Seasonal abundance and management of wheat aphid (*Sitobion avenae* Fab.)	Ph.D (Ag)
2	Parveiz Ahmad Wani	J-08-D-106-A	GPB	Dr. Bikram Singh	Introgression of effective leaf rust resistance genes in adapted susceptible wheat (*Triticum aestivum* L.) genotype and their validation through molecular markers.	Ph.D (Ag)
3	Vijay Kumar	J-07-D-93-A	Vegetable Science	Dr. Sandeep Chopra	Effect of Integrated Nutrient Management on the Growth, Yield and Quality Attributes of Tomato Cultivars DVRT-2	Ph.D (Ag)
4	Anisa Anjum Malik	J-10-D-123-A	Food Science & Technology	Dr. Raj Kumari Kaul	Development and evaluation of complementary foods based on corn and peanut	Ph.D (Ag)
5	Harleen Kour	J-10-D-124-A	Food Science & Technology	Dr. Raj Kumari Kaul	Development and evaluation of protein enriched cereal and legume based health products	Ph.D (Ag)
6	Muneer Ahmad Dar	J-10-D-31-V	VPT	Dr. Mudasir Sultana	Single and Interactive Toxic Potential of Glyphosate and Ammonium Nitrate in Wistar Rats and its Attenuation with Alpha Lipoic Acid	Ph.D (Vety)
7	Pawan Kumar Verma	J-11-D-37-V	VPT	Prof. Rajinder Raina	Bioprospection of Alstonia scholaris & Calendula officinalis forf Antioxidant, Antidiabetic, Hepato & Nephro Protective Effects.	Ph.D (Vety)
8	Ashok Kumar	J-08-D-17-V	VSR	Dr. H.R. Bhardwaj	Clinical approach to management of intestinal obstruction in cattle with special reference to enteric bacterial biomass alterations	Ph.D (Vety)
9	Parul Gupta	J-10-D-32-V	AGB	Dr. R.K. Taggar	Molecular characterization of *Ovar* DRB1 gene & Expression profile of cytokines following challenge with *Haemonchus contortus* in Rambouillet crossbred sheep	Ph.D (Vety)
10	Rameez Ali Dar	J-10-D-29-V	ARGO	Dr. Waquar A.A. Razzaque	Studies on follicular oocyte recovery and freezing techniques in goat (*Capra hircus*)	Ph.D (Vety)
11	Shafayat Ahmad Beigh	J-10-D-26-V	VCM	Dr. Rajiv Singh	Studies on Metabolic Profile and Oxidative Stress in Cross Bred Dairy Cattle	Ph.D (Vety)
12	Javid Farooq	J-09-D-23-V	ANN	Dr. R.K. Sharma	Utilization of maize cobs as replacer of wheat straw in the ration of goats.	Ph.D (Vety)

2.10 Students Welfare

Facilities available for sports/cultural activities

- **Outdoor Game Facilities**: Facilities for outdoor games like basket ball, lawn tennis and volley ball have also been created at Chatha Campus with construction of respective courts for the games.

- **Sports Complex**: New Sports Complex building, Chatha Campus was opened for use of the students on 16th October 2014 in which facilities to play various games like Badminton, Chess, Carom board, Table Tennis are available. The students of the University are being given daily practice about the games of their interest and regular classes for orientation of rules and regulations of sports events are held in the sports complex.

- **Gymnasium**: For the physical fitness of the students/faculty members and staff of the University a well equipped Gymnasium has been made functional under the technical supervision of the trained physical instructor.

- **Girls Hostel:** Urja Girls Hostel was started on 31st August, 2014 at Chatha Campus with initial entry of UG boarders. The hostel has 15 single seater rooms and 19 rooms for twin sharing. The hostel is equipped with latest infrastructure and quality dining space, mini gymnasium and laundry facility.

- Orientation programme for the new entrants of academic session 2014-15 held on 5th to 7th August, 2014 at chatha and R.S.Pura Campus. Students oriented to academic system of the University, facilities available under students' welfare and anti ragging rules of the University.

- Basket Ball Court has been made functional at R.S.Pura Campus.

Activities coordinated under National Service Scheme of the University

- Tree Talk and field exposure trip was organized in collaboration with Dr. O.P. Sharma, Chief Conservator, Deptt. Of Forest, J&K Govt.

- Introductory session on NSS for new entrants taken by Dr. S.B. Bakshi, Dy. Director Students Welfare and Programme Co-ordinator, NSS, SKUAST-J.

- A lecture on Art of living was delivered by representative of the NGO.

- A debate on 'Food Security' was organized by NSS unit of Faculty of Agriculture.

- Regional Transport Officer, Jammu and team presented a lecture on road safety and discussed the road safety measures to make J&K road safe.

- On Sadhbhavna Divas, pledge by NSS volunteer was taken for maintenance of communal harmony.

- Six drives for campus cleanliness were organized by the NSS volunteers at Chatha and R.S.Pura campus of the University.

- An awareness lecture on Swine flu for students was delivered by Dr. Anil Gupta, Medical Officer, SKUAST-J at Chatha and R.S.Pura Campus.

- Under Red Ribbon Club of Faculty of Agriculture an awareness programme on HIV/AIDS was organized on 8th December 2014 with theme "Getting to zero-zero new Infections, zero, Discrimination and zero AIDS related Deaths. The programme was attended by 200 volunteers. Dr. S.B. Bakshi, Programme Co-ordinator , NSS, Dr. Vishal Gupta, Prog. Officer, NSS and Dr. Sachin Gupta, Associate Professor dwelt in detail about different aspects of HIV/ AIDS and measures to combat the disease. Four students Mr. Vikas Kumar, Mr. Ali Haider Shah, Ms Renu and Ms. Wajahat presented their views on HIV/AIDS.

- A rally was also organized within SKUAST-J campus by the students of Faculty of Agriculture.

- NSS volunteers collected clothes and distributed them for inmates of the orphanage.

- An amount of Rs. 3520/- (Rupees three thousand five hundred and twenty only) was collected by NSS volunteers of the University for the Blind School.

2.11 Participation in Inter-University competitions:

- A team of students from Faculty of Vety. Sciences, Faculty of Agriculture and school of Biotechnology represented SKUAST-J in the 15th All India Inter Agriculture Universities Youth Festival (AGRI-UNIFEST-2015) organized at NDRI, Karnal Haryana w.e.f. 18th to 21st March 2015. The students excelled in individual and team events.

- On 24th to 26th March 2015 Intra-faculty Sports Meet of Faculty of Agriculture, Chatha was held. In this meet the students of agriculture faculty competed in different games like badminton, football, cricket, volley ball etc.

2.12 Students' Placement and Counseling Cell

Facilitates the university students by providing information to them about various scholarships and avenues of employment. The center is running in the Students Centre, Chatha campus. The students completing the course of B.Sc. (Agriculture), B.V. Sc. & A.H. are advised on seeking jobs in private, government, Army, paramilitary and non-governmental organizations. Information bulletins from prestigious universities of U.K., U.S.A. and Europe are procured, displayed and provided to the interested students. For Employment, the advertisements appearing in newspapers or received directly from the employers are displayed on notice

boards of the Faculty concerned and/or communicated directly to the eligible candidates.

2.13 Hostels and hostel facilities

Separate hostel accommodation for boys and girls are available at the RS Pura campus and one hostel is under construction at the main campus, Chatha. The girl boarders are housed in newly constructed Girls Hostel with additional accommodation comprising of four flats to facilitate the girl boarders. Male boarders are housed in two hostels namely Boys Hostel and Students Hostel. The boys hostel has 44 rooms for housing 138 students at a time with adequate furniture and fixture facility. The students hostel has a capacity to accommodate 143 boarders; 29 rooms are single seater, 49 rooms are double seater and have 16 single room suites for foreign students with facility of kitchenette and attached rest rooms. Spacious and well furnished dining hall, common room, lawn, courtyard, CTV with cable/dish connection etc., have also been provided in the hostels. Facilities for indoor games like table tennis, chess, ludo, and carom boards, also have been made available.

2.14 Health Care Facilities

The Annual Work done Statement of the Health Center is detailed below:

S.No.	Type of Case	No.
1	Total OPD	3066
2	Students Treated	1516
3	Staff Treated	1550
4	Hostlers	1010
5	Non-Hostellers	506
6	Medical Cases	2640
7	Surgical Cases	426
8	Male Patients	2172
9	Female Patients	894
10	Patient Referred	36
11	Emergencies Handled	179
12	Indoors	61
13	Lab Tests	148
14	Physiotherapy	365 Sessions
15	Dental OPD	281 sittings

2.15 Scholarship

The under graduate and postgraduate students are being awarded various scholarship. The value of merit scholarship awarded per month was Rs.500/-, Rs.800/- and Rs.1200/- to B.Sc.(Ag) / B.V.Sc., M.Sc.(Ag)/M.V.Sc. and Ph.D. students, respectively where as the amount of national talent search (NTS) scholarship awarded was Rs.1000/- per month.

2.16 RAWE PROGRAMME

The last Rural Agriculture Work Experience (RAWE) programme was offered in the first semester of 2014-15 to the final year students of B.Sc Agriculture, batch 2011 and concluded successfully. This programme provided the students the practical experience so that the graduates can respond to the real life situation in their profession. The activities undertaken under RAWE programme were: Techno-economic survey (2weeks), Soil and water sample collection and analysis (2 weeks), Plant clinic (3 weeks), Attachment to agro-industry (2 weeks) and rural experience in terms of Attachment (9 weeks) with farmers in village Jinder Melu of block R.S. Pura, Jammu. There were 20 students registered for RAWE 2014-15. The students were paid a stipend of Rs. 1500 each per month for 6 months amounting to Rs. 1,80,000.

Students performing practical at Rural Agriculture Work Experience (RAWE)

2.17 Internship Programme

Students of B.V.Sc & A.H were exposed to internship programme for a period of 6 months in the 10th Semester. An amount of Rs 1800/- per student per month is paid as internship allowance except in-service nominee from J&K Government. During 2014,-15, 52 students have successfully completed their internship programme in B.V.Sc & AH. The expenditure involved for one student for six months is Rs. 10,800/- and total expendutre was Rs. 5,61,600/-

Group photograph (B.V. Sc. & A.H internes)

2.18 LIBRARY

Usge

Campus	Books Borrowed (Issued / Returned)		Literature referred in the Library Books/Journals/Back Volumes/Current Issues	
	Per day	Total	Per day	Total
Central Library, Chatha	23	5001	108	24670
University Library, R.S.Pura	23	5124	46	10500
Total	**46**	**10125**	**154**	**35170**

Books Collection

Library	Books
Central Library, Chatha	24725*
University Library, R. S.Pura	6964*
Total	**31689***

**Includes Gratis Books, Book Bank Books etc.*

Online Databases/e-Journals/e-books Collection

NEW ADDITIONS

Campus	Books	Journals	Thesis	Reports	News Letter	Gratis Books	ST
Central Library, Chatha	1707	12	119	60	116	188	
University Library, R.S.Pura	563	7	38	-	-	-	
Total	**2270**	**19**	**157**	**60**	**116**	**188**	

JOURNAL SUBSCRIPTION (PRINT)

Campus	Journals		Total
	Indian	Foreign	
Central Library, Chatha	13	-	13
University Library, R.S.Pura	7	-	7
Total	**20**	**-**	**20**

BOOK BANK SERVICES

Campus	No of Books Available		No of Books Issued		Special Issue for JRF Aspirants	
	General	SC/ST	General	SC/ST		
Central Library, Chatha	677	-	-	-	-	

REPROGRAPHIC SERVICES

Campus	No of exposures taken		
	Official purpose	On payment	Total
Central Library, Chatha	518	47937	48455
University Library, R.S. Pura	1495	8228	9723
Total	**2013**	**56165**	**57178**

RECEIPTS

Campus	Overdue charges	Collection from lost tickets	Cost recovered from lost books	Text book bank	Reprographic Service	Internet	Total
Central Library, Chatha	12595.00	520.00	-	-	53835.00	Free Access	66950.00
University Library, R.S. Pura	12303.00	-	-	-	8228.00	Free Access	20531.00
Total	**24898.00**	**520.00**	**-**	**-**	**62063.00**		**87481.00**

OTHER SERVICS PROVIDED

Campus	News Clippings	Internet	Journal Online	e-book	CD ROM Services Services)	Miscellaneous (Documentation
Central Library, Chatha	Yes	Yes	Yes	Yes	Yes	Yes
University Library, R.S. Pura	–	Yes	Yes	Yes	Yes	Yes

ONLINE LIBRARY

Training provided to Library Users:

S.No.	Title	Participants	Venue
1	Orientation programme pertaining to the use of CeRA for the post graduate students (PGS-501)	180	Central Library, Chatha
2	User education programme regarding how to use Library resources	118	Central Library, Chatha

Library Membership

Type of Members	Central Library, Chatha	University Library, R.S.Pura
Faculty & Staff	214	64
Ph.D	131	30
PG	145	88
UG	235	300
Total	**725**	**482**

Subscription to Newspapers & Magazines

Campus	Newspapers	Magazines
Central Library, Chatha	12	11
University Library, R.S.Pura	5	11
Total	**17**	**22**

3. RESEARCH

Jammu region is blessed with varying agro-climatic conditions ranging from sub-tropical areas of Doda, Poonch, Rajouri, Udhampur, Kathua and mid hill-zone around Chenab River, kandi areas of Rajouri, Udhampur, Kathua and Jammu. The Research is being carried out by the scientists at the Faculty of Agriculture, Faculty of Veterinary Sciences and Animal Husbandry, School of Biotechnology and at different Research Stations/Sub-Stations/Centers spread over the entire Jammu province of Jammu and Kashmir state in the areas of agriculture, horticulture, livestock, dairy, fisheries and home science. Post graduate research also forms an important component of research activity. The research is being funded through co-ordinated research projects and other schemes of Indian Council of Agricultural Research (ICAR), state plan and non plan and various other sponsoring agencies *viz*. DBT, DST, MIDH, MES, NMPB, RKVY etc.

The research outputs accrued from different disciplines are reported as under.

3.1 FACULTY OF AGRICULTURE

3.1.1 Plant Breeding & Genetics

Breeding Sub-Tropical Rices For Jammu Region

SJR 51: A new non basmati variety for mid hills under pipe line

SJR 51 (IET 21368) a new rice variety has been developed for mid hill ecology with yield potential of 50-55 q/ha. Release proposal of SJR 51 was presented during 7th Research Evaluation Committee (REC) where it was resolved to test the variety at farmers' field through KVK's as well as to generate production package. Seed of SJR 51 was supplied to PCs of KVKs viz., Reasi, Rajouri and Kathua for conducting on farm trials at farmers field during Kharif 2014. Besides, seed of SJR 51 was also provided to Division of Agronomy for generation of production package.

Simultaneously, 6 number of minikits of SJR-51 along with check K-39 have also been supplied to Joint Director (Extension) for conducting minikits at four districts of Jammu region (Rajouri, Udhampur, Reasi and Kathua) for testing under mid hill condition. SJR 51 exhibited 5.55, 25.26 and 40 percent yield superiority over K-39 in Rajouri, Reasi & Udhampur districts respectively.

SJR 129: A new basmati culture in pipeline

SJR 129 is tested in All India Coordinated Rice Improvement Project (AICRP) as IET 24597. The culture displayed high yield potential (44.39 q/ha) and desirable basmati quality characters like Head Rice Recovery (HRR) (56.3), grain length (7.3 mm), desirable amylose content (22.4), soft gel consistency and aroma.

Simultaneously six number of minikits of SJR-129 along with check Basmati 370 were supplied to Joint Director (Extension) for testing at three Basmati growing districts of Jammu region (Jammu,Kathua & Samba). It displayed 9.67 to 21.50 % yield superiority over Basmati 370.

Nominations for national testing under All India Co ordinated Rice Improvement

Four new nominations viz., SJR 129, SJR 70 and SJR 76 in basmati group and SJR 45 in non-basmati were nominated for testing in All India Coordinated trials during kharif 2014. Among these SJR 129 displayed high yield potential (44.39 q/ha) and desirable basmati quality characters like Head Rice Recovery (HRR) (56.3), grain length (7.3 mm), desirable amylose content (22.4), soft gel consistency and aroma and is being tested in the form of minikit trials.

Breeding material under evaluation and selection : Approximately 150 segregating lines in various generations involving basmati and non basmati parents is being advanced for achieving uniformity.

- **All India Coordinated Research Project on Rice :**

  During kharif 2014, eight AICRIP trials (IVT BT, AVT 1 BT, IVT-IM, AVT 1 IM, AVT 2 IM, IVT-biofortification, AVT-1biofortification and one hybrid trials (IHRT M) of DRR, Hyderabad were conducted. The data on various yield and yield attributing traits was recorded and submitted to DRR, Hyderabad.

- **Collection and maintenance of germplasm including BLB donors**

  BLB donors *viz*. IRBB 1, IRBB 4, IRBB 5, IRBB 7, IRBB 8, IRBB 9, IRBB 10, IRBB 11, IRBB 13, IRBB 14, IRBB 21, IRBB 50, IRBB 51, IRBB 52, IRBB 53, IRBB 54, IRBB 55, IRBB 56, IRBB 57, IRBB 58, IRBB 59 and IRBB 60 are also being maintained for use in breeding programme

- **Maintenance Breeding**

  The breeder seed of Basmati and non basmati varieties are being supplied regularly to the State Department of Agriculture, Jammu as per their indent and also as per the DAC indent. During Kharif -2014 following basmati and non-basmati varieties were supplied to Joint Director (Inputs) for further multiplication.

S.No	Variety	Qty (Kg)
1	K-343	85
2	K-39	40
3	Pusa 1121	240
4	Giza-14	60
5	Basmati 370	330

Multilocation testing of private sector hybrids

- **Evaluation of Advanta Pvt. Ltd. Hybrids**

  Under private sector hybrid testing programme, 2 rice hybrids of Advanta Pvt. Ltd were tested during *kharif* 2012 (PAC 801 & PAC 807) & 2 during kharif 2014 (PAC 807 & PAC 8744) at Chatha location along with two checks SJR 5 & Jaya. Among these hybrids, PAC 807 completed two years of testing and this hybrid (5288.89 kg/ha) exhibited 1.74 per cent yield superiority over the best check variety SJR5 (5197.96 kg/ha) and 3.95 per cent yield superiority over Jaya (5087.77 kg/ha).

- **Evaluation of Bayer Pvt. Ltd. Hybrids**

  Under multilocation hybrid testing programme, 4 rice hybrids of Bayer Pvt. Ltd were tested during kharif 2011 & 3 each during kharif 2012, 13 & 14 at two locations viz, Chatha and Kathua along with two checks SJR 5 & Jaya (Table 2). Among the various hybrids tested, BS 444G completed three years of testing at both the locations and this hybrid (58.66 q/ha) exhibited 25.96 per cent yield superiority over the best check variety SJR5 (50.77q/ha).

Development of wheat varieties for Jammu region

Wheat varieties under pipeline

JAUW-584: The variety was tested in National initial varietal trial-IA and promoted to AVT

(timely sown irrigated) in North West plain zone of the country. The minikit trials of this variety had already shown promising performance with grain yield potential of 52 qtls/hac with moderate resistance to stripe and brown rust.

JAUW 584- wheat variety in offing

Salient Features

- Grain yield potential : 52qtls/hac
- Ecology : Timely Sown Irrigated condition
- Moderately Resistant to stripe and brown rust

JAUW 598: The entry surpassed the performance 36 entries including checks and was promoted to AVT (rain fed) in North Western plain zone of the country. The variety has a potential yield of 41.6 qtls/hac based on NWP zonal average.

The seed of these varieties was also supplied to KVK's for conduct of On Farm trials during Rabi 2014-15. The final release proposal of both the varieties shall be submitted after receiving the results of on farm trials.

JAUW 598- wheat variety in offing

Salient Features

- **Grain yield potential : 41 qtls/hac**
- **Resistant to stripe & leaf rust**
- **Ecology : Rain-fed areas**

New varietal nominations

a. **JAUW 635** has been nominated for testing in National Initial varietal trial 1A during rabi 2014-15.

b. Eight newly stabilized homozygous lines were sent for observing their rust reaction in IPPSN during *Rabi* 2014-15. Out of these, two qualified for rust response (JAUW 638 and JAUW 639), and is being further nominated for testing in NIVT 2015-16.

All India Coordinated Wheat and Barley Improvement Project

During kharif 2014, 5 number of advanced varietal trials, 3 initial evaluation trials and 2 screening nurseries were conducted and so generated was submitted to IIWR, Karnal for discussion in ensuing wheat workshop.

Hybridization Programme: Evaluation and selection

As part of the breeding programme, 90 crosses have been made for drought tolerance, stripe rust resistance and other yield traits. A total of 284 segregating lines involving different crosses in different generations being advanced for uniformity.

Breeding for high yielding varieties of rapeseed-mustard

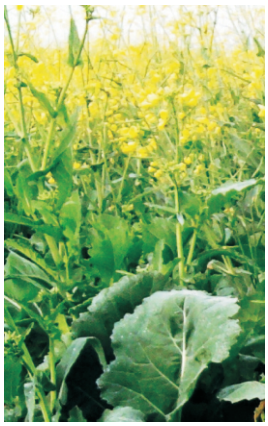
- **Gobhi Sarson**

Varieties under pipeline

RSPN 28: A new high yielding Gobhi sarson entry was evaluated for three years in station trials. The performance over years revealed an average increase of 12.8 per cent over the national check variety GSL-1(1793 kg./ha).It is moderately resistant to aphid and alternaria blight. This entry was evaluated in IVT over eight locations in Zone-II under All India Coordinated Research Project on Rapeseed- Mustard. The entry had an average seed yield of 1893 kg/hac recorded over eight locations.

Recommendation of Gobhi Sarson (*Brassicanapus*) variety GSC101 for cultivation in plains of Jammu region.

A newly CVRC released high yielding variety GSC 101 of gobhi sarson was evaluated continuously for three years(2011 to 2014) and it recorded 10.6 percent higher seed yield (1849kg/ha) over the check variety GSL-1(1670kg/ha) with seed size of 3.7-4.2g. and oil content 40.7 percent.



- **Toria**

  Development of new high yielding and early maturing varieties of toria for cultivation in Jammu region.

  – **RSPT-6**: Newly developed toria entry was evaluated during rabi 2011-12 to 2013-14. It recorded highest average seed yield of 12.0 q/ha and matures in 87 days with 41.3 percent oil content. RSPT-6 was also evaluated during Rabi 2013-2014 in AICRP trials over three locations in Zone II where it recorded an average seed yield of 1589 Kg /ha.

- **Hybridization: Selection and evaluation:**

  A total number of 21 crosses were attempted in Toria, 24 crosses were attempted in Indian mustard, 21crosses were attempted in gobhi sarson to improve seed yield, earliness, disease/pest resistance, quality and oil content.

- **Evaluation of advanced breeding lines :** Twenty one strains of gobhi sarson and fifteen strains of Indian mustard were tested in station yield trials. The yield superiority in gobhi sarson was up to 12.8% and Indian mustard was up to 10.5 % over the check (GSL-1 & Kranti).

- **Genetic Resource Management:**

  One hundred twenty three accessions of rapeseed- mustard germplasm were maintained, using appropriate mating systems, sibbing or selfing. Some of the accessions have been used as donors for earliness, high oil content , low erucic acid and low glucosinolate in the oil seed breeding programme.

- **Genetic diversity analysis in Gobhi sarson using molecular markers:**

  An initiative was taken to assess the genetic diversity and the relationship among 18 *Brassica napus* L genotypes using PCR based molecular markers. Around 09 $RAPD'_s$ were used to amplify these genotypes. In order to be sure about the authenticity of $RAPD'_s$ four other genotypes of different Brassica species were also used for genomic DNA amplification . It was observed that the PCR amplification profiles of other Brassica species were totally different from *Brassica napus* L.

- **All India coordinated Research Trials :**

  In six breeding trials, 28 strains of Toria, 21 strains of Early mustard, 11 strains of gobhi sarsonand, 36 strains of mustard were evaluated during Rabi season 2014-15.

- **Maintenance breeding:**

  Breeder seed of the following rapeseed-mustard varieties was produced during Rabi season and supplied to line departments and KVKs.

S.No.	Variety	Breeder Seed (Kg)
1	RSPT-1	20
2	RSPT-2	10
3	DGS-1	30
4	RSPR-01	25
5	RSPR-03	07
6	RL-1359	05
7	Varuna	05

- **Maize**

Heterotic Breeding in Maize (*Zea mays L.*)

Development and identification of early and medium maturing single cross maize hybrids

– **PMH-12, a single cross hybrid has** been notified and recommended for cultivation in the state.

PHM -12 : Single cross Mazie hybrid under notification as state release

Grain Yield Potential : 60 qtls/ha
Ecology : Mid hills to Plains
During : 130-135 days

– **Inbred hybrid breeding**

50 inbred lines were advanced through selfing through controlled pollinations. The pollination work was drastically affected due to flash floods in September, 2014. The identification of potential inbred parents will be undertaken for their involvement in development of single cross hybrids.

– Multilocational evaluation of newly developed single cross maize hybrids and private sector maize hybrids.

Multilocational Station Trials

During Kh 2014, fifteen maize hybrids comprising newly developed single cross hybrids of Poonch (five hybrids) and Udhampur origin (five hybrids) including released hybrids of Almora origin (five hybrids) and two hybrid checks were evaluated at three locations viz., Poonch, Udhampur and Chatha.

A newly developed white grain single cross hybrid PHM-34 (65.79 qha^{-1}) of Poonch origin was top performing hybrid and manifested 22.55 percent average grain yield superiority over white hybrid check Kanchan- 612 (53.68 qha^{-1}). It was followed by yellow single cross hybrids viz., Vivek hybrid-39 and Vivek hybrid-45 which displayed 11.94 and 03.53 percent average grain yield superiority over yellow hybrid check Kanchan-517. The hybrids under evaluation expressed average grain yield ranging from 53.94 qha^{-1} (Vivek hybrid-15) to 67.85 qha^{-1} (Vivek hybrid-39). All Almora hybrids were earlier in maturity than rest of hybrids.

Multilocational private sector trials

A total of five yellow maize entries from Monsanto Seed Company were evaluated under rainfed conditions at two locations viz., Chatha (Jammu) and Poonch during Kharif 2014. On the basis of combined analysis, DKC-9144 recorded highest average grain yield of 52.69 qha^{-1} and exhibited 57.94 percent grain yield superiority over yellow check (33.36 qha^{-1}). It was followed by DKC-8184 (51.71 qha^{-1}), DKC-9145 (50.41 qha^{-1}), DKC-9152 (52.57 qha^{-1}) and DKC-9151 (44.90 qha^{-1}) which registered 2^{nd}, 3^{rd}, 4^{th} and 5^{th} rank respectively.

A total of six maize entries (five yellow and one white grain) from Kanchan Seed ompany were evaluated under rainfed conditions at two locations viz., Chatha (Jammu) and Poonch during Kharif 2014. On the basis of combined analysis, KH-2192 recorded highest average grain yield of 62.97 qha^{-1} and exhibited 36.71 percent grain yield superiority over yellow check (46.06 qha^{-1}). It was followed by KH-1408 (53.31 qha^{-1}), KH-517-Gold (50.13 qha^{-1}), KH-1229 (48.05 qha^{-1}) which registered 2^{nd}, 3^{rd} and 4^{th} rank respectively. The only white grain KH-1435 (39.38 qha^{-1})

manifested 14.31 percent grain yield superiority over white check (34.45 qha^{-1}).

3.1.2 Vegetable Science and Floriculture

Collection, evaluation and maintenance of germplasm of vegetable /Floriculture crops

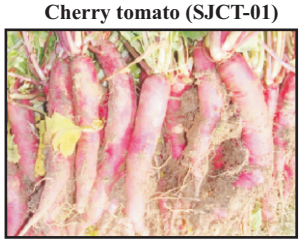
Crop	Genotypes
Tomato	100
Brinjal	50
Okra	10
Turmeric	15
Garlic	10
Ginger	30
Gladiolus	30
Tuberose	7
Marigold	4
Chrysanthemum	14
Rose	10
Annuals	30
Ornithogallum	1
Heliconia	1
Zephyranthes	1
Eucharis	1
Football Lily	1
Curcuma	1
Oxalis Pink	1
Oxalis Yellow	1
Ixia	1
Tritonia	1
Sparaxis	1
Narcissus	1
Freesia	1
Eucharis	1
Canna	1
Amaryllis	1
Day lily 1	1

Variety Developed & nominated for national trials

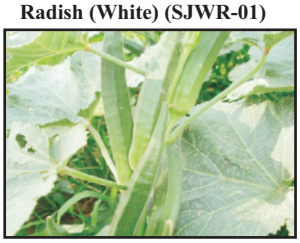
- Vegetable varieties in Radish (White) SJWR-01,Radish (Red) SJRR-01,Okra (Seli Special) SJB-02,Cherry tomato (SJCT-01) developed by the division has been nominated for testing under All India Coordinated Research Project during 2014-15. Trials nominated of (Seli Special) SJB-02 and Cherry tomato (SJCT-01) is under IET.

Cherry tomato (SJCT-01)

Radish (White) (SJWR-01)



Radish (Red) (SJRR-01)



Okra (Seli special) SJB-02

Varieties under development

Other varieties in fenugreek (Kasuri Supreme),Coriander (Khushboo), Beet leaf (C-13), Turmeric and Garlic etc are being tested at various stations of the university and Department of Agriculture, Jammu for their release.

Floriculture

Tuberose

In tuberose, seven varieties were evaluated namely Shringar, Suvasini, Prajwal, Vaibhav , Nirantara, Calcuttia Single and Calcuttia Double. Among these Nirantara, Calcutta Single and Double performed better than other varities and has been selected for their commercial cultivation in Jammu region.

Nirantara

Calcuttia Single

Newly introduced ornamental bulbous flower crops

Collection, evaluation and introduction of genotypes of Ornithogallum, Hyacinth, Narsicus, Freesia, Tritonia, Sparaxis, Oxalis pink, Oxalis Yellow, Ixia, Curcuma, Football lily, Eucharis, Canna, Zephyranthes suitable under subtropical conditions of Jammu

Pink

Oxalis

Yellow Freesia

Sparaxis

Zephyranthes

Amaryllis

A protocol has been standardized for quality proudction of chrysanthemum cv. "Maghi White" through tissue culture.

Explants (Nodal Segments)

Sterilization (0.1% Mercuric Chloride for 3 min.)

▼

Cultured on Regeneration medium (5 weeks)

(MS + 2.0 mg/l BAP + 0.5mg / l NAA)

▼

Regenerated shoots transferred to multiplication medium (3 weeks)

(MS + 2.0mg/l BAP + 0.5mg / l NAA)

▼

***In vitro* multiplied shoots transferred to rooting medium (4 weeks)**

(MS + 1.0 mg/l IBA)

▼

Hardening of *in vitro* raised plantlets (6 weeks)

75 % cocopeat +25 % perlite

▼

Hardened plants transferred to field

Regeneration on MS+2.0 mg/l BAP+0.5mg/l Naa (After 5 weeks

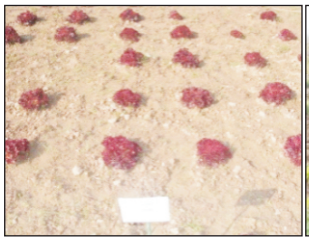
Multiplication in regenerated shoots after 3 weeks

Rooting on MS+1.0 mg/l IBA after 4 weeks

Hardening on cocopeat + perlite (3:1) after 6 weeks

Demonstration of Rare/Exotic Vegetable Crops

To diversify the vegetable cultivation, various exotic and rare vegetables have been introduced and their package and practices under Jammu plains is being formulated.



Lettuce-Red

Lettuce-Green

Swiss Chard

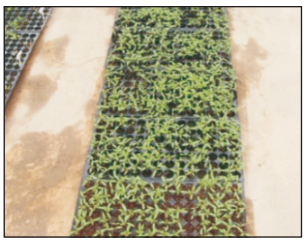
Broccoli

Vegetable seed/seedling production

During 2014-15, the division produced 1.00 q of seed particularly of okra, beet leaf, coriander, fenugreek, broccoli, knolkhol etc. Apart from it, 1.5 lakh seedlings of various hybrids and OP varieties were also produced and distributed among the farmers during various training programmes.

Quality planting material production of different vegetables in soilless media.

- Target crops: Tomato, Capsicum and cucumber.
- Media preparation: Coco peat + perlite+vermiculite (3:1:1)
- Size of plug trays : 48 celled for cucumber and 98 celled for tomato and capsicum
- Seed sowing :Single seed/cell.
- Date of sowing: September under protection and December for open conditions
- Plants ready for transplanting: October under protection and February for open conditions
- Fertigation of plants with liquid fertilizer NPK 19:19:19 or 20: 20:20 @1 g/lt at 3 days interval
- Plants show quick and stout growth with no weed growth.
- Attack of soil borne diseases especially damping off is avoided.



Herbicidal Weed Management in Garlic

- Pre-emergence application of oxadiargyl@90g/ha + Quizalafop –ethly@50g/ha as post-emergence herbicide applied at 2-3 leaf stages of weeds successfully check weed growth in garlic.
- The second best treatment was pre-emergence application of pendimethalin@0.75kg/ha+ quizalafop -ethly@50g/ha as post emergence to check weed growth and to get better net returns over the control.

3.1.3 Fruit Science

Establishment of Hi-tech mother plant nursery for high pedigree planting material of Citrus and Guava.

During the year 2014-15, virus indexing lab facility for citrus has been developed in the Division of Fruit Science, SKUAST-J, Chatha, Jammu. Twenty thousand good quality seedling rootstocks of guava and citrus have been imported and planted at the project site which will be ready for budding/grafting in the coming season. Plants of lemon cultivar "Pant Lemon" have been imported from GBPUAT, Pantnagar, Uttaranchal and that of "Kinnow" have been imported from Regional Horticulture Research Station, Dhaulakuan, Sirmaur, Dr. Y.S.Parmar University of Horticulture and Forestry, Solan, HP and planted in the mother block of the project at Research Farm, Division of Fruit Science, Udheywalla. Four vermi-compost pits were constructed and made functional during this time period.

Training and demonstration on rejuvenation of old/unproductive orchards of Jammu subtropics

- One day awareness cum demonstration programme organized at the private orchard of aonla grower at Nai Basti, Akhnoor wherein methods of rejuvenation of aonla tree were demonstrated on 25-03-2015.
- One day training cum demonstration programme organized at the private orchard of guava at Sarore, Distt. Samba wherein methods of rejuvenation of guava tree were demonstrated on 28-03-2015.

Awareness and demonstration of rejuvenation technique in aonla at farmers field

Establishment of rootstock and bud-wood bank and their large scale production.

- Two cultivars of Mandarin i.e. Dixy and W. Murcoll were introduced from PAU, Ludhiana.
- Two cultivars of grape were introduced from PAU, Ludhiana.
- Fifteen hundred plants of Papaya cultivar Red Lady have been raised.
- Rootstock of all important sub-tropical fruit plants have been raised.

High density orcharding of mango and guava in Jammu sub-tropics.

- During the year ultra high density guava orchard has been planted at a spacing of 3.0m × 1.5m accommodating 2222 nos. of plants per hectare at FoA, Udheywalla where planting was done in the month of March, 2015 for *in situ* grafting in the coming planting season.
- For raising quality planting material under high density project 5000 guava rootstock were planted at FoA, Udheywalla where grafting of rootstocks will be performed during the month July-August, 2015 with the cultivar "Shweta".

Development of Aonla based cropping system for Jammu Sub-tropics.

- Three year old aonla orchard planted at a spacing of 10m × 10m on the private land of Sh. Sham Lal, village Leharian of District Akhnoor was selected for intercropping of fruit plants, vegetables and pulse crops.
- Aonla orchard was intercropped with beet root and mash
- Digging of pits and plantation of 150 number of phalsa plants at a spacing of 2.5×2.5m was done in between the aonla fruit crop in the month of March, 2015.

Domestication of naturally occurring and wild relatives of some fruits for specific horticultural trait(s).

During the year 2014-15, areas of Doda, Kishtwar and Rajouri were surveyed to identify the areas of fruit diversity. Observations on plant and fruit characters will be done in the coming season

Establishment of nut center in intermediate agro-climatic zone of Jammu provenance to augment requirement of quality planting material.

Five low cost poly-houses measuring 625m^2 area were constructed in the project site RARS, Rajouri, SKUAST-Jammu. Two thousand pecan nut rootstock was imported from CSK HPKV, Palampur and 6000 walnut rootstock was imported from Kashmir and planted in the project site, RARS, Rajouri, SKUAST-Jammu.

Studies on growth, yield and quality of guava (*Psidium guajava* L) cv. Sardar as influenced by different spacing's under high density planting system.

Under this trial, guava plants of cv. L-49 were planted in rainy season of 2012 at four different spacing's *viz*. 6m x 6m; 4.5m x 4.5m; 3m x 3m and 1.5m x 1.5m. Data on stem height, stem girth and canopy spread were recorded twice a year (March and September) in 2013 and 2014. Initially, there was no difference in the stem height, stem girth and canopy spread during 2013. Average data collected on stem height, stem girth and canopy spread in 2014 showed that widely spaced plants showed more growth in terms of stem height, stem girth and canopy spread than closely spaced plants. Data on yield was not recorded in 2013 and 2014. Plants spaced at 1.5m x 1.5 m showed sparse fruiting in 2013 and in 2014 on an average 1-2 kg fruit per annum was obtained on each plant. Plants spaced at 1.5m x 1.5 m showed overlapping and overcrowding in January 2015, these plants have been pruned to 1 meter height and will be maintained at same height afterwards as in meadow orchard of guava. In 2015, data on stem height, stem girth, canopy spread, yield and quality will be recorded.

Plants spaced at 1.5m x 1.5m before pruning

Plants spaced at 1.5m x 1.5m pruned to 1m height

Collection introduction and evaluation of pomegranate germplasm.

Out of the eight pomegranate cultivars introduced and evaluated, on the basis of quantitative and qualitative parameters, cultivar "Kandhari" was found most suitable under the local agro-climatic conditions.

Diallel analysis in Strawberry (*Fragaria x ananassa* Duch.).

During 2014-2015 progenies of different cross combinations were evaluated. On the basis of evaluations, it was concluded that cultivar Selva can be utilized for developing progenies with higher plant spread which correlated positively with yield. Cultivar Catskill was found to be good general combiner for the character number of leaves per plant and cultivars Chandler, Selva and Belrubi was found to be good general combiner for character leaf area.

3.1.4 Food Science & Technology

Value addition of Cereals

Development and evaluation of complementary foods based on corn and peanuts.

- A method was devised for developing corn flakes using various ratios of germinated and fermented corn flours blended with different ratios of peanut flour and it was found that a good quality corn flakes can be developed by blending 80% germinated corn flour and 20% roasted peanut flour having nutritional value as 9.94% fat,16.24% protein and 64.27% carbohydrate. The product remained stable for 6 months.
- A good quality ready to serve corn-peanut beverage can be developed by blending one part of corn grain with four parts of roasted peanut having 2.55 percent fat, 3.63 per cent protein, 9.86 per cent total solids and 3.27 percent carbohydrate. The beverage remains acceptable up to 21 days of storage under refrigerated conditions.

Development of protein enriched cereal breakfast.

- Supplementation of cereal with legume has recognized beneficial for health well being. Legume rich in proteins compensate the deficient essential amino acids in cereals. So, a method was devised for developing protein enriched cereal breakfast using the processing methods like malting and roasting which further enhanced the nutritional value of cereals and legumes.
- The process of malting and roasting employed in the product development from where and barley supplemented with soyabean and chickpea resulted in increase in protein content, by making the essential amino acids available, increases crude fibre, mineral content and decrease bulk density resulting in improved digestibility thus improved the palatability of the product. The developed product can be consumed by all age groups. As the processing methods of roasting and malting are less expensive. Thus the cost of the developed product is less as compared to the already existing food product in the market

Effect of different concentrations of enzymes on recovery of juice from bael fruit

A method was standardized for extracting maximum quantity of juice from Bael fruit. For this fully ripe bael fruit with out any visible defect was procured from RHRSS. Raya. The fruit was broken and pulp was scooped out with the help of stainless steel spoon. The scooped pulp was homogenized and was treated with different concentrations of pectinase enzyme (0,1,1.5, 2.0 & 2.5 mg/75 g of pulp and equal amount of water) and was kept undisturbed for overnight. Juice was filtered through 4 fold muslin cloth and was assessed for T.S.S. acidity, pH and B-carotene. The best lot of juice was obtained using 2% of pectinase enzyme yielding 85.1% of juice as compared to 60.4% in control.

Development of Wine from Bael and strawberry fruits

Wine from Bael fruits

A method was standardised for developing wine from bael fruit. For the development of wine first yeast starter culture was prepared following the proper procedure. 5 litres of juice was taken in a fermentation flask whose total soluble solids and acidity was adjusted to 24^0 brix and 0.5 % using sugar syrup of 70^0 brix and citric acid respectively. The must was supplemented with 0.1% diammonium hydrogen phosphate (DAHP), 0.5% pectinase, 100ppm potassium metabisulphite (KMS) and inoculated with sachromysis cerevisiae culture @ 5.0% followed by incubation at 28 ± 2^0 C. The fermented must was filtered followed by settling of lees for seven days which was later on siphoned and pasteurised at 60^0 C for 20 min. The wine developed was analysed for total soluble solids, acidity, pH, total phenols, antioxidant activity, microbial count, anti microbial activity and minerals. It was also assessed organoleptically. The developed wine was liked by the judges very much.

Process for the preparation of Bael wine

Wine from Strawberry fruit

A method was also standardised for developing wine from strawberry fruit . Here strawberry fruit was crushed into pulp and diluted into 1:1 ratio using distilled water which was later on transferred in a fermentation flask. The total soluble solids of the pulp was adjusted to 24^0 brix using sugar syrup of 70 ^{0} brix. The must was supplemented with 0.1% diammonium hydrogen phosphate (DAHP), 0.5% pectinase enzyme, 100ppm potassium metabisulphite (KMS) and inoculated with sachromysis cerevisiae culture @ 5.0% and incubated at 28$\pm$ 2^0 C. The fermented must was filtered followed by settling of lees for seven days which was later on siphoned and pasteurised at 60^0 C for 20 min. Further study is in progress.

Process for the preparation of strawberry wine

Innovative approach of active packaging and its effect on quality attributes of different fruits.

Pear fruits (cultivar *Bagugosha*) were treated with chlorine solution (200ppm for 10 min.) for disinfection. The treated fruits were air dried and packed in LDPE and PP bags with ethylene and oxygen absorbers (200cc/kg fruit). One lot was kept without packing as control. Both the packed and control fruits were kept under refrigerated conditions for further study. The results revealed that the PLW (%), decay percentage, and TSS (%) content increased whereas, titratable acidity (%) decreased with the prolongation of storage period. The highest PLW, decay percentage and TSS content of 12.42 (%), 23.46(%) and 14.23(%) was recorded in control and lowest of 6.21(%), 3.78(%) & 10.50(%) were recorded in fruits packed in PP bags with oxygen absorbers, respectively. However the minimum titratable acidity of

0.11(%) was recorded in control and maximum of 0.23(%) in fruits packed in PP bags with oxygen absorbers. Overall oxygen absorbers along with PP bags proved to be effective treatment for refrigerated storage of pear fruits .The fruit remained in good condition upto 60 days in PP bags with oxygen absorbers. The experiment will be continued for crops like guava, peach and kinnow this year.

Evaluation of minor fruits from Jammu region for assessing the anti oxidant activity.

For evaluating the antioxidant activity the pretreated fruits of aonla, ber, jamun & its seed, and wild pomegranate were dried and converted into powder and analysed. The results revealed that aonla powder obtained from blanched and grated fruits showed highest content of vitamin C (419.2 mg/100g) and (382.14 mg/100g) respectively followed by ber and anardana powders having values as 47.03 mg/100g and 3.98mg/100g respectively. The lowest vitamin C content of 0.98mg/100g was observed in Jamun seed powder.

The antiradical efficiency of Jamun seed powder was found to be maximum (50.63g/ml) followed by aonla blanched and grated powders having antiradical efficiency as 40 g/ml and 22.8g/ml respectively. While as the lowest antiradical efficiency was observed in jamun fruit powder (1.19g/ml) followed by ber fruit powder (1.25g/ml) and anardana powder (2.08g/ml). This shows that Jamun seed powder and aonla powder possess highest antioxidant activity. The experiment stands concluded.

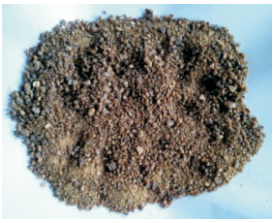
Fresh wild pomegranate

Dried wild pomegranate

Powdered wild pomegranate

Dried Jamun

Powder Jamun



Powdered jamun seed

Powdered ber

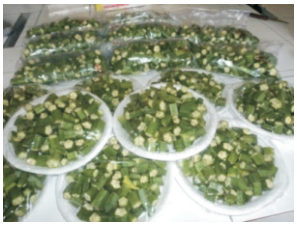
Powdered Aonla (Grated)

Powdered Aonla (Blanched)

Physical and chemical changes in freshly cut minimally processed vegetables during refrigerated storage.

The okra pods (Hibiscus esculentus L.) that were tender, unripe were divided into two lots and one lot was treated with chlorine dip (100ppm for 3 min.) and the other with ascorbic acid dip (1% solution for 2 min) followed by air drying. The dried okra was cut and packed in PP bags and in trays covered with cling film with two and four perforations. The processed okra and control (okra pods cut & kept open in trays) samples were stored under refrigerated conditions for further studies. The results revealed that the maximum weight loss was 1.6% in okra





packed in PP bags with four perforations whereas control samples revealed weight loss of 7.9% at the end of the storage period. The ascorbic acid contents and the chlorophyll contents were preserved in samples packed in PP bags with two perforations. The ascorbic acid content of 38.8mg/100gm was absorbed in samples stored in PP bags with two perforations. Results also revealed that okra packed in PP bags and trays with cling film having two perforations were much superior in terms of maintenance of chlorophyll (green colour), β-carotene and ascorbic acid and can be stored for 14 days under refrigerated conditions. The experiments on minimal processing of carrot, knol khol and spinach will be taken up this way.

3.1.5 Plant Pathology

Agro-waste evalution

Among the agro-wastes evaluated for cultivation of Pleurotus spp., paddy straw + wheat bran (20%) + $CaCO_3$ (2%) was observed to be the best substrate followed by wheat straw + wheat bran (20%) + $CaCO_3$ (2%).

Biochemical Studies in Pleurotrus

Biochemical analysis revealed significant decrease in lignin content over cellulose and hemi-cellulose content. suggesting that Pleurotus sapidus and Pleurotusflorida are white rot fungus and substrates rich in lignin content are more suitable for its cultivation.

Management of sheath blight of rice by *Pseudomonas fluorescens*

Out of the hundred isolates from the rhizosphere of basmati rice and saffron crop, thirty-five isolates were identified as P. fluorescens by amplification of 850 bps by species specific primer. The sequences of selected isolates were submitted to NCBI Gen Bnak. Out of 14 isolates of P fluorescens tested for suppression of sheath blight of paddy (ShB) in detached leaf assay, only three isolates significantly reduced the ShB lesions with maximum inhibition of lesion development. Integrated application of P. fluorescens as as seed treatment + seedling dip + foliar treatment (2 $X10^9$ cfu/ml) showed maximum reduction of 48 and 32% of the disease intensity of sheath blight of rice under glass house and field conditions respectively.

3.1.6 Entomology

Network Project On Conservation Of Lac Insect Genetic Resources

Surveys were conducted in various areas of Jammu, namely, SKUAST- Jammu campus, Jammu city, Akhnoor, Vijaypur, Kathua, Samba, Udhampus and Reasi for searching sample lac insect. The presence of dead larvae of Eublemma amabili and Holcocera pulverea was noticed in lac encrustation (dead). Besides, the presence of parasitoids like Paraecthrodryinus clavicornis; Erencyrtus dewitzi; Tachardiaephagus tachardiae;

Eupelmus tachardiae and Tetrasticus purpurens was observed. Efforts to control these natural enemies were initiated by maintaining healthy cultures and by enclosing the brood lac sticks in wire mesh before inoculation so that natural enemies are not able to emerge and cause re-infestation. The collection of lac infested branches and inoculation of brood was done by putting of collected sticks of brood lac (lac sticks containing gravid females) in the host twigs for allowing young lac larvae (crawlers) to come out of their mother cells and settle on the host

Fig.1: Lac infested branch of *Zizyphus mauritiana* in field condition

Fig.2: Raising substitute host of Lac *Flemingia semialata* at SKUAST-J

Fig.3: Settlement of lac insect crawlers on *Flemingia semialata*

Fig.4: Settlement of lac insect crawlers on *Flemingia semialata* (present)

plant. In artificial inoculation, brood twigs were cut in size 20 - 30 cm in length. Then, the cut pieces of brood twig were tied to fresh tree twigs in such a way that each stick touches the tender branches of trees at several places. This was done on Potten Flemingia or pre pruned Ber and succulent branches of Ficus species. Four parasitoids, 2 hyper parasitoids and one predator were observed on lac crop. Among these Aprostocetus was the most serious parasitoid of the lac insect. Further, data recording is in progress and will be analyzed after the harvest of crop.

NETWORKING PROJECT ON INSECT BIOSYSTEMATICS

Collection of Non-*Apis* bees (native bees) were conducetd from different landscapes of Jammu region. The studies revealed a rich diversity of pollinating bees. A total of 30 morpho species belonging to five major families of order Hymenoptera, viz. Apidae, Megachilidae, Andrenidae, Colletidae and Halictidae were documented during the course of study from various agrihorticulture plants in the study sites. Species composition amongst different families of non-Apis bees revealed that Apidae constitutes 17 different morpho species followed by Megachilidae (nine morpho species) and Halictidae (two morpho species). Other families of hymenopterans documented under the study, viz. Andrenidae and Colletidae were shown to be represented by one morpho species each.

AICRP ON LINSEED

The screening of 127 varieties of linseed was evaluated against Linseed pod fly during 2014-15. Observations were made to record the bud fly damage in the field. Out of 127 entries, Shekhar and Baner performed well against linseed bud fly and recorded the minimum damage of 3.69 and 3.93 per cent, respectively. Maggot flies were found laying eggs on flowering bud stage causing serious damage. Besides, bud fly damage, linseed crop was also found to be heavily attacked by *Helicoverpa* ***armigera*** **larva**. Pheromone traps were installed to monitor the *Helicoverpa* population in the field condition.

Linseed Trial

Linseed Bud Fly Damage

Helicoverpa Armigera Damage On Linseed

AICRP ON HONEYBEE AND POLINATORS:

Survey of different apiaries of Apis mellifera and Apis cerana has been conducted in different parts of Jammu Division. The survey areas include Doda, Ramban, Jammu, Kathua, Samba and Udhampur districts. More than 1000 colonies were examined for the presence of diseases and enemies. The colonies were examined for the presence of diseases and enemies. The presence of ectoparasitic mites, V. destructor, T. clareae; T. koenigerum and stored product mites, Tyrophagus longior, Caloglyphus indica, Hypopus and phoretic mites Neocypholaelaps indica were observed in debris as well as on the bodies of honeybees. Varroa destructor was found associated throughout the year. Peak infestations were observed during the peak brood rearing periods of honeybee colonies. Population dynamics of mites varied during different months of the year. The average number of Varroa destructor mites ranged from a minimum of 18.90 per cent (July) to a maximum of 40.00 per cent (March). Tropilaelaps clareae and T. koenigerum on the other hand ranged from a minimum of 0.00 (June, July) to a maximum of 5.00 and 4.28 per cent (April), respectively. Stored product mites were observed only during certain parts of the year. Their number ranged from 0.00 to 2.69 per cent (C. indica), 0.00 to 3.75 per cent (T. longior) and from 0.00 to 3.75 per cent (Hypopus) per g debris. Similarly, phoretic mites (N. indica) were not observed throughout the year. They were observed in colonies as well as on the bodies of A. mellifera from January to July, their number ranged from a minimum of 0.00 to a maximum of 3.32 per cent. The investigations have revealed the presence dreaded European foul brood disease. The disease was more severe (10-25%) in A. cerana colonies compared with A.mellifera (5-8%). The predatory wasps Vespa velutina, V. orientalis, V. cincta, V. basali and V. mandarinia. The V. velutina and V. basalis were recorded as major enemies of A. mellifera. The maximum wasp attack of V. mandarania and V. cincta was observed from first fortnight of July- first fortnight of October. The maximum attack of V. basalis was observed from first fortnight of July –second fortnight of November. The maximum wasp incidence was in morning (9.00-11.00 am). The maximum per cent infestation of sac brood disease was recorded during March-April. The survey of A. mellifera colonies indicated that greater wax moth infestation increased progressively from and acquired its peak in month of August-September.

Survey of Apiaries

Mite Infestation

Wasp Attack

Mite Infestation

Wasp Attack

Artificial domiciliation of non – *Apis*: Nesting hut has been prepared for housing shelters of solitary bees. Different nesting material viz., bamboo stems and castor stems of varying size have been prepared for installation for domestication and rearing of Non- *Apis* species especially *Pithitis* spp. The different materials shall be studied for their acceptance by *Pithitis* spp.

Nesting shelter for solitary bees

Pithitis spp. domesticated in castor stem

3.1.7 Agroforestry

Studies on agro-techniques of *Stevia rebaudiana*

An experiment was laid with eight treatment combinations to study the effect of integrated nutrient management in **Stevia rebaudiana**. Higher values of growth and yield parameters were observed in treatments; (i) vermicompost

(VC) @1.5t/ha + 30kg N and Azotobacter (ii) VC@1.5t/ha +30Kg N with dry leaf yield of 4.78q ha^{-1} and 4.32q ha^{-1}, respectively.

Conservation, Production and Sustainable Management of Shatavar (Asparagus racemosus Willd.) (R&D/JK-01/2013)

Highest fresh tuber weight per plant of 2.97 kg was recorded in accession (1C471911) after one year of planting. Accessions 1C471904, 1C471922 and 1C471923 recorded fresh tuber weight per plant of 2.74 kg, 2.71kg, and 2.51 kg, respectively. Minimum fresh tuber weight per plant (1.03kg) was observed in accession 1C471896. Maximum dry tuber weight of 298.81g per plant was registered in accession (1C471911) which was followed by accessions 1C471906 (298.23g), 1C471922 (292.73g), 1C471925 (289.14g), 1C471904 (275.17g) and 1C471920 (269.61g), respectively. Minimum dry tubers weight per plant of 98.40g was observed in accession Jammu-1.

Inter-cropping studies on short rotation tree species like Poplar and Eucalyptus under sub-tropics of Jammu

Five different clones of Populusdeltoides were planted in Jan., 2013 at a spacing of 5m x 4mwith three replicates. The data were recorded on survival and growth parametersafter 18 months of planting. The maximum field survival (88%) was recorded in Udai and $WSL_{32.}$ The maximum plant height (4.69 m) andcollar diameter (32.35 cm) was recorded in WSL-32.

3.1.8 Agronomy

Evaluation and suitability of weed flora biomass for vermicomposting in Jammu region

Eichhornia crassipes + FYM mixed in the ratio 1:2 or Leucaena + FYM was found most suitable weeds flora for incorporation in vermicomposting which has not only helped to realise the NPK status of composting in the range of 1.92-2.42 %, 0.87-0.88 % and 1.90-1.93 % respectively, but also had increased the worm population, number of eggs and vermicompost production in the range of 1738-1798 no./m^3, 401-405 no./m^3 and 57.0-58 kg/m^3 respectively, over control (i.e alone application of FYM).

Effect of hydrogel and limited irrigations on growth and yield of wheat

The hydrogel application @ 2.5 Kg/ha along with one irrigation at CRI was found most economical under Jammu conditions while receiving 298 mm average rainfall.

Evaluation of resource conservation techniques in wheat crop for productivity enhancement, soil heath and economic suitability

A field experiment was conducted during rabi seasons of 2012-13 and 2013-14 at Research Farm Chatha, SKUAST-J, Jammu to study resource conservation techniques in wheat for productivity enhancement and economic suitability. Among the different tillage system, furrow irrigated raised bed (FIRBS) recorded higher grain yield (40.6 q/ha) but it was found at par with reduced tillage (38.7 q/ha) and conventional tillage (36.9 q/ha). Zero tillage treatment (34.4 q/ha) was found at par with conventional tillage. Among the different mulch treatments, Leucaena gave highest grain yield (40.19 q/ha). The highest net return (Rs 42364/ha) was recorded in reduced tillage while zero tillage gave highest benefit: cost ratio (1.80) followed by reduced tillage (1.64). Amongst mulches, Leucaena was recorded highest net return (Rs 43446/ha) and benefit: cost ratio (1.60).

Real time nitrogen management in basmati rice varieties of Jammu region

On the basis of one year experimentation the significantly higher grain yield was recorded with variety Basmati-564 than Basmati-370. Among the nitrogen management treatments highest grain yield was found in Sufficiency based N management treatment which was statistically at par with LCC $\leq$ 3 with or without basal, and recommended nitrogen management treatment and significantly higher than LCC $\leq$ 4 with or without basal, well fertilized and control.

Among the varieties the higher nitrogen use efficiency (NUE) was found with Basmati-564

than Bsamati 370 and among the nitrogen management treatments, the highest NUE was obtained with Sufficiency based N management treatment which was followed by LCC ≤3 with basal nitrogen.

Long Term Trial on Tillage in Maize-Wheat Cropping system

Maize crop grown with zero tillage establishment technique by and large recorded relatively higher net returns and B:C ratio as compared to conventional tilled maize. As regards the weed management treatments, higher net returns and B:C ratio were recorded with application of atrazine@1kg/ha whereas, the 2-hand weedings treatment remained economically inferior to all the weed management treatments recording lowest values of net returns and B:C ratio which were found to be inferior to weedy check treatment.

Wheat crop grown with zero tillage establishment technique by and large recorded relatively higher net returns and B:C ratio as compared to conventional tilled wheat. As regards the weed management treatments, higher net returns and B: C ratio were recorded with application of metribuzin@200g/ha whereas, the 2-hand weeding treatment remained economically inferior to all the weed management treatments recording lowest values of net returns and B:C ratio which were found to be inferior to weedy check treatment.

Long term trial on rice wheat cropping system

Herbicidal weed management with application of **butachlor@1.5kg/ha** or **Anilophos@0.5kg/ha** in rice remained economically superior to mechanical weeding and weedy check treatments recording relatively higher net returns and B:C ratio. However, lowest net returns and B:C ratio values were observed with mechanical weeding treatment thus making it economically inferior to all other weed management treatments including the weedy check.

Herbicidal weed management with application of isoproturon either @ 1kg/ha or 0.75 kg/ha with 1% tank mixed urea or 0.1% surfactant in wheat remained economically superior to mechanical weeding recording relatively higher net returns and B:C ratio. However, lowest net returns and B:C ratio values were observed in weedy check treatment thus making it economically inferior to all other weed management treatments.

3.1.9 Agrometeorology

Agroclimatic Characterization

- Weekly climatic water balance of Chatha, Jammu was computed for the period 1982 to 2014 by using Thornthwaite's method. The result showed that this region can support high water demanding crops both in monsoon and in winter season because of assured moisture availability coupled with irrigation facilities. The moisture adequacy index is more than 70 percent for 12 weeks from 27 to 38 SMW indicating assured availability of moisture for raising crops.
- Historical analysis of agricultural drought of six locations viz. Jammu, Katra, Bhadarwah, Banihal, Batote and Rajouri were carried out. All the six districts experience agriculture drought more than 50 per cent of years. Percentage of years experiencing agricultural droughts was maximum in Batote (84.2 %) followed by Jammu (75.7 %), Banihal (74.4%), Katra (74.2%) , Bhaderwah (56.7 %) and Rajouri (52.3%).The period from 37-42 SWM was observed to be experiencing recurring agricultural droughts in almost all the districts of Jammu provience. Drought occurring mainly during the period 37-42 SMW i.e. from 10th Sept to 15th October, considered as terminal droughts, might be occurring due to early withdrawal of monsoon.

Crop Weather Relationship in Wheat

- Water Use Efficiency (WUE) of three wheat cultivars (HD-2967,Raj-3077,RSP-561) grown under four environments (29th Oct,12th Nov,26th Nov and 10th Dec,2014) showed that WUE was highest (15.1 kgha^{-}

$^{1}mm^{-1}$) in 1st crop growing environment (E_1) and as far as variety are concerned, Raj 3077 (V_2) showed higher water use efficiency followed by HD 2967 (V_1). The least WUE was observed in case of var. RSP-561 (V_3).

- The Heat use efficiency (HUE) of three wheat cultivars (HD-2967,Raj-3077,RSP-561) grown under four crop growing environments showed that varieties, Raj-3077 recorded highest HUE (0.53 g/m^2/degree day) over HD-2967(0.43 g/m^2/degree day and RSP-561 (0.37 g/m^2/degree day) which decreased with subsequent delay in sowing.
- Maximum LAI was observed under early sown condition (29th Oct), than normal and late sown conditions. Among varieties Raj-3077 produced higher LAI than HD-2967 and RSP-561.

Crop Growth Models

i) Maize

Prediction of phenology based on Agrometeorological indices in Maize (Kanchan-517) sown under different crop growing environments (2009-2013).

- In order to predict the different phenophases of maize (var. Kanchan-517) with different agrometeorological indices a simple linear regression models were developed using five years data (2009-2013) and found out the best agrometeorological indices for prediction of phenology in var. Kanchan-517 under sub-tropical condition of Jammu (Table 5). With the help of accumulated thermal time the phenological prediction varies from 82 to 98 per cent whereas with Heliothermal indices the prediction is 61 to 93 per cent and photo thermal units predicts from 63 to 99 percent. Growing degree days predicts all the phonological stages more accurately (higher R^2 of 0.82 to 0.99) than helio and photothermal units. While for P_1 (Sowing to emergence) and P_2 (Emergence to Juvenile stage) predicts best with accumulated

ii) Wheat

Yield prediction model in Wheat

The regression model in wheat based on three years data 2010-11, 2011-12 & 2012-13 was developed variety-wise to study the influence of weather parameters viz, Maximum temperature, Minimum temperature, Rainfall , Relative humidity (Mor & Afternoon) & Evaporation on the growth and yield potential of wheat crop in the climatic conditions of Jammu. Two varieties viz., RSP-561 & DBW-17 were sown under different crop growing environments. The results revealed that very highly significant relationships have been found between the weather parameters and seed yield at all these phases in case of variety RSP-561 than DBW-17.

Daily weather data being generated at Chatha and same is being submitted to ICAR along with crop advisory through website "cropweatheroutlook.in".

3.1.10 Soil Science & Agricultural Chemistry

Aggregate and soil organic carbon dynamics under different landuses in submontane region of Jammu.

Pronounced effect of landuses on the extent of different sized water stable aggregates (WSA) was observed in all the three aggregates size classes >2mm,2-0.25mm and <0.25. In surface (0-15 cm) soil bigger macro-aggregates (WSA>2mm) were highest (88.93 %) in pasture land followed by forest (69.36 %), horticulture (62.82 %), agriculture (48.73 %) and were lowest (38.73 %) in degraded lands. The proportion of bigger macro-aggregates (WSA>2mm) decreased with increase in soil depth. The mean erosion index for surface (0-15) and sub-surface (15-30) soils was the highest for degraded lands (79.95). The value was significantly higher than all other land use systems ie. forest, horticulture, agriculture and pastures.

Effect of Sulphur and Boron nutrition on uptake and yield of mustard (variety RSPR-01).

Seed yield of mustard increased significantly by 11.6% & 13.9% with application of 30 kg and 45 kg sulphur per hectare, respectively as compared to the treatment where no sulphur was applied. Highest increase in total S uptake by 32.7 % was observed in treatment 45 kg S application as compared to treatment where no S was applied. Among boron application, the treatments comprising of 1.5 and 3.0 kg boron application in soil recorded significantly higher seed yield of mustard as compared to the treatment where no boron was applied. B application in soil @ 3.0 kg per hectare recorded the higher B uptake by mustard (13.27 kg/ha).

National Initiative on Climate Resilient Agriculture

Biweekly Agromet Advisories services are provided to the farmers and field functionaries through Field Information Facilitators and through print media. Capacity building/skill development of farmers/farm women as well as officers of the allied departments through training programmes was carried out.

Refinement & improvement of soil quality & water productivity enhancement technology in rain fed orchards of Jammu region (MIDH)

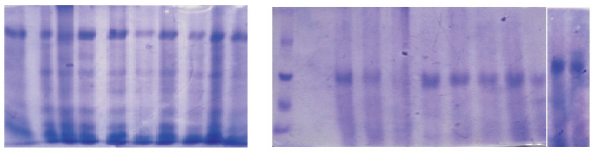
Soil quality index (SQI) of rainfed orchards from Jammu province (Vill. Marrappatti, Distt. Kathua, Vill. Sirah Karyal, Distt. Reasi) was evaluated after analyzing the soil for various physical, chemical and biological properties. Different type of trenches and basins were constructed (keeping slope of the orchard in consideration) to conserve and harvest water.

More than one hundred farmers from different villages (Vill. Marrappatti, Distt. Kathua, Vill. Sirah Karyal, Distt. Reasi) were selected and were trained for nutrient management and water conservation techniques to enhance soil quality and water productivity in orchards. The trained farmers made small groups of other farmers and further disseminated the techniques.

3.1.11 Biochemistry & Plant Physiology

Biochemical Assessment of High Temperature Responses in Grain formation and Nutritional Quality of Wheat Cultivars *(Triticum aestivum)*

Effect of temperature stress on wheat cultivars by changing date of sowing was studied. The SDS-PAGE profiling of Albumin fraction showed difference in banding pattern which may be due to denaturation of starch synthase enzyme under high temperature which occurred during grain filling stages.



SDS-PAGE Profiling of albumin under timely sown conditions.
SDS-PAGE Profiling of albumin under late sown conditions

Biochemical studies on the effect of drought stress and *Alternaria blight* infection on mustard genotypes

Physio-biochemical responses of water stress, Alternaria blight infection and pre drought treated Alternaria blight infection (after 10 days at anthesis) on plant and seed nutritional quality were studied. Chlorophyll(total, a & b), RWC, foliar proline, sugar, amino acid, ascorbic acid, soluble protein and phenol accumulation and detoxifying polyphenol oxidase, super oxide dismutase and phenyl alanine lyase activity assessments revealed that RSPR-69 and Pusa Mehak-5 possessed highest drought tolerant and Alternaria blight resistant property respectively and pre drought treatment helped to lower down the Alternaria blight's infection. Both stresses caused significant negative impact on harvest index, oil quality and quantity with maximum effect under drought stress condition, but having more sustainability in RSPR-69 in drought and Pusa Mehak-5 in Alternaria blight respectively.

Naringenin/eriodictyol production in engineered *Escherichia coli* with synthetic protein scaffolds. (Under DBT, GOI CREST Award)

In this study, we constructed efficient pathway for naringenin/eriodictyol biosynthesis by using the high-copy ePathBrick *E. coli* vector, pETM6,carrying Vv4CL, CmCHS, and CmCHI. Optimization strategies including scaffolding, improving CoA availability via *BLΔSucC*, *BLΔSucCΔfumC* and malonyl-CoA *via* recruiting matC and matB genes using pACYC palsmid and AccABCD genes using pACM4 plasmid strategies were carried out to further improve conversion.The BL-pA-757 in the presence of cerulenin yielded the titer of naringenin at100.1 mg/L from 100 mg/L p-coumaric acid. Similarly, *BLΔfumCΔsucC*-pA-757 and pACYC-matC-matB produced 78.18 mg/L naringenin from 100 mg/L *p*-coumaric acid. Also *BLΔfumCΔsucC*-pA-757 and pACYC-matC-matB produced 18.3 mg/L of eriodictyol from 100 mg/L caffeic acid. Strategies presented in this study underline the possibility of creating recombinant pathways for the production of phytochemicals in microorganisms and can be adopted to create high-efficiency pathways for the production of many plant natural products in *E. coli*.

3.1.12 Sericulture

Introduction, conservation and evaluation of mulberry germplasm

Under this project, 52 varieties of mulberry germplasm are maintained at Udheywalla Campus. Observations on leaf length, maximum leaf width, sprouting time and rate of growth of 30 varieties of mulberry were studied. Late sprouting varieties had advantage over early sprouting ones in leaf size, leaf area and growth rate. However, for subtropical areas, the late sprouting mulberry varieties are not commercially suitable for silkworm rearing but can be exploited for temperate zones of the Jammu province.

Introduction and evaluation of silkworm germplasm

Under silkworm germplasm 14 races are maintained and used for different research experiments. During the period under report, 20 bivoltine hybrid combinations were evaluated and three promising hybrids viz NSP x SPDL (E1>55.63) Z x SPO(E1>55.36) ZZ x SPO(E1>53.41) were identified for future commercial exploitation.

NSP x SPDL

NSP x SPDL

3.1.13 Agricultural Extension Education

Impact Evaluation of the Government Intervention in Procurement of Wheat

- Productivity of wheat in the irrigated wheat belt of Jammu division is higher by 40-70% than the revenue department crop cut estimates from Therefore, recommendations given to the government of J&K were i) The crop cut surveys need to be monitored for ensuring reliability and ii) Agriculture production department should ensure the supervision of crop cuts. Iii. The revenue department should upload on the official website, the list of farmers with phone numbers in whose field crop cuts are conducted. Wheat varieties *HD 2967* and *PBW 621*

have increased the wheat productivity in Jammu, therefore, these varieties are recommended for wider cultivation.

- ❖ Number of irrigations and seed replacement cause a variation of 22.6% in productivity. Therefore, i. Minor irrigation facilities should be increased. ii. Irrigation canals should not be closed during the critical stage of wheat production. iii. Seed replacement rate should be increased. MOP also impacted the wheat productivity in Jammu district, especially Marh area.
- ❖ Small landholding farming does not provide economic security to the farm households. Therefore, for only 26% households farming are the sole/main occupation.

3.1.14 Agricultural Economics & Statistics/ School of Biotechnology

Economic Efficiency of vegetable crop production and their marketing pattern under Sub-Tropical conditions of Jammu division

The research project entitled "Economic efficiency of vegetable crop production and their marketing pattern under sub-tropical condition of Jammu division" has been conducted in three districts (Jammu, Samba, Udhampur) of Jammu division. The overall cost for cauliflower including fixed and variable costs, imputed value of family labour, managerial cost worked out to be Rs.17605.40/ acre, Rs. 16762.01/acre and Rs. 17224.81/acre for Jammu, Samba, Udhampur districts respectively whileas it was Rs. 17454.18/acre, Rs. 16460.65/acre and Rs. 16817.95/acre respectively for cabbage and in case of knolkhol it was Rs. 14612.26/acre, Rs. 13172.28/acre and Rs. 14602.68/acre respectively. The net returns for cauliflower, cabbage and knolkhol worked out to be Rs. 645.76/q, Rs. 448.19/q and Rs. 373.24/q for Jammu district whileas it was Rs. 782.97/q, Rs.433.90/q and Rs. 403.24/q respectively for Samba district and Rs. 644.25/q, Rs. 452.16/q and Rs. 391.67/q respectively for Udhampur district. Further, Jammu district has shown that 75 percent of vegetable farms increasing returns to scale in case of cauliflower whereas in case of cabbage, 70 percent are showing constant returns and for knolkhol, 90 percent have constant returns. For Udhampur district all the three vegetable crops have shown that maximum number of farms had constant returns whileas for Samba district, there were mixture of results. With regard to marketing, major portion of consumer rupee had gone to producer in direct sale from producer to consumer.

3.1.15 Agricultural Engineering

Establishment of Testing Centre for Farm Machinery & Equipments at SKUAST-Jammu

Construction of building of Testing Centre for Farm Machinery and Equipment Shed is almost complete and purchase of most of the Farm machinery and testing equipments has been done. On the completion of civil works. The process of testing shall be started.

Establishment of Micro Irrigation System

Development work approximately 20 ha has been completed. The various micro irrigation system shall be installed at identified locations.

Development and Evaluation of Automatic Timer Based Variable Speed Device For Sprinkler System

In the project, Variable Frequency Device , Programmable Logical Circuit & Data logger has been integrated for sprinkler irrigation system and lab testing of automated timer based variable speed device has done on with 5 hp & 10 hp electric motor compatible with sprinkler irrigation system.

Design and Development of A Tractor Operated Soil Compaction Measurement Device.

The first prototype has been developed and testing is going on. The further modification is going on the basis of testing. A new frame for the machine has been designed for better performance. A new data analysis system and GPS device has also been purchased for retrieving the data from data logger and

analysis and locate the machine's position through GPS system. A double acting hydraulic cylinder fixed on a frame attached to a tractor operates through hydraulic power of the tractor. All the above system has been developed and under testing phase with industrial partner.

3.2 RESEARCH STATIONS/SUB-STATIONS/CENTRES/SCHEME

3.2.1 Regional Agricultural Research Station, Rajouri

All India Coordinated Wheat and Barley Improvement Project (Volunteer Centre)

Three experiments were laid out as per the technical programme of Directorate of Wheat Research, Karnal for the year 2014-2015. Results of the experiments submitted to the concerned Directorate.

WHEAT

Advanced Varity Trial timely Sown Irrigated:

Six entries of the wheat crop were evaluated. Out of the six entries tested, three entries HS 507, VL-832 and VL-907 showed significantly higher yield with grain yield of 43.0, 38.0 and 33.0 q/ha respectively over control. These varieties had shown yield superiority of 29.30, 20.0 and 7.87 per cent, respectively over the high yielding check (HS-240).

Advanced Varity Trial timely Sown Rain-fed:

Fourteen entries of the wheat crop was evaluated. Out of the fourteen entries tested, three entries VL-907, HS-507 and VL-804 were significantly high yielding cultivars with grain yield 35.5, 35.4 and 33.3q/ha respectively over check cultivar (HS-240). These varieties had shown yield superiority of 11.8, 10.7 and 6.06 per cent respectively over the high yielding check.

BARLEY

Initial and Advanced Varietal Trial Rainfed:

Nine entries of the Barley crop was evaluated during Rabi season 2015. Out of the nine entries tested, three entries BHS380 HBL 113 and HBL 276 showed significantly higher yield performance over control (BHS-169) with the grain yield of 39.13, 38.94 and 30.79 q/ha respectively. These varieties had shown yield superiority of 39.8, 39.5 and 23.5 per cent, respectively over the high yielding check.

All India Coordinated Rice Improvement Project (Volunteer Centre)

Two experiments were laid out as per the technical programme of Directorate of Rice Research, Hyderabad for the year 2014-2015. Results of the experiments submitted to the concerned Directorate.

- **IVT- (H):**

  Twenty two entries of rice were evaluated for their grain yield and yield contributing traits under comparison of entries in Initial Varietal Trial – Medium (Hills). Out of these, No one was superior to national check only one entry (TRC 2013 – 9/ IR - 87756 - 20 - 2 - 2 - 3 was observed at par with the national check. Fourteen entries performed significantly better over Regional and Local checks (VL Dhan - 65 and K-39).

- **AVT-1-E (H):**

  Seven entries of Rice were evaluated for their grain yield and yield contributing traits. Out of these, No entry was superior to national check but all the entries were significantly high yielding entries over the Regional and Local check (Shalimar Rice - 3 and K-39).

- **All India Coordinated Maize Improvement Project (Volunteer Centre)**

  Three experiments were laid out as per the technical programme of Directorate of Maize under All India Co-ordinated Maize Improvement Project (AICMIP) for the year 2014-2015. Results of the experiments submitted to the concerned Directorate. Three trials of maize were conducted at Regional Agricultural Research Station Rajouri during Kharif 2014 are as under

- **Trial AVT – 1 - M – Z1**

  Under this trial seven cultivars were

evaluated in Advance Varietal Trial for their yield performance. Two cultivars HM – 9 and LG – 3282 showed higher grain yield in comparison to check (Bio – 9637 F). HM – 9 gave maximum yield followed by LG – 3282.

- **Trial AVT - 1&2 - E – Z1**

  Thirteen cultivars were evaluated for their yield performance in Advance Varietal Trial under this trial. Among these thirteen cultivars eleven cultivars showed better performance than the check. GWH - 0712 gave highest yield followed by Bio- 9720.

- **Trial AVT – 1 – EX**

  Under this trial seven cultivars were evaluated in Advance Varietal Trial for their yield performance. Two cultivars Vivek Hybrid-21 and Vivek Hybrid-43 showed higher grain yield in comparison to check (PHM – 3 F).

- **Agrometerological Field Unit (AMFU), RARS Rajouri**

  Issue weather based agro-advisories biweekly (Tuesday & Friday) for the districts Rajouri, Poonch, Udhampur, Ramban and Doda on the basis of forecast received from Meteorological Centre, Srinagar. The different modes of dissemination of AAS are print media, electronic media and short message services (SMS).

  Recording of daily meteorological observations of different weather parameters from meteorological observatory at AMFU, RARS, Rajouri and sharing of the data on daily basis with IMD, Pune, Meteorological Centre, Srinagar and Agromet Research Centre, Chatha (SKUAST – J).

- **Entrepreneurship opportunities for socio- economic up-liftment of rural farmers through QPM hybrid seed production techniques.**

❖ Parental lines of QPM Hybrid were procured from VIPKAS, Almorha and CCS, HAU, Hisar for seed production at Regional Agricultural Research Station (SKUSAT-J) Rajouri and farmers Distribution.

❖ Seed production of QPM Hybrid was conducted at Regional Agricultural Research Station (SKUSAT-J) Rajouri.

❖ Seven farmers training programme containing 20 farmers each were conducted to make them aware about Hybrid Seed Production in Maize Crop and Their Management.

- **Establishment of Nut Centre in Intermediate Agro-climatic Zone in Jammu province to augment the requirement of quality planting material.**

❖ Fabrication of Poly houses at Regional Agricultural Research Station, SKUAST-J, Rajouri for production of quality planting material of Walnut and Pecan nut.

❖ Procurement of root stocks / seedlings of Walnut and Pecan nut from CSK, HPKV, Palampur, HP.

❖ Establishment of root stocks / seedlings of Walnut and Pecan nut at Regional Agricultural Research Station (SKUSAT-J) Rajouri for grafting and budding purpose.

3.2.2 Dry Land Research sub Station Dhainsar

Permanent Manurial Trail

The sarson equivalent yield differed significantly with various treatments. The highest sarson equivalent yield of 12.80 q/ha was obtained with the application of FYM @ 10 t/ha (T8) during kharif followed by (T_7) 50% recommended NPK + 50% N through (FYM) 11.99q/ha. The lowest sarson equivalent yield of 5.53 q/ha was obtained in the control. The RWUE and B.C ratio was found maximum in T_8 while minimum in T_1 (Control)

The grain and straw yield of Gobhi sarson crop differed significantly with different treatments.

The seed yield of Gobhi sarson was found highest to the tune of 14.17 q/ha with B:C ratio of 3.18 under T_8 where 100% N throughV.C was applied and was found statically at par with T_5, T_7 and T_4 with the corresponding values of 13.80 ,13.09 and 12.48 q/ha' respectively. The lowest seed yield observed under control (T_1). The rain water use efficiency was found highest in T_8 followed by T_5, T_7, T_4,whereas lowest cost benefit ratio was found in T_1(1.56).

Energy Management

Among the Tillage treatments, significantly highest grain yield was recorded in treatment T_3 (50 % CT + Weedicide + interculture) and amongst fertilizer management treatments, grain yield was statically at par in F_3 treatment (100 % N through inorganic fertilizer) followed by F_2 (50 % N through inorganic fertilizer + 50 % N through organic manures).

Development and testing of Agri-horti-silvi-pastoral system models

Data revealed that gobi sarson grown in the alleys of Aonla trees under Agri-Horti-Pastoral (T5) system is the most remunerative system as compared to all other systems which recorded the highest net returns of Rs. 59480/ha with a B:C ratio of 3.53.However, cropping of gobi sarson in the alleys of Aonla trees proved to be more beneficial as the system is also providing fruits.

Intercropping System (Paired Row)

Data revealed that paired gobi sarson with 2 rows of chickpea (T_1) is the most remunerative system as compared to all other systems which recorded the highest net returns of Rs.37321.4/ha with a B:C ratio of 3.23.

Drought management strategy

Significantly higher grain yield of chickpea (730 kg/ha) was obtained in T_{11} treatment with highest B: C ratio of 1.85 where seed hardening with $CaCl_2$ (2%) + Foliar Spray of NAA (40 ppm) at flowering & fruit set was done with RWUE of 3.83 and was found statistically at par with T_7 with grain yield and B:C ratio of 710 kg/ha and 1.81, respectively where Seed hardening with $CaCl_2$ (2 %) + Foliar Spray of NAA (20 ppm) at flowering & fruit set was applied with RWUE of 3.72 followed by T_{14}, T_{13} and T_{12} while the lowest grain yield was obtained in T_{16} (control) with grain yield and B:C ratio values of 505 kg/ha and 1.31, respectively.

Brief results of National Initiative on Climate Resilient Agriculture (NICRA) funded by Central Research Institute for Dry Land Agriculture (ICAR), Hyderabad

Practices demonstrated under Real Time Contingency Planning

- **Varietal evaluation (Maize)**

Out of the four maize varieties sown during the onset of *monsoon* , the hybrid variety *Double Dekalb* produced maximum yield to the tune of 2190 kg/ha with the highest net returns, B.C ratio and RWUE values of Rs.18849/-, 1.96 and 3.26 kg/ha/mm , respectively.

Farmer showing his standing maize crop var. *Double dekalb* at village Khaner

- **Intercropping**

Intercropping of mash (Uttara) and moong (SME 668) was done with maize (var. Double Dekalb) crop at DLRSS, Rakh Dhiansar in additive series (2+1) with no extra fertilizers for intercrop (Table 2). Grain yield to the tune of 1590 and 155 kg/ha was obtained for maize and mash crops, respectively. The intercropping system registered a maize equivalent yield (maize + mash) of 2065kg/ha with a B:C ratio of 1.59.

- **Cropping sequences**

Under cropping sequence programme, seven different cropping sequences viz: Pulse-Oilseed (Moong-Mustard), Pulse-Pulse (Mash-Chickpea), Pulse-Cereal (Moong-Wheat), Cereal-Cereal (Maize-Wheat),Cereal-Oilseed (Maize-Mustard), Oilseed-Oilseed (Til-Mustard) and Pastoral-Pastoral (Fodder-Fodder) were tested and Pastoral-pastoral system recorded highest net returns, B.C ratio and RWUE of Rs.16150/- , 2.36 and 42.50 kg/ha/mm, respectively followed by maize crop sown under Cereal-Oilseed and Cereal-Cereal systems which produced net returns of Rs. 16106/- and 14288/- with B.C ratio of 1.83 and 1.74, respectively.

Sesame, Pulse and maize crop sown under different cropping sequences Practice demonstrated under Energy management

- **Improved method of sowing by Maize planter**

Maize crop was sown on 18-07-2014 on the station by broadcasting (farmers practice) and by Maize Planter (improved practice) and harvested on 06-10-2014. Sowing maize by improved technique i.e by maize planter resulted in crop yield increase by 27.6% over the farmer's practice (broadcasting).

Practice demonstrated under alternate land use system:

Sowing of mixed fodder with Aonla (Aonla + mixed fodder)

Aonla + mixed fodder (maize+jowar+bajra) - gobhi sarson was demonstrated at DLRSS, RakhDhiansar and comparison was drawn with farmer's practice. The results revealed that mixed fodder yield to the tune of 212 q/ha with RWUE of 26 kg/ha/mm. The mixed fodder realized B:C ratio of 1.76 with net returns to the tune of Rs 7329/ha.

- **Mixed fodder in Aonla for delayed monsoon**

The maize yield under Aonla + Maize (100% NPK) system on farmers fields ranged from 1630 to 1715 q/ha with mean yield of 1673 q/ha. RWUE ranged from 2.43 to 2.60 kg/ha/mm with mean RWUE of 2.51 kg/ha/mm. The net returns per hectare ranged from Rs 9194/ha to Rs 10574 /ha with B:C ratio of 1.48 to 1.56 respectively. Mean net returns was found to the tune of Rs 9884/ha with B:C ratio of 1.52.

Aonla + maize (Maize with recommended dose of fertilization)

3.2.3 Maize Breeding Research Sub-Station, Poonch

Maintenance of Inbred/germplasm lines:

❖ A sum of 1058 inbred/germplasm lines available with the station (both white and yellow group) is in different selfing generations. These lines include Germplasm

lines, station inbred lines, CIMMYT lines and speciality corn inbred lines including popcorn, sweetcorn and babycorns. These inbreds were advanced through selfing followed by selection between and within progenies during kharif 2014. The selfed seed of the aforesaid inbreds have been collected and data has also been recorded to assess their performance during next kharif season.

❖ Study for identification of promising inbred lines and their cross combinations were carried out through diallel analysis in 15 parental lines during kharif 2014 and more than 210 crosses (including reciprocal crosses) have been attempted under the matting design during the year. The hybrids thus produced will be evaluated for their GCA and SCA alongwith their parents in 2015.

Evaluation of varietal trials of station, public sector & Pvt. Sector hybrids:

❖ A replicated station trial on 31 new single cross hybrids in white and yellow maize group along with local popular hybrid KH-612 (White) and KH-517 (Yellow) as check, respectively was carried out during Kharif-2014. Out of these 5 single crosses i.e. C4/13-39/40, C4/13-37/42, C4/13-28/30, C4/13-23/9 and C4/13-5/25 revealed more than 10% yield superiority over the respective checks

❖ As a volunteer centre of AICRP (Maize), 5 numbers of AICRP hybrid evaluation trials were conducted at this station during kharif 2014:

1. Trial No. 66 Z-1 Medium Maturity (AVT-1 Year)
2. Trial No. 67, 71 Z-1 Early Maturity (AVT-I-II Year)
3. Trial No. 68 Z-I Extra Early Maturity (AVT-I Year)
4. Trial No. 102 Zonal Trial (Medium Maturity)
5. Trial No. 103 Zonal Trial (Early Maturity)

Morpho-physiological trait data for all the trials were recorded and submitted to IIMR, New Delh well in time.

❖ As a testing centre of private sector maize hybrid, one replicated trial consists of 7 Pvt sector hybrids was evaluated during kharif 2014 and data recorded on yield and attributing trials were submitted to the Directorate of Research well in time.

Entries under Advanced Evaluation:

Evaluation of station entries through AICRP IET trials

❖ Two promising composites i.e. PMSY3 and PMSW4 were evaluated in IET trial through AICRP on maize at four Zones of India during kharif 2014. The result of IET kharif 2014 showed 59.97 ql/ha, and 57.95 ql/ha yield performance of PMSY3 and PMSW4, respectively over five zones (India) evaluated in hybrid evaluation trial.

Evaluation of station entries in public sector Multilocational trial

❖ Station maize hybrids/composites entries are evaluation every year in public sector multilocational trial constituted by Division of PBG and conducted across the area jurisdiction of SKUAST-J at three locations Poonch, Udhampur and Chatha. Five station entries of promising single cross hybrids/composites PHM 34, 15, 17, PMSY3 and PMSW4 identified in station hybrid evaluation trial were evaluated in the trial during kharif 2014. Where all three station hybrid entries i.e. PHM 34, 15 and 17 showed 10 to 22.6% yield superiority with respective check hybrid over the locations.

Evaluation of station entries in Minikit Trial

❖ The experimentally developed station hybrid/composite entries are regularly evaluated at farmer's field through minikit trials conducted by Dept. of Agril., Govt. of J&K. During kharif 2014, two station hybrids and two station composites were evaluated at farmers field of Jammu province in minikit trials. Department of Agril., Jammu reported 38 ql/ha yield of PMSY3 at farmers field with good response of farmers towards the variety. Where as 27.60, 42.00, 30.60 and 22.60 ql/ha average yields were reported for station entries PH-M34, PHM 12, PMSW4 and PMSY3,

respectively by the Department of Agril, Dist. Poonch. However the performance of station maize minikit laid by Dept. of Agril, Rajouri during kharif 2014 was effected badly by rain and floods in the month of September.

❖ Three trainings on seed production of wheat, oat and mustard crops were conducted for tribal farmers of Poonch district alongwith input distribution for the seed production to the farmers during 2014-15 under TSP seed project.



3.2.4 Regional Horticulture Research Sub-station, Bhaderwah

(i) Networking Project on Outreach of Technologies for Temperate Fruit Crops

Sub-Project 1: Productivity enhancement of elite apple cultivars through high density planting and efficient water and pollination management

The data of apple cultivars Oregon Spur, Red Chief, Red Fuji, Starkrimson, Royal Delicious, Red Delicious and LalAmbri on MM-106 rootstock of apple planted at a spacing of 2.5m x 2.5m was collected after three years of planting for their plant survival, plant height, girth, spread, flowering, fruit set and yield parameters.

❖ **Sub-Project 2: Medium density orcharding for higher almond productivity**

The growth and flowering characteristics of seven cultivars of almond viz. Non-pariel, Merced, Primorskii, Pranyaz, Waris, Shalimar and Makhdoom planted at a spacing of 4m x 4m was recorded.

❖ **Sub-Project 3: Plant architectural engineering for higher energy harvest vis-à-vis productivity in apple**

Standard cultivar of apple namely Red Delicious and dwarf cultivar of apple namely Starkrimson on clonal rootstock of apple MM-106 and MM-111 were trained for further studies at a spacing of 2.5m x 2.5m for Modified Central Leader System, 1.5m x 2.5m for Spindle Bush System, 1.5m x 3.0m for Trellis system, 1.5m x 2.5m for Head and Spread system, 0.75m x 1.5m for Vertical Axis and 1.5m x 3.0m for Cordon System.

❖ **Sub-Project 4: Multi-location testing of elite walnut genotypes under medium density**

Data on growth parameters of five genotypes of walnut namely CITH-01, CITH-02, CITH-03, CITH-04, CITH-05 planted at a spacing of 6m x 6m have been collected in this year.

❖ **Sub-Project 5: Multi-location testing of elite apricot genotypes under medium density**

Data on three genotypes of apricot namely, CITH-01, CITH-02, CITH-03 planted at a distance of 5m x 5m have been taken for the year 2014-15.

❖ **Sub-Project 6: Survey and mapping of major pests and diseases of temperate fruits**

Data on the attack and severity of major pests and diseases in temperate fruit crops viz. apple, almond, walnut, apricot and cherry have been collected for this year for further studies.

(ii) Exploitation of natural variability of walnut for exported related traits

In addition to the earlier collection of walnut germplasm, fourteen new accessions were selected for further evaluation.

(iii) Survey of Ambri apple variants in Doda district

Three selections of Ambri variants were shortlisted and multiplied. Three new selections were made from Kishtwar district for further evaluation.

(iv) Propagation studies in walnut

Experiment on propagation studies in walnut was conducted at KVK, Gwari and RHRSS, Sartangal, wherein a very low success of walnut propagation in open field condition was recorded.

(v) Study of the efficacy of eco-friendly products against peach green aphid

Different eco-friendly products were used viz. Verticillium lecanii @10^8cs/ml, neem oil 2%, Azadirachtin 1500ppm @4ml/liter of water, alone and in combinations, for their efficacy against peach green aphid at Gwari farm, Bhadarwah during 2014 in randomized block design with five replications. Among the treatments, T_5: Verticillium lecanii @10^8cs/mp followed by azadirachtin 1500ppm @4ml/liter of water was the most effective against peach green aphid, followed by T_4 (Verticillium lecanii @10^8cs/ml followed by neem oil 2%) and T_1 (Verticillium lecanii @10^8cs/ml), over control.

(vi) Nutritional survey of apple orchards of Doda district with respect to important micronutrients.

The data of Bhaderwah, Bhallesa, Thathri, Marmat and Ghat blocks of Doda district have been collected and their analysis is under process.

(viii) Collection, evaluation and selection of quality Rajmash for commercial cultivation in Doda District

- Four lines of pole type and four varieties of bush type rajmash have been selected and evaluated for yield potential and disease resistance at RHRSS, Bhaderwah.
- Rajmash seed production at Sartangal Farm during 2014.

Pole type Rajmash lines

Line	Available Seed
BR 104	4
BR 303	2 Kg

Bush type Rajmash lines

BR 39	6 Kg
BR 37	2 Kg
BR 35	1 kg

(ix) Evaluation of rice varieties (Farmers varieties) Kotarnal, Gizza, Shalimar Rice -2 (SKUA 341), Shalimar Rice-3 (SKUA 382) and Local variety.

A trial was conducted at Sartangal Farm, RHRSS, Bhaderwah during Kharif-2014. Highest yield was recorded in the local variety.

Results of the experiment are given below

S. No.	Name of the variety	Plant height (cm)	No. of panicles per plant	Days to maturity	Yield per hectare (qtls)
1.	Kotarnal	109.40	17.00	138	21.62
2.	Gizza	103.00	11.00	146	32.09
3.	Shalimar Rice -2 (SKUA 341),	108.00	16.40	135	30.86
4.	Shalimar Rice - 3(SKUA 382)	109.8	18.20	125	33.95
5.	Local variety	111.20	17.00	130	49.38

(x) To work out the organic package of Maize+Rajmash(1:1)+Pea cropping system under the hilly tracts Bhaderwah) of Jammu conditions.

The research trial in Kharif and Rabi 2014 were conducted at Research Farm, RHRSS, Sartangal and observations were recorded as per the technical programme.

3.2.5 Rainfed Research Sub-station for sub-tropical fruits, Raya

Studies on epidemiology and management of powdery mildew (Oidium mangiferae) of mango in rainfed subtropics

Survey was conducted during flowering stage of mango orchard in different areas of Jammu for occurrence and incidence of powdery mildew. The disease ranged to the tune of 2.5- 48.0% per cent. Maximum incidence (48.0%) was recorded in village Kamila in district Samba. It was followed by Badhori (38.7%) and Bishnah (32.8%) powdery mildew incidence. It was also recorded that older and desi mango trees were more

susceptible against powdery mildew.

Epidemiological Studies of Black Leaf Spot of Ber:

Weather parameters, i.e. maximum temperature (^{0}C), minimum temperature (^{0}C), relative humidity morning (%), relative humidity evening (%), rainfall (mm), dew point temperature morning (^{0}C) and dew point temperature evening (^{0}C) influenced the powdery mildew. One year data revealed that weather parameters, i.e. maximum and minimum temperature were positively correlated with the development of powdery mildew with the correlation value of 0.40 and 0.35, respectively. Relative humidity (morning) had significant positive correlation (0.65) with disease development. However, rainfall had negative correlation (-0.72) with development of powdery mildew. However, this studies needs to be verified in next flowering season due to lesser no of flower and abnormal weather.

Standardization of rootstocks for Kinnow under rainfed conditions of Jammu sub-tropics

The seeds of different citrus root-stock i.e. Zatti khatti, Cleoptra mandarin, Sweet lime, Karan Jambhiri, Rangpur lime, Karna khatta, Carrizo, Galgal were introduced from Fruit Research Station, Abohar (PAU) and also selected from rainfed area to standardized the suitable root stock for Kinnow propagation. The seeds were sown in poly bags and the rootstocks will be budded during rainy season.

Introduction of red lady variety of papaya: The red lady variety of papaya was introduced in the month of March 2015 for distributing among the farmers. Six hundred plants are available for sale during rainy season.

Production of Quality planting materials: The production of quality planting material of major and minor's sub- tropical fruit i.e. Aonla, mango, citrus, custard apple, phalsa and bael etc. is going on for distribution among the farmers.

3.2.6 Farming System Research Centre

- **Development and validation of on station Integrated Farming System Research Model for small and medium farms toward livelihood security.**

  An integrated Farming System Model for 1.0 ha area has been developed with the scientific integration of different components like crops + horticulture+animal+backyard-poultry+fishery+vermi-compost. The IFS model of 1 ha proposed realized gross return of Rs.419598 from all the above enterprises by investing of Rs. 238283 with B:C ratio of 0.80 following this IFS model the income of the farmer can be increased to Rs. 190765/- per year as compared to nearly Rs. 86000/year with traditional rice

  wheat system more over this Farming System Model also generates employment of 510 man days per year. Simultaneously this Farming System Model could also generate employment, besides providing neat and clean (air soil and water pollution free) environment to the society as well as sustaining or improving soil physical, chemical and biological properties of soil.

- **Development of organic farming package for system based high value crops**

  Organic farming package for high value cropping sequence like rice-potato - French-bean is being developed for the last 4 years and found that the REY under the treatment where 100% recommended N was applied different organic sources each equivalent to 1/3 of recommended N

Long term study on integrated plant nutrient management for rice-wheat system

through FYM +Vermi compost + Non edible oil cake was recorded at par with the treatment where 100% RDF was applied through fertilizer alone. The highest REY of 8.2 t/ha was recommended in T_4 and closely followed by T_2 (8.1t/ha) where different organic sources each equivalent to 1/3 of N through FYM + Vermicompost + non edible oilcake (neem cake) were applied along with adoption of agronomical practices for weed control. Soil organic carbon content was recorded higher in all the organic treatment which varied from 5.6g/kg soil to 8.0 g/kg soil over initial value of 5.1 g/kg soil. Available NPK content in soil was slightly enhanced where organic sources like FYM/vermi-compost/neemcake were applied. The microbial count was affected by the organic treatments, initial population of Fungi, bacteria and actinomycetes in experimental area was recorded 6.0, 12.0 and $10.0x10^5$ CFU/g soil, respectively which was enhanced to all the treatment after 4th year of study period.The maximum count of Fungi ($28x10^5$ CFU/g) and bacteria ($55x10^{5\ CFU/g}$) were recorded in plot where 50% recommended N through vermi-compost+bio-fertilizers+rock phosphate to substitute the P requirement+PSB were applied to each crop while the population of Actinomycetes in the soil was recorded higher ($17x10^5$ CFU/g) under treatment T_6 where different organic sources like (FYM+vermi-compost+non-edible oil cake) with VAM was applied to each crop.

Twenty nine years long term application of 50% NPK through fertilizer + 50% N through FYM to rice and 100% NPK through fertilizer to wheat crop gave maximum yield of rice (5.1ton/ha) and wheat (3.9ton/ha) in rice-wheat system.

Application of chemical fertilizers alone or in combination with FYM/crop residue/GM increased grain yield of rice grain yield, crop productivity of the system was also higher (9.0 t/ha) under INM treatment where 50% NPK was applied through fertilizers + 50% N applied through FYM to Rice and 100% NPK through fertilizers To Wheat crop , which was followed when fertilized with 50% NPK through fertilizers and and 50% N through N through GM and 25% through paddy straw respectively. Temporal changes of soil organic carbon content in long term study cleared showed that the content of SOC was increased under those treatments where organic sources like FYM, crop residue and green manuring was incorporated during Kharif season over a period of time. However SOC content was decreased in control (T_1) and farmer's practies (T12), while similar trend was also observed under (T5) where 100% recommended NPK was applied through fertilizers after 17 years of study. The initial value of available N,P and K was 456.10, 13.30 and 154.0 kg/ha.

Although the available content of N and K decreased and P increased from the initial status. The higher value of available N (249.09 kg/ha) and P (36.40 kg/ha) was recorded in T_6 where 50% N was substituted with FYM in Kharif and K (128.35 kg/ha) in T_8 where 50% N was

substituted with paddy straw in Kharif. The DTPA extractable micronutrients content (Viz Mn, Fe and Cu) except Zn was recorded above their critical level in all the treatment including control and farmer practice. The range of DTPA Fe was varied from 13.71 mg/kg soil in control (T_1) to 47.60mg/kg in INM treatment where 50% N was substituted with FYM to rice and 100% NPK through fertilizers to wheat crop (T_6). Similarly DTPA extractable Mn was varied from 27.25 mg/kg soil in chemical fertilizer (T_3) to 44 mg/kg soil in INM treatment where 50% N was substituted with FYM in Kharif (T_6). While DTPA-Cu range varied from 0.743 mg/kg soil in T_9 to 1.03 mg/ kg soil in T_6 respectively. However, DTPA extractable Zn in soil after completion of 27th cycle of rice-wheat cropping system varied from 0.33 mg/kg under treatment receiving 100% NPK in both crops (T_5) to 0.79 mg/kg under the treatment receiving 75% NPK through inorganic + 25% PS and 75% NPK through inorganic in wheat crop (T_9) closely followed by T_6 (0.76 mg/kg) when 50% NPK+50% N through FYM during Kharif followed by 100%NPK during rabi. The highest value in T9 was closely at par with T_6. The Zn content in soil under continuous application of fertilizer alone as well as farmer practices where imbalanced fertilizer applied was below critical level under rice-wheat cropping and appreciable amount of Zn was build up under the treatment where inorganic fertilizer was applied with organic in Kharif season only and inorganic fertilizer in rabi crop in system. It indicate that adoption of IPNN in long term basis in Kharif season realized higher productivity of rice and wheat in a system and would be the most practical viable technique and eco-friendly technology for crop production.

- **Diversification and intensification of need based alternative cropping system.**

  The diversified cropping system like rice-broccoli-mash, rice-spinach-bhindi, rice-knol khol-potato and rice-marigold-french bean are the better choice for obtaining higher net return(Rs.2.97, 2.64, 2.61 and 2.48 lakh) and B:C ratio (Rs. 2.99, 2.09, 2.38 and 2.33) as compared to existing rice-wheat cropping system under irrigated condition of Jammu region (net return of Rs.0.71 lakh and BC rato of 1.05). Similarly highest system profitability of Rs.766/ha/day was recorded underrice-broccoli-Mash followed by Rice-Spinach-Okra (Rs. 722/ha/day) and Rice-Knol-Khol-Tomato (Rs. 716/ha/day), respectively. Whereas land use efficiency and production efficiency was found highest 94.52% and 108.71 Kg/ha/day under Rice-Spinach-Okra and Rice – Broccoli – Mash system. However soil organic carbon was build up to 6.4 g/ kg soil under Rice-Potato-Maize- green gram over initial value of 5.5 g/kg soil.

- **On farm crop response to plant nutrient in predominant cropping system and their impact on crop-livestock human continuum.**

  Application of NPK coupled with $ZnSo_4$ to rice, produced higher grain yield of rice(2893kg/ha) and wheat(3130kg/ha) with highest nutrient response of 12.16 kg grain/ kg of nutrients in a rice-wheat system , where as 2226kg of rice and 2364 kg of wheat under farmer practice was observed. The increase in grain yield over farmer practices was 337 kg in rice and 739kg/ha in wheat. Similarly, higher MEY of 7978 kg/ ha and nutrient response of 22.96 kg grain / kg nutrients was recorded under NPK + ZnSo4 followed by application of NPK (7645 kg/ ha) in Maize – Wheat system. However, FP recorded 6265 kg/ ha MEY with nutrient response of 14.83 kg grain /kg nutrient applied and the response of 14.83 kg grain /kg nutrient applied and the increase in MEY over farmer practice was 27 percent.

- **Diversification of ecosystem existing under marginal existing under marginal household control.**

  During the study period, the interventions

were made in crop (rice-wheat & maize-wheat) and livestock in existing only. The net return of Rs. 43414, 38360, 41688 and 37981 per annum was realized by investing Rs. 3034, 3025, 2952 and 2189 as intervention cost in field crop + dairy , field crop + dairy + poultry , field crop + dairy + poultry, field crop + dairy + goatry & field crop + dairy + poultry + goatry respectively.

- **On farm evaluation of farming system modules for improving profitability and livelihood of small marginal farmers.**

  The system Crop+Dairy (1.08ha) realized net return of Rs. 89904 before intervention and increased to the tune of Rs. 124130 in first year and Rs. 154090 in second year after intervention. Whereas in crop+Dairy+Goatry(1.45 ha) Farming system the net income was Rs.152117 before intervention and increased to Rs. 170680 and Rs. 242730 after intervention during 1st and 2nd year, respectively. The impact of intervention under farmer participatory mode was observed 70% and 60% higher in Crop + Dairy and crop+Dairy+Goatry Farming System respectively.

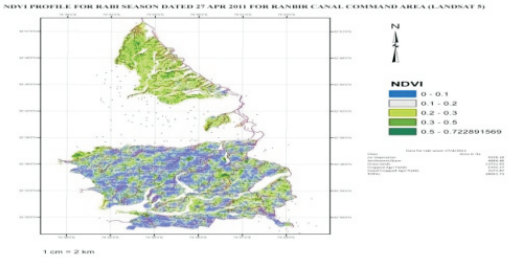
3.2.7 Water Management Research Centre

Benchmarking Ranbir canal command area (38623 ha) of Jammu region for Performance Indicators of Rice Wheat crop through field inputs RS and GIS Technique (Completed)

Scientific findings submitted to stakeholder's alongwith Chief Engineer, I&FC, Jammu vide letter no: WM/14-15/F-29/312-318 dated: 13.10.2014

Impact:

Additional surface water is being diverted during Kharif from Niki-Tawi at Bailicharana, Jammu to identified problematic reach from distributary (D-9) onwards within R.S. Pura belt (surface water & additional ground water for tail end reaches under construction by I&FC, Jammu.



NDVI profile during rabi of Ranbir Ccanal command area of Jammu

Evaluation of Sprinkler System in Potato (Solanum tuberosum) (Completed)

- Water Use Efficiency
- sprinkler irrigation (42.74 kg/ ha-mm)
- skip-furrow (40.89 kg/ ha-mm)
- flooding irrigation (30.47 kg/ ha-mm)

Optimization of land and water resources of Tawi lift canal command area of Jammu (14710ha) for rice-wheat sequence

- Field data collection regarding flow discharge, cropping pattern in 11 distributaries of Tawi lift completed.
- Registering of SOI maps and benchmarking of Tawi irrigation infrastructure under progress.

Tawi lift irrigation command

To study the impact of laser leveling on WUE in rice- wheat system within village Hakal of Ranbir Canal Command Area.

Results of Kharif - 2014 indicated that laser leveled plots improved grain yield of rice by 18.8% and WUE by 19.1%.

ORP Research for laser level plots in farmer field at Hakal village during Kharif, 2014

Evaluation of drip irrigation layout and effect of irrigation on tomato (Lycopersicon esculentum)

- The first year results of the experiment kharif- 2014 indicated percentage water saving under drip irrigation system for potato crop was 77% under irrigation levels of I_1 (0.25 PE), 52% under I_2 (0.50 PE) and 30% under I_3 (0.75 PE) as compared to control.

Evaluation of basmati rice varieties under aerobic system and wheat established under conventional and zero-till planting for irrigated plains of Jammu

- During the first year of the experiment Kharif - 2014 the irrigation regimes (I_3) Irrigation/ Saturation at 0.3bar Tensiometer reading at 15cm depth) indicated highest yield of 21.98 q/ha with WUE of 2.16 kg/ha-mm

On-station Experiment Kn-2014

Studies on soil-water-plant relationships for efficient irrigation management of field crops under Jammu conditions.

During the first year of the study 2014-15 the variable trends in soil moisture content is being recorded on 16 days interval in correlation with LANDSAT-8 data.

Performance evaluation of system of rice intensification (SRI) over scientific management practices (SMP) for basmati rice at Jammu.

The data for second year during Kharif - 2014 recorded meager yield due to hail storm struck during the month of 7th October, 2014 thus affecting water productivity mainly. However, the trail shall be repeated during Kharif– 2015.

Effect of establishment methods and irrigation regimes on water productivity of wheat

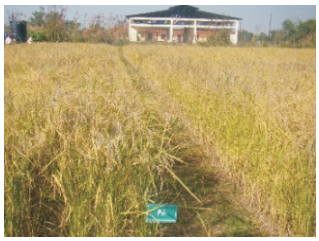
Result showed that treatments of conventional tillage, raised-bed method, and zero-tillage yielded 3.29, 3.25, and 3.44 t/ha of wheat (Raj-3077), respectively, regardless of the irrigation levels.

On-station Experiment on Wheat

Alternative crop rotation of potato-rajmash to overcome the shrinking water availability within Canal Commands

On-station experiment on Kufrisindhuri potato

- During Rabi, 2013-14 highest yield was obtained in T_{6-} (Irrigation at an interval of IW/CPE= 1.0)treatment when there was no stress of water.
- Highest WUE of 204.6 kg/ha-mm was obtained when stress was imposed in tuber bulking stage T_5- (Stress in tuber bulking stage).



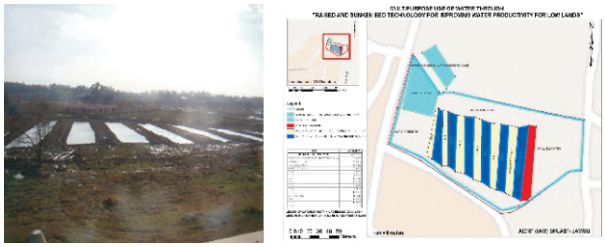
On-station experiment Kh-2014 (Basmati-370)

Effect of puddling methods and irrigation regimes on water balance in rice

- During first year of the experiment Kh-2014 the result indicate water expense efficiency was recorded as 0.59, 0.61, and 0.62 kg/ha-mm with P_1, P_2, and P_3, respectively.
- **P**uddling with rotavator (P_3) exhibited best result in terms of water expense efficiency of rice.

Multipurpose use of water through raised and sunken bed technology for improving water productivity of low lands"

Establishment of the physical model is under progress measuring approx. 2.0 ha by development of existing marshy patch of land at SKUAST-J, Chatha from Rabi, 2014-15 to till date.



Model site plan and final shape

3.2.8 Pulses Research Sub-Station, Samba

Crop improvement

I. Rabi 2013-14

Experiments:

AICRP on Chickpea: Six experiments were conducted under this project and best entries:

S. No	Experiment	Rep.	Entries	Best check Seed yield (Kg/ha)	Superior entries (seed yield)
1.	Chickpea AVT - 1(Desi)	4	8	GNG-1581(1717)	GL-28295(1561),GNG 2171(1466), GL-28297(1431)
2.	Chickpea AVT - 1(R.F)	4	7	GNG-469(980)	GNG1581(FE)(1423),GNG663(FE)(1249), GNG-1958(FE)(1085), GNG-2146(1095)
3.	Chickpea IVT - 1(R.F)	3	25	CSJ 515(1545)	GNG2226(1597), HI0-41(1406), CSJ741(1336), BG3045(1215), H10-57(1180)
4.	Chickpea – AVT -1 (K)	4	11	HK-4(790)	HK09-206 (920), GLK 27211(851),
5.	Chickpea –IVT(K)	3	18	HK4(1423)	HK-09-211(1771), GLK10082(1618),CSJK 77(1597),GNG2228(1562), NBeG402(1562),IPCK2009-145(1562), IPC2009-145(1562), Phule G -0625-6(1528), CSJK4(1521), GNG2237(1458)
6.	Chickpea MH Nursery	2	15	SCS-3(1380)	CSJ 303(1823),CSJ513(1771), GBT -5(1536), PG099(1406),HC-5(1380)

II. ICAR- ICRISAT Collaborative work

S. No	Experiment	Rep.	Entries	Best check Seed yield (Kg/ha)	Superior entries (seed yield)
1.	ICSN- Desi	2	15	SCS-3	-----
2.	AICRP on MULLaRP				
3.	Lentil (S.S)	4	8	L-4147(907)	IPL-221(1009)
4.	Lentil IVT(L.S)	3	21	DPL-62(972)	IPL-331(1019), KLB 13 -6(949), PL-164(944)
5.	Lentil IVT(S.S)	3	24	PL-063(1163)	PL153, KLS 13 -1, (1435), VL-146(1435), LL1209(1343), IPL-225(1338)

III. Kharif -2014

AICRP on MULLaRP : Under different of Moongbean Trials the entry ML-818 performed well.

IV. Maintenance breeding

S. No.	Crop	Variety	Category of seed	Quantities (kg)
1.	Chickpea	SCS-3	Breeder	16.00
2.	Chickpea	C-235	Breeder	11.50
3.	Chickpea	GNG-1581	Breeder	05
3.	Chickpea	GNG-1581	Certified I	70.00
4.	Chickpea	GNG-469	Breeder	108.00
5.	Chickpea	Gaurav	Breeder	5.00
6.	Fieldpea	Rachna	Breeder	61.00

Kharif 2014

S. No.	Crop	Variety	Category	Quantities (kg)
1.	Urdbean	Uttara	Breeder	35.00
2.	Urdbean	Pant U-19	Nucleus	1.00
3.	Mungbean	ML-818	Breeder	25.5

New Moongbean variety (ML-96-1X SML-668) in pipeline for release at F6 generation at PRSS, Samba

Agronomy

Conservation agriculture practices for enhancing productivity of chickpea based cropping systems (cereal/oil seed/pulse-chickpea) in rainfed areas: The one season study on conservation agriculture revealed that the treatment where conventional tillage coupled with mulching given to chickpea crop recorded significantly higher grain yield. Tillage treatments differ significantly among themselves and conventional tillage where two cultivator each followed by planking recorded significantly higher chickpea yield (1380Kg/ha) as compared to reduced and zero tillage. The reduced tillage (1107 Kg/ha) is also recorded significant chickpea grain yield over zero tillage (887 Kg/ha).However, the mulching treatments recorded significantly higher chickpea grain yield of 1341Kg/ha than as recorded in without mulching treatments

Field View of Conservation experiment on Chickpea – Maize cropping system

Conventional tillage + mulching

Conventional tillage without mulching

Bioefficacy of different herbicides for broad spectrum weed management in chickpea:

Among the nine herbicidal treatments, the application of Pendimethalin 30 EC formulation + Imazethapyr 2 % (Ready mix combination)* @ 1.0 kg/ha PE + one hoeing at 30-35 DAS registered significantly higher grain yield of chickpea (1473.00 kg/ha) over all other treatments followed by Pendimethalin 30 EC formulation + Imazethapyr 2 % (Ready mix combination) @1.0 kg/ha PE with 1269 kg/ha grain yield of chickpea. The lowest grain yield of chickpea (499 Kg/ha) was recorded with treatment one HW at 30-35 DAS. *Chenopodium album, Melilotus indica, Fumeria parviflora, cyperus rotundus, Cynodon dactylon, Phalaris minor, Anagalis arvensis* were the common weed flora found in the experimental site.

Note: No phototoxic effect on crop was observed during the course of investigation.

Significant observation noted during the course of investigation that the appearance of railway creeper weed is not found in the plots where Pendimethalin 30 EC formulation + Imazethyper 2 % (Ready mix combination @ 1.0 kg/ha) followed by 1HW was used however, it was observed in all the plot where rest of the herbicides were used. Moreover, this is very important information as the appearance of this weed generally seen in between end of February to March and its spread is so fast in the chickpea fields that it is almost impossible to control this weed at this point of time as the crop is approaching towards its maturity stage

Conservation agriculture practices (tillage and nutrients) and weed management for enhancing productivity of chickpea based cropping systems (Cereal/oilseed/pulse-chickpea) in rainfed areas:

Conventional tillage supplemented with the application of nutrients of 5 t/ha FYM along with half of the recommended dose of fertilizers and also when two hand weedings were given to both maize and chickpea crop recorded significantly higher grain yield of maize and chickpea than reduced tillage supplemented with same treatments. Conventional tillage recorded higher grain yield of maize (2240.00 kg/ha) and chickpea grain yield (1205.19 Kg/ha) , half of the nutrient supplementation through RDF when applied through fertilizers and rest with 5 t/ha FYM proved better in recording grain yield of maize (2178.80 kg/ha) and chickpea grain yield (1193.06 Kg/ha) .However the weed control through manual weeding registered higher grain yield of maize (2282.50 Kg/ha) and chickpea (1171.06 Kg/ha) in Maize-Chickpea cropping system. The results on chickpea equivalent yield also showed similar trends in yield production as that observed in case of mono crops of chickpea and maize. Significantly higher system equivalent yield of Chickpea was observed with conventional tillage (two harrowing + planking) (2244.74 Kg/ha) over reduced tillage (one harrowing+ planking) (1947.89 Kg/ha) and higher b:c ratio (1.57). The per cent increase in chickpea equivalent yield in conventional tillage, FYM@5t /ha + half RDF and Twice manual weeding was to the tune of 15.40, 7.96 and 13.67 per cent over reduced tillage, RDF and Use of recommended herbicide (Pendimethalin @ 1.0 kg/ha), respectively. The treatments when compared with each other indicated that the treatments where conventional tillage (1.57), half of the nutrient supplementation through RDF when applied through fertilizers and rest with 5 t/ha FYM (1.42) and weed control through manual weeding (1.36) recorded higher values of benefit cost ratio.

Phosphorus and sulphur management in Kharif cereal/Oilseed-chickpea (Chickpea-Sesamum):

The application of 5 t/ha FYM recorded higher grain yield of sesamum (704.73 kg/ha) in kharif and chickpea (916.06 kg/ha) in rabi .Similarly, when supplemented with 60kg/ha phosphorus and 20 kg/ha sulphur the sesamum grain yield (739.51kg/ha with 60 Kg P_2O_5 and 693.43 kg/ha in 20 Kg/ha S application) and chickpea grain yield (947.93 kg/ha with 60 Kg P_2O_5 and 898.61 Kg/ha with 20 kg/ha S application) over 0 t /ha FYM along with 30 and 0 kg/ha of P and S. Five t/ha FYM registered significantly higher chickpea equivalent yield of 1973.14 kg/ha whereas 60kg/ha phosphorus recorded higher chickpea equivalent yield of 2048.40 kg /ha whereas the application of 20 kg/ha of sulphur recorded 1938.75 kg/ha of chickpea equivalent yield yield over no application of FYM (1828.42 kg/ha) , phosphrous (1617.97 kg/ha) and sulphur (1862.81 kg/ha) .

Evaluation of IVT, AVT-1 and AVT-2 (desi, kabuli, rainfed and late sown) 189entries against Wilt and Ascochyta blight disease:

Entries GL2905, CSJ515 and H10-14 showed wilt resistant reaction with mortality of 5.5, 8.92 and 7.7 %, respectively. The seed of these resistant entries is being multiplied during current Rabi season in wilt sick plot. These Entries also showed resistant reaction against **Ascochyta blight disease**

Evaluation of chickpea germplasm and advance breeding materials (15 enteries) against Ascochyta blight disease:

Germplasm lines screened against Ascochyta blight disease only entries GBT-5, GBT-9, IPC 2006-11, CSJ-303, CSJ-808, E-100YM and Sherpur Selection showed moderately resistant reaction against Ascochyta blight disease. Rest was showed Tolerant to highly susceptible disease reaction against Ascochyta blight disease.

Evaluation of National Nursery of chickpea (22 enteries) against Ascochyta blight disease:

Entries NNAB4 and NNAB 20 showed moderately resistant disease reaction against **Ascochyta blight disease.** Rest entries showed Tolerant to highly susceptible disease reaction against **Ascochyta blight disease.**

Disease incidence in chickpea as influenced by different dates of sowing:

Out of 5 entereis, varieties C-235 and PBG-1 were found resistant reaction against Ascochyta blight disease in all three dates of sowing i.e. 25/10/2013, 24/11/2013 and 24/12/2013 and maximum disease incidence in varieties L-550, GNG-469 and SCS-3 (Rating 9) was recorded in all three dates of sowing.

Plant Pathology

Varieties PBG-1 & C-235 showing resistant (R) and moderately resistant against Ascochyta blight disease under chickpea coordinated

experiment on different dates of sowing

Rabi, 2013-14

1. AVT-1 (Kabuli)-Out of eleven entries, none entry was found resistant against Ascochyta blight disease and all have shown tolerant to moderately susceptible disease reaction against Ascochyta blight disease.
2. AVT-1 (Rainfed)- Out of eight entries, only entry GNG 2146 was found resistant against Ascochyta blight disease and rest have shown moderately resistant to tolerant disease reaction against Ascochyta blight disease.
3. IVT (Kabuli)- None entry was found resistant against Ascochyta blight disease.All (18 entries) have shown moderately resistant to moderately susceptible disease reaction against Ascochyta blight disease.
4. IVT (Rainfed)-Out of 25 entries, entry GAG1107 was found resistant against Ascochyta blight disease and rest have shown moderately resistant disease reaction against Ascochyta blight disease.
5. AVT-1 (Desi)-Out of eight entries, only three entries viz.GNG1581,GNG1958 and GL28297 were found moderately resistant against Ascochyta blight disease and rest entries have shown moderately resistant to moderately susceptible disease reaction against Ascochyta blight disease.
6. Mechanical Harvest Nursery- Out of 15 varieties, only two varieties GBT-5 and GBT-9 were found resistant against Ascochyta blight disease and rest entries have shown tolerant to moderately susceptible disease reaction against Ascochyta blight disease.

ICRISAT Nurseries-

ICSN (Desi) - Out of 20 entries, ICCV-13101, 13118, 13119 and 13120 have shown asymptomatic (rating 1) in one replication whereas ICCV-13202, 13210, 13217 and 13220 were found asymptomatic (Rating 1) in another replic ation against Ascochyta blight disease.

Lesions caused by *Ascochyta* blight on chickpea pods

SVT on Chickpea- out of 30 genotypes, only CSJ-513,H-08-93,BG-3030,GNG-1581 and C-235 were found resistant against Ascochyta blight disease.

AB symptoms on aerial parts of chickpea Entries (AB)

Kharif, 2014

Management of soil borne disease of black gram (Vigna mungo L.Hepper) through incorporation of Arbuscular mycorrhizae.

Mungbean Yellow Mosaic disease susceptible entry (KU14-48) versus resistant entry (KU14-49) under Coordinated Trial during Kharif, 2014

Interaction studies were done between efficient Bradyrhizobium phaseoli and Glomus mosseae with ten Black gram genotypes. Genotype Mash-114 along with Bradyrhizobium phaseoli and Glomus mosseae treatment combination performed better with minimum Web blight disease incidence of 2.72 times less than control. The web blight disease incidence varied from 10.72-44.56 % in all genotypes under controlled conditions.

3.2.9 MAIZE CENTRE, UDHAMPUR

Germplasm collection, evaluation, Maintenance and its enhancement.

Thirty three local maize germplasm collections (Yellow, white, blue etc.) representing Udhampur district, some parts of Reasi, Kathua and Doda districts are being maintained and advanced through selfing.

200 numbers of inbred lines are being maintained through selfing and the appropriate elite lines are being used in hybrid development programme by taking advantage of Winter Nursery Centre Rajendra Nagar, Hyderabad for generation advancement facility provided by ICAR, Indian Institute of Maize Research.

AICRP Maize Centre, Udhampur contributed 37 No. of Maize inbred lines (32 yellow and 5 white) of different genetic background for use in research work of Ph.D. student working under the supervision of Dr. A.K. Razdan, Prof., Division of PBG, SKUAST Jammu, main campus, Chatha, Jammu.

Development of Maize varieties/ hybrids with emphasis on single cross hybrids for improved nutritional adequacy and health

Five single cross hybrids viz. UDMH-101, UDMH-112, UDMH-114, UDMH-115 and UDMH-116, contributed by AICRP Maize Centre Udhampur in public sector hybrid maize varietal evaluation trial conducted by Division of PBG, SKUAST Jammu, Main campus Chatha, Jammu.

AICRP Maize Centre Udhampur has contributed three single cross hybrids UDMH-101, UDMH-114 and UDMH-115 for testing in Co ordinated trial No. 62 IVT during Kh. 2014 conducted by ICAR, Indian Institute of Maize Research, Pusa Campus New Delhi.

AICRP Maize Centre Udhampur has also contributed two single cross hybrids UDMH-119 and UDMH-120, for testing in Zonal Co ordinated trial no.102 conducted by

3.2.10 QUALITY SEED PRODUCTION DURING 2014-15

(In Quintals)

Particulars	Achievements
Paddy	
Nucleus Seed	21.00 Kg
Breeder Seed	14.05 Qtls
Foundation Seed	
Certified Seed/Truthfully labelled Seed	
Total	

Wheat

Nucleus Seed	260.00 Kg
Breeder Seed	9.70 Qtls
Foundation Seed	1000.00 Kg
Certified Seed/Truthfully labelled Seed	948.00 Kg
Pulses (Mungbean, Lentil and Urdbean	

Nucleus Seed

Breeder Seed	378.00 Kg

Foundation Seed

Certified Seed/Truthfully labelled Seed	70.00 Kg

Oilseeds

Nucleus Seed	4.12 Kg
Breeder Seed	102.00 Kg

Foundation Seed

Certified Seed/Truthfully labelled Seed	250.00 Kg

HORTICULTURE CROPS

Planting material (Nos) Realization

Horticultural Crops Planting material (Numbers)

Fruit Crops	Physical Target for 2014-15	Achievements Budded/Grafted/ Layered/Plants
Mango	2000	2000
Guava	1000	1000
Litchi	2000	2000
E.Lemon	2000	2000
Pomegranate	2000	2000
Peach	1000	1000
Plum	1000	1000
Pear	1000	1000
Citrus (Kinnow and Malta)	1000	1000

Vegetable Seed

Crop (Variety)	Breeder Seed Seed	Foundation Seed (kg)	Vegetable Truthfully Labelled (q)
Knol Khol G-40/ SJKK-01	4.00	--	–
Broccoli Early Green/ SJBc-01	0.60	--	–
Fenugreek Kasuri Supreme/ SJF-01	0.50	--	–
Coriander Khushboo/SJCo-01	0.50	--	–
Spinch beet C-13/SJSB-01	7.00	--	–
Swis chard SJSC-01	0.50	--	–
White Radish CR-45/SJWR-01	1.00	--	–
Red Radish / SJRR-01	0.30	--	–
Cauliflower / CCS-08	0.150	--	–
Kashmiri palak / Local	0.40	--	–
Sonchal / Local	0.140	--	–
Okra / Seli Special / JBS-01	60.00		
JBS-02	60.00	–	–
Turmeric / SJT-01	1.50	–	–
Ginger / Local	50.00	--	--

3.3 VETERINARY SCIENCES & ANIMAL HUSBANDRY

3.3.1 Surgery & Radiology

Clinical studies on canine tumours: The study concluded that mammary tumours were prevalent the most (24%), followed by tumours of skin and adnexa (20%), transmissible venereal tumour (16%), leiomyomas of female reproductive tract (14%), Sertoli cell tumours and seminoma of male reproductive tract (8%), malignant melanoma and peripheral odontogenic fibroma of oral cavity (8%), osteosarcoma of appendicular skeleton (6%), and splenoma and hepatocellular carcinoma (2% each). Moreover it was also found that chemotherapy alone or as an adjunct to surgical resection in transmissible venereal tumours and surgical treatment alone in all other tumours resulted

in more than one year post treatment survival in 76% cases.

Mammary adenocarcinoma: an ulcerated, large Sertoli cell tumour. Highly enlarged and pendulous scrotum due tumour of inguinal mammary gland. to enlarged right testicle.

Vaginal leiomyoma. Multiple glistening Vaginal leiomyoma: A single circumscribed growth protruding from white growths of varied shapes and sizes the vulvar opening.

Removed after incising and reflecting the vaginal mucosa after performing episiotomy.

Skin tumour: Mastocytoma: A large TVT: Fragile cauliflower like growth with in the preputial cavity near the ulcerated pendulous growth on the shoulder base of the penis.

Clinical, radiographical, and haemato-bio-chemical studies on long bone deformities in growing dog: The result of the study showed that the incidence of long bone deformities was 8.03% and it was highest in radius ulna of non-descript 0 to 6 months aged male dogs. The common deformities reported were idiopathic osteodystrophy, nutritional secondary hyperparathyroidism, rickets, hypertrophic osteodystrophy and retained cartilage core.

7 months old male ND dog with 2 months old female non-descript rickets showing mild broadening of dog with NSH showing alopecia, mild distal metaphyses of radius ulna (red anterio-lateral bowing of limb, mild arrow), severe carpal valgus and broadened metaphyses and moderate palmagrade posture (blue arrow). carpal valgus.

A 3 months old non-descript male A 21/2 months old female Pakistani affected with IOD showing broadening of Bullie affected with RCC showing tarsal valgus distal metaphyses of radius-ulna and (arrow), wide stance and mild broadening of distal moderate (26°) degree of carpal valgus metaphyses of radius and ulna (13.1 cm). deformity (arrow).

3.3.2 Veterinary Physiology & Biochemistry

Study on antidiabetic and antioxidant effect of buffalo urine in diabetic Wistar rats: Oral administration of buffalo urine distillate @ 10% and 20% in drinking water was well tolerated by normal Wistar rats except that it depressed the total proteins and elevated the Aspartate amino transferase activity @ 20% of drinking

water. It also had a negative effect on reduced glutathione levels in diabetic Wistar rats. Oral administration of buffalo urine distillate @ 10% and 20% of drinking water administration of was not able to alleviate STZ induced hyperglycemia and oxidative stress in Wistar rats.

Comparative study on seasonal influence on various physiological and milk composition parameters in dairy cattle and buffalo: The seasonal influences on physiological parameters, total lactation yield and milk composition between dairy cattle and buffaloes in three different seasons i.e. dry hot summers hot humid summer and winter was studied. It was observed that Physiological parameters were significantly increased during DHS in both crossbred cattle and buffaloes. It was also observed that total milk yield was higher during winter season and showed decreasing trend with increase in THI.

3.3.3 Veterinary Parasitology

Molecular characterization and Chemotherapeutic management of bovine cryptosporidiosis: Examination of 510 samples of bovines from Jammu region revealed an overall prevalence of Cryptosporidium spp. in 27.25% animals. It was higher in young animals i.e <1 month of age group (56.25%) followed by 1-6 months of age group (39.08%), 6-24 months of age group (21.73%) as compared to adults i.e >24 months of age group (14.63%) with lowest prevalence. Statistical analysis revealed that the prevalence of Cryptosporidium infection in young calves was statistically significant than the other age groups. Diarrhoeic animals revealed significantly ($p<0.05$) higher prevalence (44.20%) of different age groups, sex and season than non diarrhoeic animals (56.24%). Male animals showed a higher incidence of infection (47.61%; diarrhoeic, 23.07%; non-diarrhoeic as compared to females (42.70%; diarrhoeic, 20.40%; non-diarrhoeic). As per season the highest prevalence was recorded during winter season from December to February (40.22%) and lowest in summer season (12.26%). Moreover chances of occurrence of Cryptosporidium infection was assessed and revealed that in all the seasons, diarrhoeic bovines showed higher prevalence than non diarrhoeic bovines. Statistical analysis suggests that prevalence of Cryptosporidium infection in winter season varied significantly than other three seasons. Bovines having mucus in the faeces showed significantly higher prevalence (53.70%) of Cryptosporidium infection than those having blood in faces (10.0%). Bovine cryptosporidiosis was assessed by characterisation of Cryptosporidium positive bovine samples and positivity was ascertained by nested PCR where an amplification of 1325 bp and 830 bp was obtained by primary and secondary PCR of 18S small subunit (SSU) rRNA. Further digested by three restriction enzymes namely Ssp1, Vsp1 and MboII for specific diagnosis of Cryptosporidium spp. C.parvum yielded three visible bands at 449bp, 267bp and 108bp and two visible bands at 448bp and 397bp isolating C.andersoni when digested with Ssp1. Digestion with Vsp1 enzymes, C.parvum yielded 2 visible band at 628bp and 105 bp and C.andersoni showed 2 visible bands at 730bp and 115bp. The two species were further differentiated by the MboII digestion pattern. The two species when digested by the MboII two visible bands at 771bp and 76bp were observed for C.parvum and C.andersoni generated two visible bands at 769bp and 76bp. RFLP analysis of nested PCR product showed higher prevalence examined in samples having C.parvum infection (55.83%) in bovines than C.andersoni positive samples (44.16%). Cattle calves of very young age (<1 month) showed 100% positivity for C.parvum and C.andersoni was observed in older animals. The use of azithromycin drug at the dose rate of 25mg/kg body weight provided better reduction of oocyst excretion and improvement of clinical signs. The oocyst per gram of the faeces (OPG) excreted at day 28 post treatment being significantly ($p<0.01$) lower in azithromycin treated animals than in control group of animals and the percent efficacy of azithromycin at 28 day post-treatment was 96.62%. As per body weight change was concerned, it was observed that

the rate of body weight increase was not significantly (P>0.05) affected by the drug. At day 28, the percent increase in body weight from the pre-treatment values was 26.51 per cent in azithromycin treated animals as compared to 21.79 per cent increase recorded in the control group of animals.

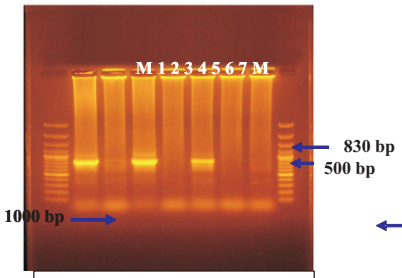


Plate 1 Amplification by 2nd set of primers M-100 bp DNA ladder, Lane 1,3,5;Positive

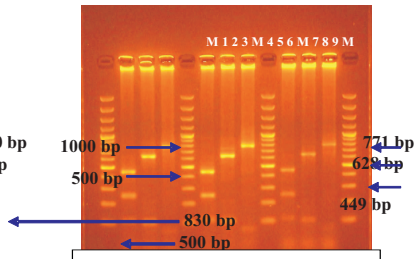


Plate 2 RFLP pattern of *C. parvum* M-100 bp Ladder; Lane 1,4,7 - digestion by *SspI;* Lane 2,5,8 - digestion by *VspI;* Lane 3,6,9,

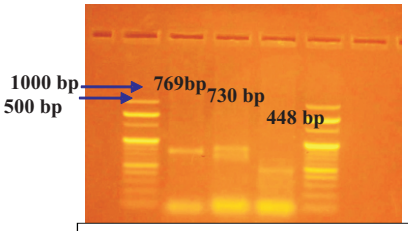
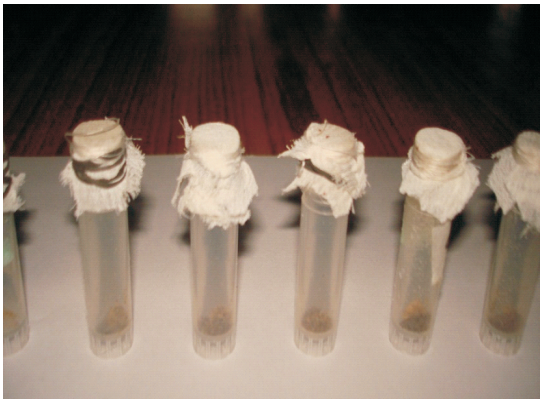


Plate 4 RFLP Pattern of *C. andersoni* M-100 bp DNA Ladder; Lane 1-digestion by *MboII*;

Efficacy of herbal acaricides against Jammu isolates of Rhipicephalus (Boophilus) microplus:

The efficacy of ethanolic extracts of Artemisia absinthium and Ageratum conyzoides (at 1.25, 2.5, 5, 10 and 20% concentrations), and active components of plants viz. Carvacrol (at 0.25, 0.5, 1 and 2% concentrations) and Azadirachtin (at 0.005, 0.01, 0.02, 0.04 and 0.08% concentrations) was assessed against cattle tick Rhipicephalus (Boophilus) microplus using adult immersion test (AIT), egg hatchability test (EHT) and larval packet test (LPT). The efficacy was assessed by estimation of percent adult and larval mortality, reproductive index (RI), percent inhibition of oviposition (IO) and hatching rate. A concentrate dependent increase in tick mortality was recorded. Among two extracts used, the extract of A. absinthium showed the highest mortality (66.7%) at 20% concentration. The LC_{50} and LC_{95} values of A. absinthium and A. conyzoides were recorded to be 11.22 and 34.36 %, and 61.77and 537.4%, respectively. The LC_{50} value for carvacrol and azadirachtin was recorded to be 2.55 and 292886.94%, respectively. The egg mass weight of the live ticks (treated with extracts and active components) was significantly ($p<0.05$) lower than that of control ticks; consequently, the RI and %IO values of the treated ticks were reduced. Further, a reduction in hatching of eggs was recorded in ticks treated with various herbals. In LPT, 100% larval mortality was recorded at all the concentrations used in case of A. absinthium, A. conyzoides and carvacrol while in azadirachtin the highest mortality (58.0%) was recorded at the concentration of



Gastrointestinal parasites in dogs: Examination of 250 faecal samples of stray dogs in RS pura and Jammu revealed presence of parasitic eggs /cysts in 90.4% (n=226) animals. Hookworm was the predominant infection (76.10%), followed by ascarid (41.15%), *Dipylidium caninum* (15.48%), *Spirometra* spp. (5.30%) and Coccidian cysts (2.21%). Prevalence of eggs of zoonotic parasitesin dogs indicates the public health significance of the study in the area. So, there is utmost need for awareness among people to minimize these zoonotic infections by adopting hygienic measures.

3.3.4 Animal Nutrition

Effect of Walnut cake (*Juglans regia*) inclusion in ration on the Performance of Goats: Study was conducted to scrutinize the effect of dietary incorporation of walnut cake on the performance of adult male goats. Composite diet containing iso-nitrogenous concentrate mixtures with variable levels of walnut cake (0-30%) were subjected to *in vitro* degradation and based on *in vitro* results, concentrate mixture containing 10% level of walnut cake was selected for *in vivo* feeding trial. Twelve local adult male goats were randomly allotted to two equal groups and were kept on *ad libitum* wheat straw with either conventional (Control) or walnut cake containing concentrate mixture (Treatment). Body weight of the goats, DM and OM intake and digestibility, CP and NDF digestibility were similar in the control and treatment group. The balances of nitrogen, calcium and phosphorus were positive in both the groups without any significant (P>0.05) difference in their intake and excretion between control and treatment animals. Most of the blood-biochemicals were within normal reference limits without any significant difference between periods and dietary treatments except there was significant linear increase (P□0.05) in the AST levels in treatment group with the progress of feeding trial. It may be concluded that *walnut cake* incorporation up to 10% level in the concentrate mixture does not leads to any negative effect over feed intake, nutrient digestibility and balance in adult male goats but negative effect over animal health as indicated by elevated AST levels in treatment group needs to be further scrutinized and therefore caution needs to be exercised in incorporating walnut cake in ruminant ration.

Utilization of Kinnow mandarin Waste as a Component of Paddy Straw based Complete Feed Blocks in Goats: Complete feed blocks were formulated utilizing paddy straw, KMW, wheat flour, molasses, wheat bran, urea, mineral mixture, common salt and water. Mean bulk density of blocks was 0.21 g/cm^3 whereas durability was 17.36%. Twelve local adult male goats were randomly allotted as per randomized block design to two equal groups designated Control and Treatment. A*n in vivo* feeding trial was conducted for 30 days duration along with a digestion cum metabolism trial during last week of feeding trial. All the animals were kept on *complete feed feeding regimen with either* conventional concentrate mixture with paddy straw in 40:60 proportion or KMW-Paddy straw based feed block on *ad libitum* basis. Body weight of the experimental goats, feed intake, nutrient digestibility, plane of nutrition, nutrient density of the diet and nitrogen, calcium and phosphorus balance was similar (P>0.05) in experimental animals, irrespective of the dietary treatment. Blood- bio-chemicals and serum enzymes (AST, ALT and ALP) were comparable between the two groups. The cost of feed for treatment group was about 12 per cent lower over the cost of conventional complete feed. It may be concluded that KMW may be utilized as a part of paddy straw based complete feed without affecting nutrient intake, digestibility, plane of nutrition and nutrient balance, however, the binding and durability of blocks achieved in the present study was not satisfactory and this formulation therefore is not recommended to be used in a manual block making machine.

Assessment of Feeding Regimen of Dairy Cattle of R.S. Pura Region: Study was conducted with the objectives of assessing the feeding regimen of dairy cattle managed by marginal livestock farmers of R S Pura. Three well inhabited villages of R S Pura block were

selected. In each village, 10 dairy farmers (herd size 2-5 dairy cattle) were randomly selected. Two farmers per village out of these were selected randomly and two animals of each short-listed farmer were selected for conducting *in situ* digestibility trial. Results indicated that cattle farmers are primarily agriculturist of middle age with formal education up to primary level and with land holdings of marginal or small size. Dairy cattle of respondents were mainly 2-5 years in age. Almost two-third of the surveyed animals were non-pregnant multiparous animals. More than half of the surveyed animals were medium milk producers, whereas 27.78% producing more than 10 lts per day. The feeding during post kharif period was green berseem fodder and paddy straw based, supplemented with wheat bran, cotton seed cake and/or commercially available compounded feed. Feeding regimen in post-rabi season is mainly based on maize fodder with paddy straw. Wheat bran, mustard oil cake and compounded feed are the major supplements. No farmer was providing mineral mixture to the livestock, however, all of them were supplementing diet with salt. Mean DMI of the selected animals was found to be 15.81 ± 0.76 kg/d with half of it from dry roughage and one-third from concentrates. Two-third of CP (63.64 ± 4.17%) was ingested through concentrates. DM digestibility was 74.45 ± 2.20%, whereas CP digestibility was 55.95 ± 5.47. Mean DMI, OMI and DCPI were found to be 11.90 ± 0.81; 11.33 ± 0.83 and 0.82 ± 0.10 kg/d, respectively. Mean TDN and DCP concentration of diet were found to be 74.19 ± 2.37 and 5.26 ± 0.76 per cent, respectively, with a DOM: CP ratio of 8.02 ± 1.00. DCP intake (kg/d) was sufficient to cater for maintenance and production protein requirement of high yielders (>10 lts./d). The DOM: CP ratio and nutritive ratio both are slightly on higher side, indicating marginal excess of energy over protein. It may be concluded that except berseem, there is dearth of leguminous fodder in dairy cattle diet of surveyed region and therefore conservation of berseem as hay needs to be encouraged to ensure year round availability and mineral supplementation needs to be increased especially in diets of high milk yielders.

3.3.5 Livestock Products Technology

Quality attributes of walnut (Juglans regia) and almond (Prunus dulcis) enriched chevon nuggets: Effect of incorporation of different levels of walnut and almond on physico-chemical properties and sensory attributes of chevon nuggets was studied. Chevon nuggets were optimized to be prepared with walnut and almond at 10% and 5% replacement of lean meat (w/w) respectively. The optimized chevon nuggets containing walnut and almond showed significantly ($P < 0.05$) higher cooking yield and emulsion stability than control and their overall acceptability was significantly ($P < 0.05$) higher than other preparations. Substitution of lean meat with walnut and almond resulted in lower moisture but higher values of fat and protein in their treatments. Addition of clove oil (0.1%) and nisin (500 I.U/g) in optimized chevon nuggets depicted significantly ($P < 0.05$) lower microbial profile, TBARS and FFA values during refrigeration storage. The chevon nuggets without clove oil and nisin treatment deteriorated on 21st day of refrigeration storage. However, clove oil and nisin treated nuggets were found acceptable even upto 21st days of refrigeration storage.

Studies on storage quality of low fat Kalari:

The study was conducted to explore the possibility of development of low fat Kalari. Further, an attempt was made to improve the storage quality of the product by using some antioxidant sources. Low fat product was developed by using two milk fat levels viz. 1.5% and 3.0% along with control (4.5% milk fat) and standardized to a level of 1.5% on the basis of sensory parameters keeping in view the aim of having a low fat level in the final product. The quality of the low fat Kalari developed from 1.5% milk fat was further attempted to improve by utilizing maltodextrin (1%, 3% and 5%), and some fat replacers (sodium alginate, guar gum and carboxymethyl cellulose) separately. The product developed from 1.5% milk fat, 3%

maltodextrin and 0.25% guar gum was optimized as best and selected for further storage studies. The optimized product was treated with different antioxidants (pine leaf extract, pomegranate rind extract, green tea extract and TBHQ) separately and packaged in low density polyethylene pouches and evaluated for various quality parameters under refrigerated conditions for 28 days. The products were analysed for various physicochemical, sensory and microbiological parameters. All the antioxidant sources were effective in improving the storage quality of the product as evident from the values of various storage quality parameters.

Quality attributes of chicken patties incorporated with red pepper, fig and green tea:

The study was undertaken to analyze the quality attributes of chicken patties incorporated with various natural antioxidant sources from green tea extract, fig and red pepper. Effect of incorporation of different levels of green tea extract, fig and red pepper was studied on physico-chemical properties and sensory attributes of chicken patties. Chicken patties were optimized to be prepared with green tea extract, fig and red pepper at 400mg/kg, 4% and 10% replacement of lean meat (w/w) respectively. The optimized chicken patties containing fig showed significantly ($P<0.05$) higher cooking yield and emulsion stability than control and the overall acceptability of chicken patties containing optimum levels of green tea extract, fig and red pepper was significantly ($P< 0.05$) higher than other preparations. Substitution of lean meat with red pepper resulted in higher moisture but lower values of fat and protein in its treatments. Incorporation of fig resulted in lower values of protein and fat in its treatments. Incorporation of chicken patties with natural antioxidants imparted beneficial effects on storage quality of chicken patties as it significantly reduced the TBARS value and microbiological load. All the treated patties were acceptable up to 14 day without much deterioration in physico-chemical, microbiological and sensory parameters under aerobic packaging at refrigeration temperature (4±1°C).

Studies on the quality attributes of Tabaq-Maz: Tabaq-Maz is a popular traditional meat product of the state of Jammu and Kashmir. It is a rib based convenient ready-to-eat meat based product and requires scientific attention regarding standardization and shelf life extension. The present study was conducted to standardize the basic formulation and processing conditions for the preparation of Tabaq-Maz. Further, the effect of some antioxidants (olive leave extract, pomegranate rind extract, lemon peel extract, TBHQ) on the storage quality of Tabaq-Maz was evaluated in aerobic packaging under refrigerated conditions (4±1^{0}C). Incorporation of 4% spice mixture, 3.5% salt and 2% condiments were found to be optimum for preparation of Tabaq-Maz. The product was pressure cooked for 45±5 minutes followed by deep fat frying at 180±2°C for a 35±5 minutes. Treatment of Tabaq-Maz by the antioxidants improved the storage quality of the product by significantly ($P<0.05$) reducing the mean values for TBARS values, FFA values, and microbiological parameters. Tabaq-Maz treated with antioxidants showed significantly ($P<0.05$) higher scores for most of the sensory parameters. Almost all the quality parameters were within the acceptable limits for a storage period of 14 days. Thus, olive leave extract, pomegranate rind extract, lemon peel extract and TBHQ improved the storage quality and could be successfully utilized as antioxidants in Tabaq-Maz.

Studies on storage quality of fiber enriched chicken Harrisa: The study was undertaken to explore the possibility of utilization of oat bran, wheat bran and barley bran as a source of fiber in the development of fiber-enriched chicken Harrisa. The oat bran, wheat bran and barley bran were incorporated separately at three different levels viz. 5%, 10% and 15% replacing rice in the formulation (w/w) respectively. The products developed were evaluated for various physico-chemical properties and sensory attributes. Based on various physico-chemical and sensory

parameters chicken Harrisa with 10% oat bran or 10% wheat bran or 5% barley bran was optimized as best. The products developed with optimized level of fiber were further treated with TBHQ (200ppm) and Nisin (500 I.U/g) separately to evaluate their effect on the storage quality of the products. The products were aerobically packaged in low density polyethylene pouches and stored under refrigeration conditions (4±1°C) for 21 days. The products were evaluated for various microbiological, physico-chemical and sensory parameters. Addition of TBHQ in the chicken Harrisa depicted significantly ($P<0.05$) lower TBARS values whereas addition of Nisin significantly ($P<0.05$) lowered microbial profile of the product. Based on various quality parameters, the products were acceptable up to 7th days of refrigerated storage.

Effect of pomegranate seed, grape seed and tomato on the quality attributes of chicken nuggets: The study was undertaken to develop functional chicken nuggets enriched with natural antioxidants of plant origin (pomegranate seed, Grape seed and tomato powder). Effect of different levels of pomegranate seed powder, grape seed extract and tomato powderon the physicochemical properties and sensory attributes of chicken nuggets was evaluated. It was found that chicken nuggets could be suitably prepared with the incorporation of PSP, GSE and TP at 3%, 0.3% and 2% level (replacing lean meat w/w), respectively. Incorporation of PSP at 3% level significantly decreased emulsion stability, cooking yield, protein and moisture content however there was significant increase in fat and ash values. Inclusion of 0.3% GSE increased moisture content at a significant rate. However GSE has no significant effect on other physico-chemical parameters. TP incorporation at 2% level significantly decreased moisture and fat content, however, emulsion stability increased at a significant rate. Sensory scores revealed significant effect on the colour and appearance and flavour of the product. Considering the results obtained in the study, it may be concluded that addition of PSP, GSE and TP at selected levels would not only protect the chicken nuggets against oxidative rancidity but also confer higher anti-microbial activity due to low pH of these plant extracts. Moreover chicken nuggets could also be conveniently packed in LDPE pouches in refrigerated (4±1°C) conditions without any marked loss of physico-chemical, microbial and sensory quality. Thus PSP, GSE and TP can be used to extend the shelf life of chicken and possibly other meat products, providing the consumers with food that contain only natural additives which would be seen as healthier than those of chemical additives.

3.3.6. Teaching Veterinary Clinical Complex

Study on Medical and Surgical Interference of Intestinal Obstruction in Dairy Cattle: The present study was done in twelve adult dairy cattle presented to clinics with the history of colicky pain followed by anorexia and cessation of faeces. On the basis of history of clinical signs the cases were suspected to be suffering from intestinal obstruction due to intussusception. The cows were divided into two groups of six animals each.

This study was designed to compare the two anastomotic techniques. In one group (n=6) side to side stapled approximating anastomoses (SAA) of intestinal parts oral and aboral to intussuscepted mass by a disposable skin stapler was done and in second group (n=6) hand-sewn approximating anastomoses (HAA) of intestinal parts oral and aboral to intussuscepted mass was done in routine manner by using catgut number 2-0. Anastomotic construction times, initial lumen diameters, and gross appearance of the two techniques were compared. Healing and clinical response were evaluated.

Mean construction time for SAA was significantly faster than for HAA ($P = 0.0001$). None of the anastomoses leaked, and there were no major clinical complications. Neither technique decreased the initial lumen diameter. There was no significant difference between the circumference of the anastomoses.

SSA technique of end-to-end intestinal anastomosis with a skin stapler was equivalent in, lumen diameter, lumen circumference, and healing characteristics to the traditional hand-sewn technique, but it can be performed in significantly less time. There was a reduction in operating time in those patients who underwent stapled anastomosis. There was no difference in anastomotic complications noted between the two study groups. There is scope for further studies comparing the two techniques and learning the application of stapled techniques in emergent surgical conditions. Skin stapling devices can be used to create technically simple, rapid and safe end-to-end anastomosis.

3.3.7 Animal Genetics & Breeding

Molecular characterization of FecB gene in Dorper sheep: The present study was undertaken to study polymorphism in exon-8 of FecB gene using PCR-RFLP analysis in Dorper sheep breed (50 animals) maintained at Government Sheep Breeding Farm, Panthal, Jammu. The PCR amplification was carried out on published primers. The amplified PCR product was of 140 bp (part of exon-8 of FecB gene). The PCR product was treated with restriction enzyme AvaII and only one band pattern was obtained i.e. uncut 140 bp band (Fig. 1). This band pattern is of homozygous non-carrier type. In the present study, PCR-RFLP revealed only one type of genotypes viz., $FecB^{++}$. The genotypic frequency of $FecB^{++}$ was 100% and the genotypic frequency of $FecB^{BB}$ was 0%. In the present, study the polymorphism of FecB gene was not observed indicating that the twining in Dorper sheep is not due to FecB gene & it may be due to other major fecundity genes or polygenic trait or other physiological factors.

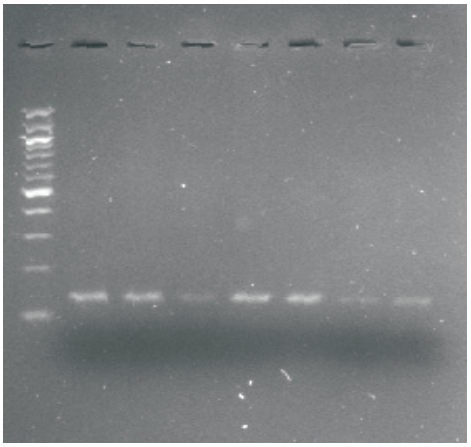


Fig. 1: PCR- RFLP analysis on 2.5% agarose gel electrophoresis of FecB gene in Dorper sheep
Lane - 1: 100bp DNA ladder

Molecular characterization of Ovar DRB1 gene & Expression profile of cytokines following challenge with Haemonchus contortus in Rambouillet crossbred sheep: The present study was carried out to find class I molecular marker for resistance and susceptibility against Haemonchus contortus in Rambouillet crossbred sheep. Fifty random blood and faeces samples were collected from adult sheep maintained at Sheep breeding farm, Reasi, J & K. Genomic DNA was isolated and a 308 bp of PCR product comprising of exon II of Ovar DRB1 gene was amplified using specific primers. The PCR product was digested with restriction enzyme Rsa I at 37^0c for 16 hrs. Rsa I digestion revealed five types of banding patterns. Hence the exon II of Ovar DRB1 gene is polymorphic for restriction enzyme Rsa I. Genotype ff was the most common pattern exhibited with the frequency of 0.40 and allele f had the highest allelic frequency (0.45) in this population. Faecal egg count was done by Modified McMaster's method following faecal larvae culture to identify the percentage of Haemonchus contortus. Twenty one animals with EPG of 0 are grouped as resistant. A total of 9 animals were grouped as susceptible with EPG of 400 and above. Genotypes ff and hh genotypes have been associated with resistance whereas bN and fN genotypes have been associated with susceptibility to Haemonchus contortus in sheep. The expression profile of Th2 cytokines, interleukin 4, interleukin-10, Tumour necrosis factor, interleukin-13, interleukin-5 and interleukin-3 were evaluated after challenged infection of Haemonchus contortus L_3 larvae at 3, 7, 15 and 28 days post infection in ten Rambouillet crossbred sheep by Real Time PCR. The expression of cytokines was increased from 3 to 15 days post infection and then the values decreased near about equal to control at 28 days post infection except for IL–13 and IL-5.

3.3.8 Veterinary Gynecology & Obstetrics

Breeding and management strategies in dairy animal for socio –economic upliftment of rural women: To reduce service period and increasing reproductive efficiency of dairy animals under rural conditions various estrus synchronization/induction protocols were applied. Dairy women farmers were trained on various aspects of animal husbandry practices with special emphasis on estrus detection and infertility management. During year 2014-15 three animal health awareness cum infertility management camps were organized as given below

Title of the Programme	Date	Place	No. of Animals treated
Infertility Management cum Animal Health awareness camp	01-10-2014	Kotali Mirdaya, R.S. Pura	50
	17-10-2014	Prema Chak R.S. Pura	22
	03-11-2014	Village Chohala R.S. Pura	52




Research was conducted on estrus induction and synchronized breeding in anestrus cattle and buffaloes using various hormonal protocols.

It is concluded that:- Controlled breeding and synchronized estrus induction results in higher economic return by reducing intercalving period. Awareness among dairy farmers about reproductive management had resulted in confidence building in keeping more number of dairy animals with improved managemental practices.

Genetic improvement of sheep through embryo transfer technology: This project is being run in collaboration with the Department of Sheep Husbandry Jammu. After standardization of various process involved in the Embryo Transfer Technology at R. S. Pura, synchronization, superovulation and embryo transfer activities were put to use at Govt. Sheep Breeding Farm, Panthal. During this year a four lambs were born through Embryo Transfer Technology.

Day old Dorper lamb with surrogate mother

Dorper lambs born through Embryo Transfer Technology

3.3.9 Veterinary Public Health & Epidemiology

Seroprevalence studies on brucellosis in animals and humans: A total of 65 serum samples comprising of 45 sheep, 13 cattle, 3dogs and 4 human samples were collected and subjected to Rose Bengal Plate Test and Standard Tube Agglutination test for diagnosis of brucellosis. A total of 5 (3 sheep and 2 goats) and 6 samples (4 sheep and 2 goats) were found positive for brucellosis by RBPT and STAT, respectively. None of the samples of dogs and humans was found positive by RBPT and STAT

Studies on Hygienic Status of Retail Poultry Outlets in Jammu with special reference to zoonotically important bacteria:

- A total of 50 poultry samples including raw chicken and poultry cloacal swabs were analyzed for *Staphylococcus aureus* and *E. coli.*
- 16% samples were positive for *S. aureus*.
- 18% samples were positive for *E.coli.*

Studies on hygienic quality of milk with special reference to zoonotically important pathogens.

- On analysis of 200 milk samples (100 cows and 100 goats) by Modified California Mastitis Test, subclinical mastitis was detected in 41% and 20% of cows and goats, respectively.
- *S.aureus* was found to be the predominant organism.
- Culture Sensitivity Test revealed gentamicin and enrofloxacin to be the effective antibiotics against isolates.

Epidemiological and Bacteriological Studies on Goat and Cattle Mastitis in Organized Farms

- Bacteriological and epidemiological studies were carried out to detect clinical and sub-clinical mastitis in cattle and goat farms by using Modified California Mastitis Test, Masstrip Test and bacteriological isolation method which revealed 43% and 27% prevalence in cattle and goats.
- Most common isolated species being Staphylococcus spp. (37.5%) in cattle and goats followed by *E.coli* (38%) and others species in cattle where as in goats Streptococcus spp. (21.05%) and other species.
- Drug sensitivity test was also conducted in which cow milk isolates were sensitive to Gentamicin (94.2%), Enrofloxacin (88.4%), Chloramphenicol (79.8%) where as goat milk isolates were sensitive to Enrofloxacin (100%), Gentamicin (94.7%), Ciprofloxacin (78.94%) of 14 antibiotics.

Exploratory studies on Methicillin Resistant *Staphylococcus aureus* in animals, foods of animal origin and humans

- The study explored the prevalence of *Staphylococcus aureus* and methicillin-resistant *Staphylococcus aureus* (MRSA) among animals, foods of animal origin and humans.
- *S. aureus* in raw chicken and raw chevon was 14/75 (18.7%) and 28/100 (28%), respectively, including 7 (16.6%) and 12 (28.5%) MRSA isolates from raw chicken and raw chevon, respectively.
- Among animals, 17/75 (22.7%), 1/50 (2%), 1/50 (2%) and 0/50 samples of poultry cloaca, dogs wound, dogs skin and dogs nasal, respectively, were positive for *S. aureus* ; the values for MRSA were 9 (12.0%), 1 (2%), 0 and 0, respectively.
- Prevalence of *S. aureus* and MRSA in butcher hand swabs was 28% and 6%, respectively while none of the pet owners' samples was positive.
- Study revealed resistance of *S. aureus* to clindamycin (43.2%), doxycycline (32.4%), vancomycin (25.7%), linezolid (21.6%) and teicoplanin (21.6%) while MRSA observed high resistance to cefoxitin (78.0%), clindamycin (75.0%), vancomycin (38.0%) and co-trimoxazole (38.0%)

Studies on Public Health Significance of Echinococcosis in Jammu

- Prevalence of *Echinococcus* among dogs, sheep, goats and humans were studied.
- 5.71% fecal samples of dogs (pet & stray) were found positive.
- Out of six suspected dogs which were purgated by arecoline hydrobromide and one dog was found positive for Echinococcus granulosus.
- However, this study other zoonotic parasites viz., Ancylostoma caninum (40%), Toxocara canis (15%), Taenia hydatigena (10%) and Dipylidium caninum (20%) were also observed.
- 6.82% animals were found positive when viscera of slaughtered sheep and goats were examined for hydatid cyst. The prevalence in sheep and goats was 7.83 and 5.64 percent respectively.

  Among humans, seroprevalence was 33.33% among dog owners/handlers (>60 yrs of age) which is highest in comparison to other risk groups. The sero-prevalence was found to be higher (17.24%) in males than in females (8.82%).

3.3.10 Veterinary Animal Husbandry Extension Education

Adoption of Improved Animal Husbandry Practices by *Gujjars* in Jammu district of Jammu & Kashmir: The study was conducted in Jammu district of Jammu and Kashmir, with a view to find out the knowledge level and adoption of the *Gujjars* regarding improved animal husbandry practices. It was found that majority of the respondents were middle aged with poor education. Most of the respondents were involved in caste occupation with low social participation and poor extension contacts. The respondents had medium herd size of 15-54 animals, with poor mass media exposure level. The overall risk orientation of the respondents was low, however they fared well in terms of economic motivation and most of them had no exposure to training. Most of the respondents (70.80%) were having medium knowledge level, whereas 19.2 % had low and 10% had high knowledge level. Majority of the respondents (70%) were having medium adoption, whereas 18.3% had low and 11.7% had high adoption. The independent variables except age, occupation, herd size and land holding were positively association with the dependent variables i.e. knowledge and adoption. Age was negatively and significant related to the knowledge level and adoption. Both the knowledge level and adoption were negatively and significantly associated with occupation. Herd size was negatively and insignificantly related to knowledge level, but significantly associated with adoption. Knowledge level of the respondents was negatively and significantly related with land holding however it was insignificantly associated with adoption. Education, social participation, mass media exposure, risk orientation and exposure to training were significantly and positively associated with both the knowledge level and adoption of the respondents. On the other hand, extension contact and economic motivation were positively and significantly associated with the knowledge level but insignificantly related to the adoption.

Constraint Analysis of Mixed Dairy Farming in Jammu District: A study on constraint analysis of mixed dairy farming in Jammu district was conducted to find out the constraints affecting mixed dairy farming system. The constraints perceived by the farmers were divided into six main areas; general, management, feeding, breeding, health care and economic constraints. Economic constraints were perceived as most serious, followed by general constraints. On the other hand, health care and breeding constraints were perceived as least serious by the farmers. Constraints like, increasing input costs making it difficult to achieve profitability, non-availability of green fodder throughout the year, and growing problem of infertility in the animals were rated as most serious constraints by the farmers. Whereas constraint like, lack of drinking water sources for dairy animals, labour availability, non-

availability of veterinary surgeons, and lack of proper knowledge of sanitation and hygiene of milking barn were considered as least serious. The field veterinarians and scientists were given fifty statements in total for the perception rating regarding the constraints in mixed dairy farming. Constraints like, lack of knowledge about balanced ration, lack of interest of young generation in animal husbandry related work, and poor knowledge of farmers about marketing strategies were perceived as most serious constraints by the field veterinarians. On the other hand, constraints like, lack of interest of young generation in animal husbandry related work, lack of organized extension network in the state and non-availability of green fodder throughout the year were perceived as most serious constraints by the scientists. Majority of the independent variables except age, land holding and herd size were positively associated with constraint perception scores. Age was significantly and negatively related, whereas other variables like education, family type, social participation, extension contact, mass media exposure, economic motivation and risk orientation were positively associated with constraint perception scores.

An appraisal of livestock extension delivery system of animal husbandry department of Jammu district of Jammu and Kashmir state: Livestock sector is emerging as an important leverage of Indian economy. As the livestock wealth is more equitably distributed than the land resources, the scope of its growth is more. But in J&K and also all over India, these livestock are raised under crop livestock mix farming system, which is characterized by very large numbers and very low productivity of animals. In order to improve the productivity of livestock resources in J& K, adequate livestock extension services are required. Such services to be effective may be provided by the appropriate and well equipped agency. Livestock development is a state subject in India. Therefore, the study entitled "An appraisal of livestock extension delivery system of animal husbandry department of Jammu district of Jammu and Kashmir state" was conducted in 12 villages selected from 4 blocks of Jammu district. Primary data were collected with the help of semi- structured interview schedule from a total of 120 livestock farmers and with a separate schedule from selected field level functionaries of department of Animal Husbandry who included 20 Veterinary Assistant Surgeons and 20 Livestock Assistants at the rate of five each from the selected blocks, while secondary data were collected from the department website and occasional reports of the department. Lack of infrastructure, inadequate budget allocation and poor message delivery system towards extension education were the characteristics of state department of Animal Husbandry, Jammu. The SDAH, Jammu were primarily catering to animal health and breeding needs, whereas, there was no clear cut mandate specifically towards extension education activities for livestock development. The training programmes organized by department of Animal Husbandry for LFs, VASs and LAs too were more oriented towards treatment and breeding aspects. The grassroot level extension functionaries considered the extension activities as low profile and thankless job. For assessing the information needs of livestock farmers most of the field functionaries relied on informal meetings with livestock farmers. Majority of livestock farmers had availed the services of SDAH for livestock health and breeding but the extension educational activities were either not available or very poorly utilized. Veterinary assistant surgeons considered the treatment of sick animals coming to hospitals as the most relevant services whereas LAs viewed that readying the A.I equipments and performing A.I as the most relevant animal husbandry activity. Majority of VASs had medium to low while LAs had low to medium span of control. Majority of livestock farmers and SDAH personnel had medium to low positive perception towards livestock extension delivery of SDAH.

Performance appraisal of Jammu & Kashmir Milk Producer's Cooperative Limited

(JKMPCL) in rural livelihood promotion: Dairy cooperatives in India being the replication of the "Anand" type dairy cooperatives have played a major role in production and marketing of milk. These cooperatives were established and spread throughout the country under operation flood programme which started during seventies. As the JKMPCL is the only dairy cooperative in J & K state and is in operation since decade but still its brand name 'Snow Cap' needs recognition owing to its dismal performance. So a study entitled "Performance appraisal of Jammu & Kashmir Milk Producer's Cooperative Limited (JKMPCL) in rural livelihood promotion" was carried out in Jammu division of J & K state. Out of eight milk routes in Jammu division, four milk routes were selected by systemic random sampling method. From each selected milk routes four VLMPCSs were selected randomly. Primary data were collected with the help of structured interview schedule from a total of 160 member dairy farmers at the rate of 10 MDFs per VLMPCS and with a separate schedule from 20 officials (twelve managing committee members and eight federation level officials) of JKMPCL, Jammu, while secondary data were collected from the official website and occasional reports of the JKMPCL. The performance appraisal was done by considering 2009-10 as the base year till 2012-13 and performance indicators such as membership pattern, volume of milk procured, average milk price offered to dairy farmers and number of households covered by VLMPCS were used for the appraisal and it was found that majority (80%) of the VLMPCSs were poor performer. The study also revealed that majority of MDFs were middle aged, illiterate having medium level of social participation, mass media exposure and extension contact. Non remunerative price of milk offered by the dairy cooperative society was considered as the top most constraint in milk production as perceived by member dairy farmers, whereas, the most serious constraint in milk procurement as perceived by the managing committee members of the society and federation official was insufficient finance from the government for development and infrastructure followed by total absence of input supply to member dairy farmers. On SWOT analysis of JKMPCL, it was found that dairying as support to rural income throughout the year as the most important 'strength' whereas building up of infrastructure facilities like ICT enabled milk collection centres, installation of bulk milk coolers and feed manufacturing units as the major 'opportunity' in the way successful running of JKMPCL while total absence of support services as the major 'weakness' and farmers losing their interest in dairy farming as less profit margin in keeping 2-3 dairy animals as the crucial 'threat' hampering the growth and expansion of JKMPCL in Jammu.

3.3.11 Veterinary Medicine

Metabolic Profile and Oxidative stress in cross bred dairy Cattle during periparturient period: Analysis of haematological parameters viz. Hb and PCV from cattle revealed significant decline during the peri-parturient period. Dry matter intake, body condition score (BCS), glucose, TPP, albumin, total cholesterol, HDL-C, VLDL and triglyceride level declined and NEFA, PUN, AST, GGT, bilirubin and creatinine increased during peri-parturient period and changes in blood parameters were strongly correlated with milk yield and BSC. Ca, Pi, Mg, Zn, Cu and iron levels of plasma samples were significantly lower during the peri-parturient period with lowest concentration at calving. Calcium and phosphorus were influenced by the parity and there was significant time*group interaction in Ca, Pi and copper levels, however zinc level showed time*group interaction only between HY and LY. Evaluation of oxidative stress parameters during peri-parturient period revealed significant increase in MDA level, SOD and GST activities along with decrease in GSH, vitamin E and C among all category of animals. GPx and catalase activities increased during pre-partum period and thereafter decreased in post-partum period among PP, MP and HY animals. MDA level was positively correlated with BSC and NEFA. Pre-partum feeding of

UMMB improved dry matter intake, energy, protein, fat and mineral balance. Administration of Se-vitamin E injection and UMMB supplementation during the pre-partum period lowered the oxidative stress during peri-parturient period and improved fertility rate.

Nutritional enhancement of livestock through Urea Molasses Multinutrient Block, Roughage and Complete block supplementation:

To study the effect of urea molasses multinutrient blocks (UMMB) supplementation on body weight gain, six Beetal cross goats of 5 to 6 months age reared through grazing were provided 50 gms of UMMB daily over the period of 60 days. The average values of TPP, albumin and globulin showed non-significant increase from 5.77 g/dl, 3.06 g/dl and 2.71 g/dl at beginning of trial to 6.63 g/dl, 3.53 g/dl and 3.11 g/dl at end of trial, respectively. The prevalence rate of hypoproteinemia also declined reduced from 83.33% to nil at the end of trial. Likewise, significant increase in BUN from 17.04 mg/dl to 26.45 mg/dl after 30 days and 27.82 mg/dl after 60 days of UMMB supplementation was observed. Significant increase in plasma Ca, Pi and Mg levels from 7.88 mg/dl, 3.34 mg/dl and 2 mg/dl at beginning of trial to 11.28 mg/dl, 4.30 mg/dl and 2.85 mg/dl after 60 days of UMMB supplementation was observed, respectively. The average value of Fe declined significantly from 0 day average value of 105.74µmol/l to 80.46µmol/l after 60 days of supplementation. Zn level showed non-significant increase from 37.48µmol/l to 56.01 µmol/l. No-significant affect of UMMB supplementation on plasma Cu level was observed after 60 days. The average body weight of UMMB supplemented and control group goats were 15.40 kg and 11.42 kg which increased to 17.93 kg and 18.71 kg after 60 days of UMMB supplementation, respectively. Thus, UMMB supplementation resulted in average increase of 40% in body weight compared with 21 % among control group animals.

3.3.12 Veterinary Pharmacology and Toxicology

Single and Interactive Toxic Potential of Glyphosate and Ammonium nitrate in Wistar Rats and its Attenuation with Alpha Lipoic acid: The study was aimed to investigate the toxic effects of glyphosate (Roundup®) and ammonium nitrate alone and in combination following repeated oral administration in rats for 28 days (sub acute toxicity) and 120 days (chronic toxicity). Modulatory effect of alpha lipoic acid on the toxicity induced by single and combined administration of glyphosate and ammonium nitrate was also studied. Glyphosate @ 500mg/Kg b.wt and ammonium nitrate @ 220 mg/Kg b.wt on repeated oral administration either individually or in combination caused significant decrease Hb, TEC and PCV on 28th day of treatment. Significant increase in concentrations of ALT, AST, ALP and creatinine was observed on 28th day in treatment groups as compared to control. Marked changes in oxidative stress parameters viz lipid peroxidation, blood glutathione, SOD, Catalase and GPx were observed on 28th day. Chronic oral toxicity of glyphosate @ 500mg/Kg b.wt and ammonium nitrate @ 220 mg/Kg b.wt either alone and in combination for a period of 120 days caused significant decrease in body weight gain from 7th week onwards in all the treated groups. Average weight of liver and spleen increased significantly after 120 days. Significant decrease in Hb, PCV, TLC, PCV, lymphocytes and monocytes was observed after 120 day of treatment. Plasma ALT, AST, ALP, ACP, BUN, creatinine and LDH increased significantly after 120th day of oral exposure. Oxidative stress parameters revealed significant alterations in LPO, blood glutathione, SOD, Catalase, GPx and GST in blood and tissues. Histopathologically, liver showed hepatocytic degeneration, necrosis and MNC's infiltration. Kidney showed glomerular engorgement, degeneration of epithelial cells of PCT and presence of protein cast in the lumen of PCT. Spleen revealed depletion of lymphocytes and atropy of spleenic follicles. Normalcy in altered values of various parameters in both

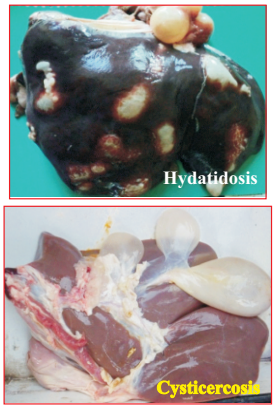
sub acute and chronic toxicity studies was observed after treatment with alpha lipoic acid @100mg/kg b.wt in ameliorative groups.

Recommendations: Glyphosate and Ammonium Nitrate resulted in severe toxic manifestations in both biochemical & hematological parameters in experimental animals and Lipoic acid modulated and reversed these altered parameters towards normal.

Bioprospection of Alstonia scholaris & Calendula officinalis for Antioxidant, Antidiabetic, Hepato & Nephro protective Effects: The study was aimed to determine major phytochemical constituents and antioxidant potential of aqueous and ethanolic leaf extracts of *Alstonia scholaris* and floral extracts of *Calendula officinalis*. Antidiabetic, hepatoprotective and nephroprotective potential of aqueous and ethanolic extracts were determined in suitable experimental models. Ethanolic extract as compared to aqueous extracts of both plants have high contents of total phenols, flavonoids, tannin, lycopene and ß-carotene. Repeated administration of ethanolic extract of *A. scholaris* in diabetic rats normalised altered MBG, TC, HDL, LDL, CR, proteins, hepatic biomarkers and antioxidant biomarkers (TAS, CAT, SOD, GST, G6PDH, MDA) with significantly higher activities of TTH and GPx. However, aqueous leaf extract of *A. scholaris* treatment was not potent to reduce MBG and components of antioxidant system of diabetic rats. Ethanolic floral extract of *C. officinalis* reduced significantly ($P<0.05$) elevated levels of MBG, A1c, total cholesterol, CR, bilirubin profile, AST, LDH without attenuating the elevated BUN, UA, protein profile, ALT and ALP in diabetic rats. However, antioxidant parameters were restored with significant increase in the activities of G6PDH and GPx. Pre- and post-treatment with extracts of either plant in acetaminophen induced hepatotoxicity restored the major enzymatic hepatic biomarkers and antioxidant parameters in blood and hepatic tissues but such amelioration was found to be more with ethanolic extracts of either plant. Pre and post treatment with plant extracts had a partial nephroprotective potential in cisplatin induced nephrotoxicity in rats as evidenced by partial modulation of different renal, hepatic and antioxidant biomarkers in blood and renal tissues. Recommendations: The ethanolic extracts of Alstonia scholaris & Calendula officinalis have high contents of total phenols, flavonoids, lycopenes and ß-carotene and can be useful in diabetics and have hepato & nephro protective activities.

3.3.13 Veterinary Pathology

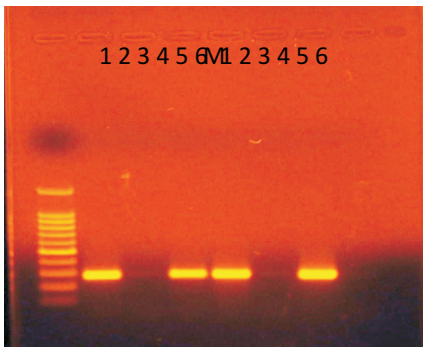
Study of liver lesions of slaughtered sheep and goats in Jammu: Animal wise parasitic disease Liver Hydatidosis (25.07%); Fascioloisis (18.21); Dicrocoeliosis (13.13%) and Hepatic cysticercosa (7.46%) in affected liver in decreasing order of prevalence.



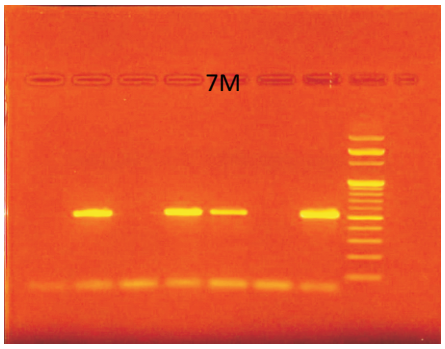
Patho-morphological conditions associated with liver diseases of sheep and goats: Haemorrhage /Congestion (29.52%), Cirrhosis (28.10%), Fatty degeneration (19.52%), Hepatitis (17.14%), Calcified cyst (4.76%), Tumour (0.95%)

3.3.14 Veterinary Microbiology

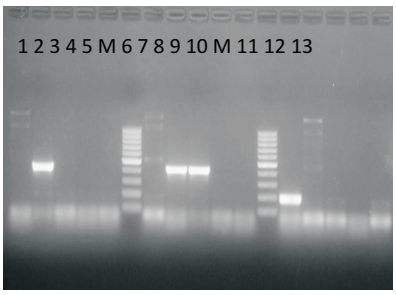
MRSA: Methicillin resistant Staphylococcus aureus (MRSA) were isolated from mastitic milk samples and confirmed my nuc gene am[plification. The resistance to methicillin was seen both phenotypically and genotypically by using mecA gene specific primers. Four isolates of S. aureus were positive for mecA gene and were thus confirmed as MRSA while 14 isolates were MSSA (Methicillin sensitive S. aureus). Both MRSA and MSSA were screened for virulence genes including coa, hla, clfa, spa, sea and seb. None of the isolates were positive for sea and seb genes.



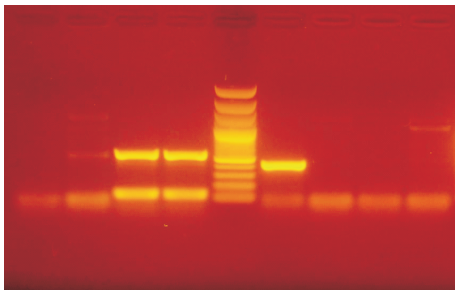
Lane M - 100 bp DNA ladder
Lane 1,3,4 and 6 – *S. aureus* specific *nuc* gene product 270 bp
Lane 2 and 5 – negative isolates



Lane M - 100 bp DNA ladder
Lane 2,4,5 and 7 – MRSA specific *mecA* gene product 533 bp
Lane 2 and 5 – negative isolates



Lane M - 100 bp DNA ladder
Lane 2,7,8 – positive isolates for Intimin gene (*eae*) 425 bp
Lane 11 - positive isolates for *sta* 190 bp



Isolate no. E11, E12,E5, EE7, E1
Lane M - 100 bp DNA ladder
Lane 3,4 - positive isolates for both Stx1 555 bp and Sta 190 bp
Lane 6- positive isolates for intimin 425 bp

Enterotoxigenic *E.coli:* *E. coli* were isolated from diarrheic faecal samples of calves aged 1-3 months. They were subjected to detection of virulence genes *like lt, sta, stx_1, stx_2, eae, f5, f41* by PCR. Five *E. coli* isolates showed presence of *sta* gene whereas none harboured *lt* gene. 13 isolates were positive for stx_1 gene, out of which two isolates had both stx_1 and *sta* while 5 isolates possessed *eae* gene. None of the samples was positive for *f5* and *f41* by PCR. Detection of f5 fimbrial antigen was also done by slide agglutination test using specific antiserum.

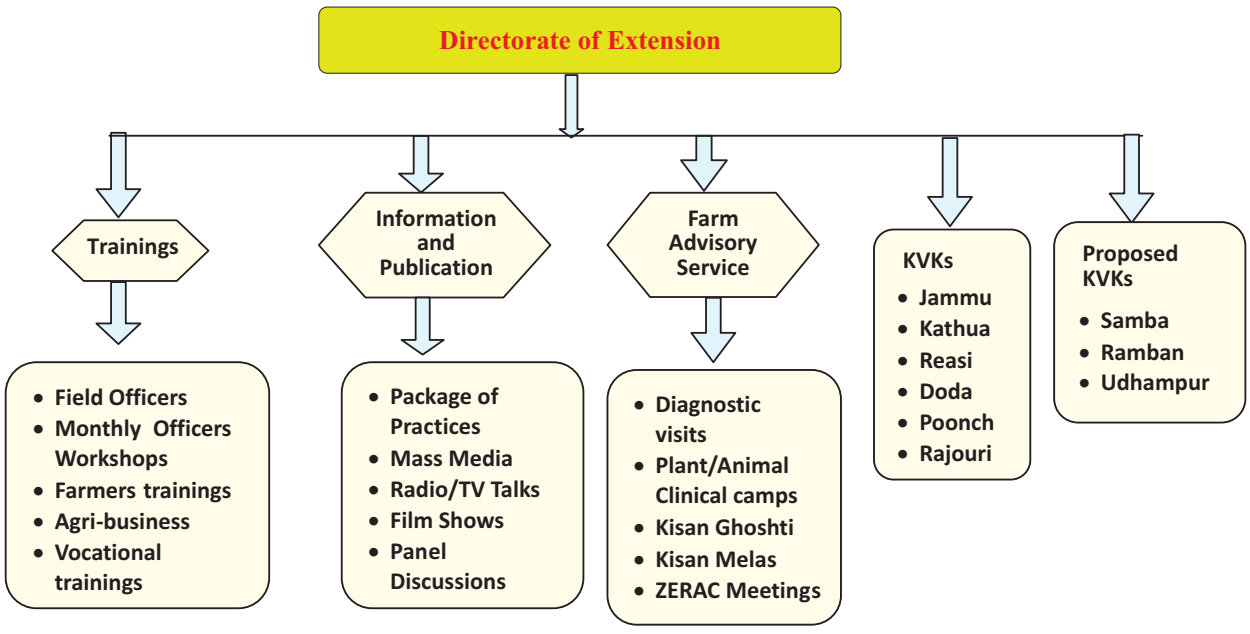
VTCC Network project: Various isolates of *S. aureus*, *E.coli* and other bacterial pathogens from GIT infection in lambs of different farms in Jammu, enteric infection in poultry from different poultry farms, Respiratory infection of horses have been deposited to VTCC.

Tribal sub Plan: Survey of disease in animals and our visits under tribal sub plan of VTCC revealed presence of glanders in the area. One serum sample sent to glanders laboratory in NRCE Hisar was found positive and necessary notification regarding this was issued by Director NRCE Hisar.

4. EXTENSION

At the national level Extension Education has recently been realized to be one of the most important components for bringing desired improvements in agriculture production and productivity at the farmers' level. Extension education is one of the most important mandates of the **Sher-e-Kashmir University of Agricultural Sciences and technology of Jammu.** The Directorate of Extension popularly known as the **"Field Extension Wing",** is taking care of the farm advisory services in the villages surrounding the main campus of the university and at different districts through Krishi Vigyan Kendra. The responsibility for planning, organizing, conducting and coordinating the extension activities of the university in the Jammu region of Jammu & Kashmir State lies with the Directorate of Extension. Its main aim is to transfer the proven/tested technologies to the farmers, livestock owners, rural youth, field staff of State Govt. and other personnel engaged in developmental and professional activities in the fields of agriculture, animal husbandry, horticulture, home science and other allied areas through its well planned, skill-oriented and need based programmes. The Directorate acts as bridge between the research scientists and the farmers and other stakeholders to provide feed back. Therefore, the role of the Directorate is two fold, i.e., transfer of technologies from scientists to the ultimate users i.e. farmers through field functionaries and to find out the problems of the field to be passed on to various research divisions of Faculty of Agriculture, Faculty of Veterinary sciences & A.H.

Farm Advisory Service (FAS) is the major wing and field arm of the Directorate of Extension Education covering the entire Jammu Division through Krishi Vigyan Kendras (KVKs) located in various districts of Jammu Division. The scientists working in these KVKs have a direct contact with farmers and render the necessary advice about the crops and livestock production and protection, soil and water management, child care, family and farm resource management etc. at their door steps. The functional setup of the Directorate has been oriented to face the traditional and new challenges emerging on day to day basis so that the farmers and the field functionaries are benefited.



The main responsibilities/functions of the Directorate of Extension Education are:

- To Plan and execute Extension Education activities of the University.
- To coordinate extension education activities among Divisions of two Faculties, Research Stations, Sub-Stations, KVKs etc. of the University.
- To act as a strong liaison between university scientists and allied developmental department, national & international institutes and farming community for developing demand driven technologies.
- To timely transfer the innovative / proven technologies through KVKs.
- To supplement and complement the efforts of state development departments through elite/ frontline/ limited extension work.
- Organizing training programmes for officers, farmers and un-employed/ rural youth.
- Organizing skilled demonstrations, on farm trials, exhibitions, fairs *etc.*
- Communicating/updated farm information through package of practices, books, booklets, leaflets, folders, posters, bulletins, pamphlets and through print and electronic media.
- Farmdvisory services

Major works and meetings organized by Directorate of Extension

Scientific Advisory Committee (SAC) Meetings of KVKs:

The scientific Advisory Committee meetings of KVKs under the administrative control of Directorate of Extension were conducted in order to plan, review and monitor the action plan of KVKs. The details are placed below:

S. No	Name of KVK	Date
1	Krishi Vigyan Kendra, Doda	09.07.2014 &19.01.2015
2	Krishi Vigyan Kendra, Jammu	08-12-2014
3	Krishi Vigyan Kendra, Kathua	04.12.2014
4	Krishi Vigyan Kendra, Poonch	15.12.2014
5	Krishi Vigyan Kendra, Rajouri	16.12.2014
6	Krishi Vigyan Kendra, Reasi	26.12.2014

SAC Meetings

Zonal Research & Extension Advisory Committee (ZREAC) Meetings

Directorate of Extension Education organized Zonal Research & Extension Advisory Committee (ZREAC) meeting for Kharif 2014 on 10th June 2014.

ZREAC Meeting

One day University Level Workshop of all Krishi Vigyan Kendras under SKUAST-Jammu was held on 30th March, 2015 at the University Head Quarter in which Heads of the divisions from Faculty of Agriculture and Faculty of Veterinary Sciences & A.H and scientific staff of all KVKs participated. The workshop provided a platform to all the participants to interact on the technology generation, refinement and dissemination and to deliberate upon the proven technologies generated through research for dissemination through FLDs with farmers participation in the Jammu region and those technologies which require assessment in the various districts and their refinement for location specificity at KVK level as on Farm Trials (OFTs).

Training Programme for Level –I experts of Kisan call centre was organized in the on 07.01.2015

S.No	Particulars	Date	Venue
1.	Meeting of KVKs with Zonal Project Director, Zone-I at SKUAST-J	08-05-2014	Central Library
2.	Training programme for Level - I experts of Kisan Call Centre	07.01.2015	Central Library

Training Programme of KCC

Kisan Melas organized

Kissan Melas were organized at KVKs with the objective to disseminate the technological advances and encourage the farmers to adopt new technologies in agriculture and allied areas for boosting agricultural production and their export.

Kissan Mela Organized at KVK Jammu on 27.02.2015

Kissan Mela Organized at KVK Kathua on 07.03.2015

Kissan Mela Organized at KVK Rajouri on 10.03.2015

Officers Monthly Workshops:

Monthly Officer's Workshops are planned every year with the departments of Agriculture and Horticulture in each district of Jammu province on scheduled dates for effecting close coordination of the extension activities of the University with concerned state departments,. In the above meetings Monthly messages compiled crop-wise on the basis of calendar of operations are discussed which are to be conducted in various fields of agriculture and horticulture in the ensuing month.

Directorate of Extension conducted 56 Officers Monthly Workshops at various KVKs and district headquarters of the Jammu region during the period 2014-15. The workshops were attended by the district and sub-divisional level officers from Department of Agriculture and Department of Horticulture.

Technological backstopping of KVKs

The Directorate is organizing capacity building programmes for scientific staff of all KVKs for providing technological backstopping. Three one day training programmes in the identified areas were organized for scientific staff of all KVKs by the Directorate of Extension in collaboration with various divisions of Faculty of Agriculture.

S.No.	Title of the training programmes	Date
1.	Training programme on Urban agriculture and Edible greening	20th March 2015
2.	Training -cum- orientation workshop on Centrally Sponsored Schemes of Agriculture and allied sectors	26th March 2015
3.	Training on Extension Methodologies for transfer of technologies	31st March 2015

Traings Organized by Directorate of Extension

Three training programmes were organized for creating awareness about the provision of Protection of Plant Varieties and Farmers' Right Act. 2001 among the farmers and other stakeholders and encourage them for conservation of plant generic resources and develop new varieties of plants.

KVK Poonch 29th January 2015

KVK Jammu 27th February 2015

KVK Kathua 24th & 27th February 2015

Training programme on Protection of Plant varieties and Farmer's Rights Act at KVV, Jammu

Training programme on Protection of Plant varieties and Farmer's Rights Act

Training Programmes Organized by the Directorate under State Agricultural Management and Extension Training Institute, Jammu (SAMETI-J):

Under the ATMA scheme, Directorate of Extension is the nodal agency designated as State Agriculture Management Extension Training Institute for Jammu Division. As per the SREP of each district the trainings are being organized for the Masters training Programme.

Training programmes conducted under SAMETI-Jammu

S.No	Title of training	Date	Participants
1.	Training on "Participatory Rural appraisal (PRA)" from.	30 June to 1 July 2014	30
2.	Training on "Strategies to maintain livestock under climate change scenario"	7 to 9 July 2014	20
3.	Training on "Exploitation of underutilized fr uit crops for sustainable production"	22 to 23 July 2014	20
4.	Trainers training programme on "Re- Visiting SREP"	4 to 8 August 2014	70
5.	Training on "Horticulture based crop diversification option for livelihood security in Jammu"	25 to 26 August 2014	30
6.	Training on "Maintenance of Paddy Transplanter suitable for Jammu Division"	27 to 28 August 2014	20
7.	Training Programme on "Soil test based nutrient Management"	1 to 2 Sept 2014.	20
8.	"Induction training course for newly appointed project management teams under National Mission of Agriculture Extension and technology (NMAET)"	29 September to 1 October 2014	40
9.	Training on "Recent Advances in Nutrition and water management in fruit crops" from	30 September to 1 October 2014	20
10.	Training on "More crop per drop of water: Issues and Challenges in Jammu Region"	9 to 11 October 2014	40
11.	Training on "Major Helminthic diseases affecting the livestock in different zones of Jammu region"	16 to 17 October 2014	30
12.	Orientation workshop on "centrally sponsored schemes" at Kishtwar	27 to 28 October 2014	67

S.No	Title of training	Date	Participants
1.	Training on "Participatory Rural appraisal (PRA)" from.	30 June to 1 July 2014	30
2.	Training on "Strategies to maintain livestock under climate change scenario"	7 to 9 July 2014	20
3.	Training on "Exploitation of underutilized fr uit crops for sustainable production"	22 to 23 July 2014	20
4.	Trainers training programme on "Re- Visiting SREP"	4 to 8 August 2014	70
5.	Training on "Horticulture based crop diversification option for livelihood security in Jammu"	25 to 26 August 2014	30
6.	Training on "Maintenance of Paddy Transplanter suitable for Jammu Division"	27 to 28 August 2014	20
7.	Training Programme on "Soil test based nutrient Management"	1 to 2 Sept 2014.	20
8.	"Induction training course for newly appointed project management teams under National Mission of Agriculture Extension and technology (NMAET)"	29 September to 1 October 2014	40
9.	Training on "Recent Advances in Nutrition and water management in fruit crops" from	30 September to 1 October 2014	20
10.	Training on "More crop per drop of water: Issues and Challenges in Jammu Region"	9 to 11 October 2014	40
11.	Training on "Major Helminthic diseases affecting the livestock in different zones of Jammu region"	16 to 17 October 2014	30
12.	Orientation workshop on "centrally sponsored schemes" at Kishtwar	27 to 28 October 2014	67


Training Programes

Training programme and Other Extension activities organized by KVKs

Krishi Vigyan Kendras (KVKs) working under the administrative control of SKUAST-Jammu are organising both on and off campus trainings programmes for benefit of farmers to enrich their knowledge regarding the new agricultural technologies being generated through research and other innovations.

Farmer Trainings

The Table below indicates the farmers training programmes undertaken by different KVKs during the period.

	KVK Jammu		KVK Doda		KVK Rajouri		KVK Reasi (Udhampur)		KVK Poonch		KVK Kathua	
	N	T	N	T	N	T	N	T	N	T	N	T
Grand Total	35	706	48	896	39	815	62	1240	77	381	33	921

N: No. of Trainings, T: Total No. of Trainees
Total No. of trainings Organized: 294
Total No. of Trainees: 6085






Farmers Training Programes

In- Service Trainings

Krishi Vigyan Kendras organised on and off campus in -service trainings refresher courses for field functionaries from line departments of Agriculture, Horticulture, Command area Development, Animal husbandry and sheep husbandry etc. to refersh and update their knowledge/skill. The details are as under:-

KVKs organized in service refresher course for field functionaries from line departments

	KVK Jammu		KVK Doda		KVK Rajouri		KVK Reasi (Udhampur)		KVK Poonch		KVK Kathua	
	N	T	N	T	N	T	N	T	N	T	N	T
Grand Total	05	87	09	150	05	79	7	114	04	49	10	225

N: No. of Trainings, T: Total No. of Trainees
Total No. of in- service trainings Organized : 40
Total No. of Trainees : 704


In service training refresh courses for field functionaries

Rural youth/Vocational trainings:-

KVKs conduct short and long term vocational training for rural youth, farm women to create self employment through income generating activities.

	KVK Jammu		KVK Doda		KVK Rajouri		KVK Reasi (Udhampur)		KVK Poonch		KVK Kathua	
	N	T	N	T	N	T	N	T	N	T	N	T
Grand Total	07	126	04	66	09	90	11	387	03	67	07	197

N: No. of Trainings, T: Total No. of Trainees
Total No. of Vocational trainings Organized : 41
Total No. of Trainees : 933

Aquarium for home and Business

Self Help Groups

Cutting and Tailoring for rural women & girlsrural women

Value addition

Cushion Making for

Technology transferred and assessed

S.No	Name of technology	Technical intervention	Economics benefits (C:B ratio)	Feedback
KVK Jammu				
1	Assessment of performance of Til for higher yield through sulphur	Recommended + S @ 20 Kg/ ha as basal Dose	1:1.92	Farmers received good returns & they are willing to adopt new intervention.
2	Efficacy of agro-chemicals in management of terminal stress in Indian mustard	Recommended + Application of 0.5% urea spray at 50% flowering stage + 0.5% urea spray at 50% at pot filling stage	1:1.96	The new intervention controlled the terminal stress in mustard.
3	Assessment of Paddy varieties for yield potential	B-370 Pusa- 1121 & Pusa 1509	Highest C:B ratio of 1:1.97 was recorded in B-370	Farmers were getting higher productivity in Pusa1509 but were getting lesser return as compared to B370.
4	Assessment of wheat varieties for yield potential	PBW621 HD2967 JAUW 584	Highest C:B ratio of 1:1.48 was recorded in HD2967	Farmers were highly satisfied with the performance of HD2967.

5	Assessment of feed supplement on Fish production	Rice bran+ oil cake (1:1)+ Agrimin forte @ 20g/kg feed@ 3% of body weight	1:2.38	The farmers reported higher body weight due to the use of mineral supplement.
6	Assessment of use of inorganic fertilizers on fish production	Organic fertilizers+ Urea @3kg/month/ 2kanal and SSP @ 4kg/month/ 2kanal	1:2.16	Farmers reported higher yield in the same pond due to use of inorganic fertilizers.
7	Assessment of varieties of marigold for higher yield	Pusa Narangi	1:4.24	Farmers were satisfied with the performance of Pusa Narangi.
8	Assessment of high yielding Oat varieties for higher productivity	Palampur-1	1:1.88	Farmers were satisfied with the performance of Palampur-1.

KVK Rajouri

1	Assessment and evaluation of adaptable paddy varieties in mid hills.	Introduction of new varieties	1.39:1	K39 matured earlier than all varieties. SJR51 showed delayed maturity due to heavy rains.
2	Introduction and evaluation of turmeric in Rajouri	Introduction of spices	2.80:1	Both Punjab Haldi 1 and Sugandha performed better than farmer's seed.
3	Evaluation of wheat verities for their maturity	Varietal Evaluation for high yield	Results yet to be compiled	
4	Management of Cutworm in Mid hills of Rajouri.	Pest management with insecticides	2.74:1	Minimum insect attack was observed in crop treated with carbofuran
5	Efficacy of different chemicals in combating russeting in apple.	Use of PGRs	4.0:1	Application of borax through soil resulted in maximum yields of fruit and also had max a grade fruits.
6	Evaluation of improved fodder grasses with respect to duration of production of green herbage.	Introduction of new grasses	-	Data of the trial reveals that Napier Hybrid gives higher biomass production vi-z-viz availability till November.
7	Effect of urea spray @2% on fodder yield of oats.	Use of fertilizer sprays for higher yield	Results yet to be compiled	
8	Economics of weed management practices in maize	Use of weedicide	1.98:1	Atrazine @ 1kg a.i. /ha + one earthing up
9	Assessment of performance of direct seeded rice in Rajouri		1.18:1	Wet seeding method under puddling is best However, direct seeded rice has also shown encouraging results.

1.	Treatment of Mastitis	Use of intra-mammary antibiotic resulted in complete cure @ 100% of Teat. In case of KMnO4 (10%) & complete emptying of teats (10%), it did not showed much improvement, but can act as supportive treatment.		Farmers were satisfied with the use of antibiotic treatment & animal had returned to normal milking
2.	Productivity estimation of Turmeric under bamboo based Agroforestry system	Turmeric can be grown under canopy of bamboo for utilization of land.	1:3.72	Farmers were satisfied with the results, as they were not growing anything under bamboo canopy.
3.	Yield of wheat varieties under mango based Agro forestry System.		In progress	
4.	Yield of wheat varieties under mango based Agro forestry System.		In progress	
5.	Effect of transplanting time on the yield of onion	T1-Farmers practice T2-20th Dec. T3-10th Jan. T4-30th Jan.	In progress	
6.	Effect of spacing in radish yield	60X37.50 CM spacing gave the better results as compared to the rest of treatments	1:3.30	Farmers were satisfied after seeing the results of OFT
7.	Management of loose smut in wheat	Vitavax seed treatment @ 2.0 g/kg seed gave best results	1:3.25	Farmers were satisfied after seeing the results of OFT
8.	Management of Rhizome rot in ginger	Seed treatment with metalaxyl 0.25% + bavistin 0.1% gave better results	1: 3.65	Farmers were satisfied after seeing the results of OFT
9.	Control of seed and soil borne diseases in chilli nursery.	Seed treatment with bavistin + Thiram (1:1) 3 g/kg seed gave better results	1:3.8.	Farmers were satisfied after seeing the results of OFT
10.	Urea mineral molasses blocks and mineral mixture supplementation for Increase milk production, improvement in overall health status of animal.		In progress	

KVK Poonch

1	**Evaluation of Paddy Varieties**			
	1. K-39	Farmers Practice	1:2.4	
	2. Pusa 1121		1:4.0	
	3. Pusa Sugandh-2		1:4.4	
2	**Management of Insect pest in walnut**			
	No measures	(Farmers Practice)	5.0	
	Soil application of carbofuran		5.90	
	Trunk banding + Spray of Metasystox		6.22	
3	**Management of cutworm in Maize + Rajmash under mixed cropping**	High seed rate and no chemical measures (Farmers practice)	2.72	
		Seed treatment with Fipronil	3.03	
		Soil application of Carbofuran	3.33	

KVK Kathua

1.	Management of powdery mildew in Pea	No spray Wettable sulphur @ 0.25% Karathane @ 0.2 %	2.7 3.6 3.9	Results showed that spray of karathane @ 0.2% increased the yield to the tune of 55.5% over farmers practice and 88.52% reduction in disease incidence of powdery mildew
2	Varietal evaluation	Farmer's practice Pusa Basmati-1121 Pusa -1509 Pusa Basmati -1401	2.2 2.5 1.9	Results showed that Pusa-1509 recorded highest yield (4250 kg/ha), B:C ratio (1:2.5), No. of effective tillers per hill (18.5/hill) and matured in 120 days
3	Varietal evaluation	Farmer's practice PBW-175 HS-490 PBW-527	1.2 1.4 1.5	Results showed that PBW-527 recorded highest yield (2223 kg/ha), B:C Ratio (1:1.5)
4	Management of chili wilt through chemicals	No spray(farmers practice) Carbendazim@ 0.2% Topsin-M @ 0.2%	2.99 3.73 4.48	Results showed that spray of Topsin M @ 0.2% increased the yield to the tune of 58.08% over farmers practice and 74.37% reduction in disease incidence of wilt
5	Effect of mulching on the yield of strawberry	Farmers practice Plastic mulch Paddy straw mulch	0.33 2.85 1.15	Mulching with black polythene resulted 78.75% increase in yield over farmers practice
6	Weed management in onion	Farmers practice Pendimethalin @ 2.5 lt /ha Pendimethalin + hand weeding at 30 days after transplanting	2.0 4.3 5.7	Application of Pendimethalin + hand weeding at 30 days after transplanting gave better yield over farmer practice

KVK, Doda

1.	Management of *Ipomea* weed in maize with herbicide	Atrazine@ 1.0kg/ha +1 Hand Weeding Atrazine@ 1.0kg/ha +1 Hand Weeding + 4-D @0.5kg/ha (30-40 DAS)	-
2.	Assessment of Seed rate of maize	Seed rate 35 kg/ha. Seed rate 45kg/ha.	1.94 2.41
3.	Assessment of varietal performance in Rapeseed- Mustard	DGS-1 KBS-3	-

Trial of Paddy Varieties (Pusa -1121, Pusa -1509, Basmati -370)

Front Line Demonstrations

KVK Jammu

S.No	Technology Demonstrated	Area(ha)	No. of participants	Crop Impact
1.	Improved variety of Mustard (Pusa M -28)	0.65	04	31.0% increase
2.	Improved variety of Til (Pb-1)	1.05	12	17.2% increase
3.	Scientific cultivation of Paddy (B-370)	8.0	30	14.47% increase
4.	Improved variety Maize (DKC – 7074)	6.0	24	17.80% increase
5.	Introduction of new variety Gram (HC-5)	4.0	26	21.0% increase
6.	Improved variety of wheat (HD-2967)	8.0	31	30.0% increase
7.	New variety of Knol Khol (G-40)	2.30	30	11.10% increase
8.	New variety of Raddish (KR-45)	0.25	30	19.0% increase
9.	New variety off Broccoli (E green)	3.0	30	6.0 % increase
10.	New variety of Methi (Supreme)	0.15	30	22.0% increase
11.	New variety of Spinach (C-13)	0.25	30	16.0% increase
12.	New variety of Coriander (Khusboo)	0.35	30	9.0 % increase

KVK Rajouri

S.No	Technology Demonstrated	Area (ha)	No. of participants	Crop Impact
1.	G.Sarson	4.0	40	Performed Good
2.	Sarson	1.3	13	Performed Good
3.	Mash	1.5	23	Performed Good
4.	Gram	0.15	4	Performed Good
5.	Maize	2.75	12	Performed Good
6.	Maize	2.25	13	Performed Good
7.	Paddy	3.6	29	Performed Good
8.	Wheat	8.6	43	Performed Good
9.	Onion	0.05	04	Performed Good
10.	Marigold	0.4	08	Performed Good
11.	Oats	1.25	05	Performed Good
	Total	**25.85**	**194**	

KVK Reasi

S.No	Technology Demonstrated	Crop Variety	Area(ha)	No. of participants	Crop Impact
1.	Improved variety	Sesamum Pb Til 1	2	24	32.5 % increase
2.	Improved variety	Mustard RSPR-01	2	30	
3.	Improved variety	Black Gram Uttara	2.85	30	50.00% increase
4.	Improved variety	Lentil L 4147	2.80	34	64.00% increase
5.	Scientific maize cultivation	Maize hybrid Double Deklab	1.95	13	66.66% increase
6.		maize hybrid Proline	1.20	8	45.83% increase
7.		maize hybrid Bio-seed	1.65	11	58.33% increase
8.		maize hybrid Kh-612	0.20	1	37.50% increase

1.	High yielding varieties of	wheat cv. PBW-175	3.95	36	64.28% increase
2.		Wheat cv. Raj-3765	1.05	6	50.00% increase
3.	High yielding variety of Fodder	Oat cv. Kent	0.5	6	
4.	Backyard Poultry	Vanraja	2000 birds		

KVK Kathua

S.No	Technology Demonstrated	Crop & Variety	Area(ha)	No. of participants	Crop Impact
Kharif					
1.	Production Technology of paddy	Pusa-1121	48.3	67	57.3 % increase in yield with B:C ratio of 2.21
2.	Production Technology of paddy	Pusa-1509	6.6	34	82.6 % increase in yield with B:C ratio of 2.21
3.	Production Technology of Maize	Double Deklab	9.5	48	15.5 % increase in yield with B:C ratio of 1.20
4.	Production Technology of Mash	Him Mash -1	4.2	15	90 % increase in yield with B:C ratio of 0.08
5.	Production Technology of Moong	P-9531	2.0	10	53.0 % increase in yield with B:C ratio of 0.12
6.	Production Technology of Moong	ML818	3.25	16	33.0 % increase in yield with B:C ratio of 0.12
7.	Production Technology of Okra	Varsha Uphar	1.2	15	38.0 % increase in yield with B:C ratio of 2.9
8.	Production Technology of Sesamum	PB Til No.1	6.8	20	100.0 % increase in yield with B:C ratio of 0.19
Rabi					
9.	Production Technology of Wheat	HD-2967	11.4	38	50.0 % increase in yield with B:C ratio of 1.35
10.	Production Technology of Wheat	PBW-621	18.8	65	33.3 % increase in yield with B:C ratio of 1.35
11.	Production Technology of Toria	RSPT-2	12.0	50	23.0 % increase in yield with B:C ratio of 1.51
12.	Production Technology of Gobhi Sarson	DGS-1	12.0	50	24.2 % increase in yield with B:C ratio of 2.14
13.	Production Technology of Gram	PBG-5	2.3	14	60.0 % increase in yield with B:C ratio of 0.20

KVK Poonch

S.No	Technology Demonstrated	Crop & Variety	Area(ha)	No. of participants	Crop Impact
1	Rajmash (Mixed crop with Maize)	Local Rajmash (Mixed crop with Maize)	14	28	B:C: 1:3.2
2	Introduction of New paddy variety	Paddy cv. PH-6129	5.625	18	B:C: 1:4.18
3	Seed Replacement Rate	Wheat cv. HS-490	15	22	B:C: 1:2.20

4	Replacement of maize variety	Maize Pro-Agro 4794	50	67	B:C: 1:2.90
5	Replacement of fodder wheat with Oat	Oat cv.Kent	1.25	3	B:C: 1:3.00

KVK, Doda

S.No	Technology Demonstrated	Crop & Variety	Area (ha)	No. of participants	Crop Impact
1.	Rapeseed mustard	Rapeseed Mustardcv. DGS-1	08	40	The DGS-1 variety performed better in terms of yield and economic returns as compared to local check
2.	Mash	Mash cv. Shekhar-3	03	15	The Shekhar-3 variety performed better in terms of yield and economic returns as compared to local check
3.	Maize	Maize cv. Bio-9621	10	50	The Bio-9621 variety performed better in terms of yield and economic returns as compared to local check
4.	Oats	Oat cv.Kent	03	15	The Kent variety performed better in terms of yield and economic returns as compared to local check
5.	Backyard poultry	Van raja	-	40	The Vanraja breed is performing better in terms of growth rate as compared to local check

Maize at Poonch

Maize at Doda

Mustard-Pusa - 28 at Farmers field

Fish seed

Farm Advisory Services (FAS)

KVK Jammu

- Providing weather forecast to the farmers and allied departments with the help of Agro-meteorological Unit of SKUAST-J, Chatha
- Agro-advisory services are provided to the registered farmers via SMS through M-Kissan portal. A total of seven advisories were passed on to 9500 farmers.

KVK Rajouri

- 12 T&V meetings with Department of Agriculture & Department of Horticulture
- 5824 messages through mobile SMSs to registered farmers
- 35 lectures were delivered as resource persons for different institutes like, DOA, NABARD, SUVIDHA NGO, etc.

KVK Kathua

- Kisan Mobile Advisory Services were provided to 600 registered farmers covering agriculture and allied disciplines through SMS and 4200 SMSs were sent for bi-weekly weather forecast.
- KVK is also providing current prices of the commodities with the help of NCDX through NSE/BSE

KVK Doda

- Kisan Mobile Advisory Services were provided to about 3088 farmers covering agriculture and allied disciplines

KVK Poonch

- KVK is providing weekly weather forecast to the farmers and allied departments with the help of Agro-meteorological Unit of Regional Agriculture Research Station, Rajouri.
- KVK is also providing current prices of the commodities with the help of NCDX through NSE/BSE

Consultancy Service provided

KVK Jammu

S.No.	Type of Consultancy provided	Organizations/Place
1.	Resource persons for line departments	Departments of Agriculture, Horticulture, Floriculture, Rural Development, Animal Husbandry, Sheep Husbandry, Fisheries, Forests/Social Forestry, NABARD, SAMETI-Jammu, ATMA , RKVY Nehru Yuva Kendra

KVK Kathua

S. No.	Type of consultancy	Place/ Organization
1	Identifying needs and field problems, training of AEO's, JAA's and SMS. Monthly Workshops and diagnostic visits	Department of Agriculture Kathua
2	Formulating training and demonstrations programmes on pruning & training of fruit plants	Department of Horticulture Kathua
3	Participation in various programmes of livestock improvement and organization of clinical camps	Department of Animal Husbandry Kathua
4	Collaboration for formulation of action plan and conducting of training programmes	Department of Sheep husbandry, Kathua
5	Collaboration on formation of Farmers Club, for formulation of action plan and conducting of training programme	NABARD, Kathua
6	Collaborating on skill development programmes for rural youth	RSETI,Kathua
7	Formulation of training programmes for rural youths	District Rural Development Agency (DRDA)Kathua
8	Collaboration in various capacity building training programmes for rural youths	Nehru Yuva Kendra Kathua
9	Procurement of the seed of new varieties of various crops along with package of practices	Punjab Agri. University Ludhiana
10	Procurement of seed and technical assistance regarding wheat crops	Directorate of Wheat Research Karnal
12	NEP project; Post office Linkage	Indian Agricultural Research Institute (IARI)New Delhi
13	Procurement of seed of Paddy &Wheat	Division of Plant Breeding & Genetics, SKUAST-Jammu Jammu
14	Technical guidance & skill, organization of veterinary clinical camps	Faculty of Veterinary Sciences & Animal Husbandry, SKUAST-Jammu Jammu

KVK Reasi

S. No.	Type of consultancy	Place/ Organization
1	Training of AEO's, JAA's and SMSs. Diagnostic visits	Department of Agriculture Reasi
2	Formulating training and demonstrations programmes.	Department of Horticulture Reasi
3	Participation in various programmes of livestock improvement and organization of clinical camps	Department of Animal Husbandry Reasi
4	Collaboration for formulation of action plan	Department of Sheep Husbandry Reasi
5	Collaboration for formation of Farmers Club, for formulation of action plan and conducting training programmes	NABARD
6	Collaboration in various capacity building training programmes for rural youths	Nehru Yuva Kendra i
7.	Formulating trainings and demonstrations programmes.	Deptt. of Floriculture Reasi

KVK Rajouri

S.No.	Type of consultancy	Organization /Place
1	Resource persons for different line departments, Institutes and organizations	Department of Agriculture, Rajouri Department of Horticulture Deptt. of Floriculture Department of Animal Husbandry NABARD SUVIDHA NGO Nehru Yuva Kendra
2	24 meetings on maize, mash, wheat, paddy, Oats, oilseeds, etc	Department of Agriculture, Rajouri

KVK Poonch

S.No	Type of consultancy	Place/ Organization
1	Diagnostic Visits, Scientist-Farmer Interactions & Resource Persons in various camps under ATMA	Department of Agriculture Poonch Department of Horticulture
3	Training on "Raising & protection of Floricultural Crops in Poonch" under Horticulture Technology Mission	Department of Floriculture Poonch
4	Resource Persons for training to soldiers on "Mushroom Cultivation" and also established a Mushroom Unit.	Indian Army, Doongas, Poonch

KVK Doda

S. No.	Type of consultancy	Organization / Place
1	As Resource persons for trainings of AEO's, JAA's and SMSs. Diagnostic visits	Department of Agriculture
2	Formulating training and demonstration Programmes	Department of Horticulture
3	Formulating trainings and demonstrations programmes	Department of Floriculture
4	Participation in various programmes of livestock improvement and organization of Animal clinical camps in the district Doda	Department of Animal Husbandry
5	For formulation of action plan for sheep and goats in the district	Department of Sheep Husbandry
6	Collaboration for formation of Farmers Club, for formulation of action plan and conducting training programmes	NABARD

Farmers Educative Events

S. No	Event	KVK Jammu		KVK Kathua		KVK Rajouri		KVK Poonch		KVK Reasi		KVK Doda	
	Event	N	P	N	P	N	P	N	P	N	P	N	P
1	Field Day	04	169	4	204	7	230	4	74	7	268	05	153
2	Kissan Mela (organized)	01	325	1	311	1	285	-	-	2	750		
	Kissan Mela (participated)	02	1000	-	-	3	775	1	96	-	-	01	200
3	Kissan Ghosthi	04	1200	5	280	3	84	1	68	2	32		
4	Exhibition	03	325	5	323	4	927	-	-	2	750		
5	Film Show	02	76	6	203	15	320	-	-	2	50	06	111
6	Lectures delivered	22	504	65	2200	35	-	-	-	25	-	05	220
7	Exposure Visits	-	-	3	90	02	48	-	-	1	-	-	-
8	SHGs Convener meetings	-	-	2	39	02	43	-	-	1	12	-	-
9	Group meetings	06	-	02	68	04	67	-	-	-	-	-	-
10	Scientific visits to farmers field	-	-	40	800	16 8	-	-	-	35	-	-	12
11	Farmers visit to KVK	-	179	-	5000	47 7	-	-	-	250	-	-	-
12	Diagnostic visits	14	196	20	-	35	-	-	-	10	-	14	-
13	ICAR Foundation Day	-	-	01	93	-	-	-	-	-	-	-	-
	World Environ. day	-	-	-	-	-	-	-	-	1	100	-	-
14	Veterinary Clinical camp	-	-	04	127	02	108	1	210	2	80	-	-
15	Seed treatment campaigns	-	-	01	30	-	-	-	-	2	22	-	-
16	Swach Bharat Abhiyaan	04	-	01	30	1	13	-	-	1	60	01	97
17	Awareness Camps	01	-	08	337	7	429	1	54	2	31	-	-

N: No. of programmes P : No. of participants

TECHNOLOGY WEEK AT KVKs

Ornamental fish farming

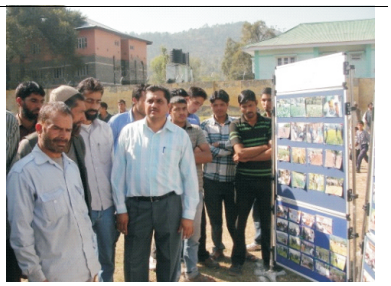
Field Day on Rice

Field Day on Plant Protection

Field Day on Mustard

Kisan Mela at Mandi

Kisan Mela at Surnkote



Kisan Mela Mendhar

Field Day on Maize at Loran

Field Day on Paddy at Ucchad, Mendhar

Kisan Ghosthi, Saiklu

Animal Clinical Camp at KVK Poonch

Kisan Mela at Poonch

Soil Health Camp at KVK

Sponsored Trainings

KVK Jammu

Subject	Trainings	Participants
Entrepreneurship Development (NYK)	1	30
Floriculture	1	33
Horticulture (MIDH)	1	60
ATMA	1	250
Total	**4**	**373**

KVK Reasi

Subject	Trainings	Participants
Commercial Horticulture(MIDH)	1	29
Extension Education	2	86
Total	**3**	**115**

Training Programme for farmers under MIDH at KVK Jammu

Success Stories of KVKs

District	Commodity/Crop	Target Activity	Name of Progressive Farmer with Address
Poonch	Wheat HS-490	Seed Replacement	S. Amrik Singh, Jhulas, Poonch S. Rachpal Singh, Dara, Poonch Sh. Bansi Lal, Magnar Poonch
Poonch	Oat (Var. Kent and Sabzar)	Security of Fodder	Farmers of the District
Rajouri	Maize	Productivity Enhancement	Farmers growing Maize
Jammu	Potato	Enhanced productivity from Tissue culture seed through FIGs	Sh. Rajinder Prasad, Majua village, Bishnah, Jammu
Jammu	Strawberry	Shifting from Traditional Rice-wheat system to Strawberry cultivation, Value addition	Sh. Sham Singh, Badoi village, Vijaypur.
Doda	Honey	Bee keeping & Honey marketing	Mr. Tahir Mohmad Sheikh, B haderwah
Doda	Pulses, Seasonal Vegetable, Fruit trees & Flowers like marigold	Crop Diversification	Farmers of Gajoth, Doda
Reasi	Sericulture		Sh. Vichitar Ram, Kanjli village Reasi Sh. Raj Kumar, Kanjli village Reasi Sh. Kewal Krishan, Kanjli village Reasi
Reasi	Vanraja Breed of Poultry	Income generation through Backyard Poultry	208 progressive farmers of the district
Reasi	Self Help Groups	Prasad Making	Vaishnodevi Mahila Group, Sherwad, Reasi
Kathua	Mushroom	Augmentation of Livelihood through Mushroom Cultivation	103 progressive farmers of the District

Activities undertaken during 2014-15 under NICRA Project Capacity Building Programmes under NICRA Project

S.No.	Thematic Area	No. of Trainings	Participants
1	Livestock Management	2	46
2	Value Add ition	4	119
3	Crop Diversification	1	27
4	Small Farm Implements and Machineries	1	22
5	Employment Generation	1	23
6	Fodder and feed management	1	28
7	Home Science	1	27
8	Pest And Disease management	2	56
9	Crop Management	2	59
	Total	**15**	**407**

Extension Activities under NICRA Project

S.No.	Name of the Activity	No. of Activities	No. of Participants
1	Exposure Visit	4	92
2	Celebration of Environment Day	1	60
3	Veterinary Clinical Camp	2	38
4	Celebration of ICAR foundation Day	1	94
5	Seed Treatment Campaign	1	31
6	Field Day Maize	1	55
	Total	**10**	**370**

Demonstrations of different Crops under NICRA Project

S.No.	Crop	Area Covered (ha)	Participants
1	Maize	12.0	74
2	Til	3.3	22
3	Turmeric	1.0	46
4	Black Gram	6.0	70
5	Okra	1.0	15
6	Toria	3.0	15
7	Gobhi Sarson	4.0	16
8	Mustard	0.8	4
9	Gram	2.0	28
10	Wheat	29.0	63
11	Pheromone Trap	1.0	2
12	UMMB	-	56
13	Seed Treatment of Wheat (Raxil)	29.0	74
	Total	**92.1**	**485**

5. INFRASTRUCTURE DEVELOPMENT

5.1 Works completed during the year 2014-15

Station:- Main Campus, Chatha

1 Construction of Estates Division Building (G+1) including associated sanitary and internal electrification

2 Construction of Directorate of Extension Building (G+1) including associated sanitary and internal electrification

3 Construction of Director's Residence (G+1) including associated sanitary and internal electrification

3 Construction of Residential Quarter for Asstt. Professors (G+2) including associated sanitary and internal electrification (10 sets)

4 Construction of Residential Quarter for Professors / Associate Professors (G+2) including associated sanitary and internal electrification (06 sets) (Block-A)

5 Construction of Residential Quarter Non-Teaching Staff (G+1) (AR/ AC or equivalent) including associated sanitary and internal electrification (08 sets)

6 Construction of residences for Professors/ Associate Professors at Main Campus Chatha (06 sets) (Block-B) including associated Sanitary and internal electrification.

7 Construction of 6 sets of Class IV Quarter alongwith associated sanitary fittings and internal electrification.

8 Construction of Examination Hall Complex (G+1) including associated sanitary and internal electrification.

9 Construction of Auditorium building alongwith associated sanitary fittings and internal electrification.

10 Construction of Girls Hostel (3 storeyed) alongwith associated sanitary fittings and internal electrification.

11 Construction of Gymnasium for students under sports facility.

12 Construction of Sewerage system and water supply line in the proposed residential complex.

13 Design and construction of RCC framed structure Over Head Tank of capacity 1,00000 gallons capacity with staging height of 15m at Residential Complex, Main Campus Chatha on Turn Key Basis

14 Construction of Internal service roads by way of Earth works, RBM filling, WBM & associated drainage in the proposed Residential Complex.

15 Construction of Brick Masonry Compound Wall around Girls Hostel

16 Construction of Lawn Tennis Court, Volleyball Court and Basketball Court.

17 Establishment of Acqua culture in Sub-tropical zone

Station : R.S.Pura

18 Construction of road by way of WBM laying and premixing from Main Rotary to Library Building & Boys Hostel.

19 Construction of Lawn Tennis Court, Basket Ball Court and Volley Ball Court and Multipurpose ground.

20 Construction of Instructional Farms.

21 Construction of Postmortem Facility for Division of Vety. Pathology.

Station: Seed Production Farm, Chakroi

22 Providing and fixing of Barbed wire fencing to Seed Production Farm, Chakroi, R.S. Pura.

23 Development of Deep drilling Tube well No. 4 by way of Reverse Rotary method at Seed Production Farm, Chakroi, R.S. Pura, Jammu.

Station: Bhaderwah

24 Establishment of Acqua culture in temperate zone

5.2 Works in progress during 2014-15

Station: Main Campus Chatha

1 Construction of Vice-Chancellor's Residence (Duplex) including associated sanitary and internal electrification

2 Construction of Office Biilding for Controller of Examination alongwith associated sanitary fittings and internal electrification

3 Construction of Building for School of Agri Business Management longwith associated sanitary fittings and internal electrification

4 Construction of Post Office and Shopping Complex longwith associated sanitary fittings and internal electrification

Station : R.S.Pura

5 Laying of 11 KVA HT independent Feeder (UPS line) from Rangpur Mullana (Baspur) R.S. Pura to FVSc & AH Campus R.S. Pura

6 Construction of Office-cum-Lab complex including sanitary fittings and internal electrification for 02 Divisions of Faculty of Veterinary Science & Animal Husbandry (Division of Animal Genetics & Breeding and Veterinary Extension)

7 Providing separate independent Feeder (UPS line) to the Seed Multiplication Farm, Chakroi, R.S. Pura.

5.3 New works proposed for the year 2015-16

Station:- Main Campus, Chatha

1 Internal finishes of under Construction Auditorium of 1000 seater capacity by way of Audio Video and Stage Lightening, Interiors including Acoustics treatment, Internal & External Electrification, Central HVAC System, Fire Fighting and other allied works at Main Campus, Chatha.

2 Construction of 118 inmates capacity three storeyed Boys' Hostel alongwith associated sanitary fittings and internal electrification at Main Campus, Chatha, Jammu.

3 Construction of 86 inmates capacity three storeyed Girls' Hostel alongwith associated sanitary fittings and internal electrification at Main Campus, Chatha, Jammu.

4 Providing and fixing Fire Fighting Equipments in the Buildings at different Stations of SKUAST-Jammu.

5 Construction of Spine & Additions/Alterations to the existing Museum at Main Campus, Chatha.

6 Upgradation of internal service roads by way of premixing to the newly constructed roads at Main Campus, Chatha

7 Construction of Brick masonry compound wall alongwith Main Gate & Guard Room work around Hon'ble Vice-Chancellor's & Director's Residence at Main Campus, Chatha

8 Construction of Residential Quarter for Asstt. Professors including associated sanitary and internal electrification at Main Campus, Chatha (24 sets)

9 Construction of Residential Quarter Non-Teaching Staff (G+1) including associated sanitary and internal electrification at SKUAST-J, Main Campus, Chatha (12 sets)

10 Construction of Balance work of Poultry Shed at KVK Poonch.

11 Reconstruction of damaged Roads, Footpaths, V-Shaped drains, Central Verge, Kerb Stones for the existing road network and front boundary wall, providing chain link fenicng to the periphery of the farm, redevelopment of lawns, repairs to the damaged/sunken floors and reconstruction/ reinstallation of sewerage Treatment Plant (STP) and Repair/Reallignment of HT & LT line Distribution at Main Campus, Chatha damaged due to the flash floods on the intervening night of 5th and 6th September, 2014.

12 Reconstruction of damaged Chain link and protection work by way of Providing and laying hand filled stone steel crates of specified size and by way of River Bed

Material (RBM) filling and protection wall in (1:3:6) mix. around Administrative Building, Farmers' Hostel and Residential Quartersat KVK Tanda, Reasi.

5.4 Damages caused due to flash floods in SKUAST-Jammu

On intervening night of 05th and 06th of September, 2014, the devastating caused havoc in and around Jammu and Main Campus, Chatha and R.S. Pura of SKUAST-J was no exception. Such was the severity and intensity of the flood that almost 80% of the total area at Main Campus, Chatha was submerged ranging from 2ft to 8ft of water in depth which damaged constructed boundary wall in cement concrete (foundation and stone masonry), sewerage treatment plant, machinery & equipments, furnitures, consumables (fertilizers/chemicals etc) and miscellaneous (books/ journals/crops). The flash flood also caused extensive damage to Krish Vigyan Kendra (KVK), Reasi both in terms and infrastructure and farm.

Glimpses of Damages to Academic Block (labs/class Rooms) at Chatha

Glimpses of Damages caused to Experimental Farms/ Farm Machinery/Vehicles at chatha

6. AWARDS AND RECOGNITIONS

Name of Teacher/ Scientist / Organization	Name of Award /distinction / Recognition	Awarding Institution / Organization
Dr. Sanjay Guleria	CREST Award	DBT, GOI, New Delhi
Dr. R. K. Srivastava,	• Visiting Scientist Fellowship 2014-15 to visit IIT, Kharagpur for a period of two months w.e.f. 29-06-2014 to 29-08-2014. • Best oral paper presentation award in National Seminar on "Technology and management of Micro Irrigation in Floriculture (TMMIF)"	INSA (Indian National Science Academy) SKUAST-Jammu
Dr. Uma Shankar	Presidential Appreciation Award-2015 during 7th National seminar on Sustainable rural Livelihood: Technological and Institutional Prespective at SKUAST-J	Society for Community Mobilization for Sustainable Development IARI, New-Delhi
Dr. R. K. Gupta	• Best Poster award at the "National Entomologists' Meet" , • Awarded as Fellow	IINRG, Ranchi Society for. Biocontrol Advancement (***SBA***).
Dr. Kuldeep Srivastava, Dr. Devinder Sharma and Vishal Nath Pandey	Best Poster award at the "National Symposium on Natural resource Management and sustainable Hill farming systems for livelihood security	Soil science Conservation society of India, New Delhi
Dr. Kuldeep Srivastava, Dr. Devinder Sharma, S. D. Pandey, R. K. Patel, and Vishal Nath Pandey	Best Poster award at the "International Conference at MPUAT, Udaipur.	Entomological Research Association, MPUA&T, Rajasthan.
Dr. Rakesh Nanda and Dr. Rajinder Peshin	Best Community Mobilizer on National Seminar on Sustainable Rural Livelihood: Technological and Institutional Perspective, SKUAST Jammu.	Society for Community Mobilization for Sustainable Development IARI, New-Delhi
Dr. P. S. Slathia, Dr. Poonam Parihar & Dr. Arvind Kumar Ishar	Presidential Award on National Seminar on Sustainable Rural Livelihood: Technological and Institutional Perspective, SKUAST Jammu.	Society for Community Mobilization for Sustainable Development IARI, New-Delhi
Dr. J. S. Manhas, Dr Vinod Gupta & Dr. Vikas Abrol	Best paper award on National Seminar on Sustainable Rural Livelihood: Technological and Institutional Perspective, SKUAST Jammu.	Society for Community Mobilization for Sustainable Development IARI, New-Delhi
Dr. Vivak Manohar Arya	• Best poster presentation award on National Seminar on Sustainable Rural Livelihood: Technological and Institutional Perspective, SKUAST Jammu. • Best poster presentation award in International conference Natural Resource management for Farming Systems and Rural Livelihood. • Best poster presentation award in National Symposium on Natural Resource Management for Sustainable Hill Farming Systems for Livelihood Security.	Society for Community Mobilization for Sustainable Development IARI, New-Delhi SKUAST-J SKUAST-J
Pawan Kumar Sharma	Young Professional Award, National Seminar on Sustainable Rural Livelihood: Technological and Institutional Perspective, SKUAST Jammu.	Society for Community Mobilization for Sustainable Development IARI, New-Delhi
Dr. Rajinder Peshin	Appointed Vice President of the Indian Ecological Society	Indian Ecological Society
Dr Poonam Parihar	• ISEE Fellow Award • Fellow of Hind Agri-Horticulture Award (FASH)	Society of Extension Education, IARI, New Delhi.. Hind Agri-Horticultural Society, Muzaffar nagar, U.P.
Dr. J. S. Manhas	Best Paper award(Oral)	Soil Conservation Society of India held at SKUAST-J
Dr Rajan Salalia	Awarded best oral presentation in International Conference on "Changing Scenario of Pest Problems in Agri-horti Ecosystem and their Management".	Rajasthan College of Agriculture, Maharana Pratap University of Agriculture & Technology, Udaipur, Rajasthan
Dr. Vikas Sharma	• Special Research Award (for work done on C sequestration and its spatial variability in USA) • Raman Fellowship (Post-Doctoral Fellowship) Pursued at West Virginia University, WV, USA.	Soil Conservation Society of India, New Delhi University Grants Commission, New Delhi
Dr. Peeyush Sharma	Post Doctoral Fellowship	Agricultural Research Organization
Dr. Renu Gupta	Ist prize for outstanding poster presentation	University of Jammu and sponsored by UGC

Dr. Parshant Bakshi	First Prize for Best Oral Presentation-2015 in National Seminar on "Technology and Management of Micro-irrigation in Floriculture"	SKUAST-J
Dr. Anil Bhat	• Best Paper Presentation Award in National Symposium on Natural Resource Management and Sustainable Hill Farming System For Livelihood Security Hill	SKUAST-Jammu
	• Best Paper Award for the Oral Presentation in the Technical Session – II (B) of ICSSR Sponsored International Conference on "Shifting Paradigms in Applied Economics and Management: Course Correction"	SMVDU, Katra, Jammu (J&K)
Dr. Manish Kumar Sharma,	Chaired a session of 32nd Annual National Conference on ISMS - 2014 on "Recent Advances n Statistical methods and their applications in health sciences"	University of Jammu, Jammu,
Muzaffer Khan, A K Pathak, Surender Singh and R K Sharma	Best Paper (Oral) Award at IX Biennial Conference of Animal Nutrition Association	Animal Nutrition Association, India
Simranjeet Kour, Sunil Kumar and Z. F. Bhat	Best Poster Presentation Award in 6th Conference and National Symposium on "Sustainable Meat Production for Nutritional Security and Consumer Well Being: Challenges and Strategies" at Mathura	Indian Meat Science Association
Dr. Rajiv Singh,	Fellowship	National Academy of Dairy Science
Dr.Pranav Kumar	Young Scientist Award	Indian Society of Extension Education
Dr. Vikas Sharma	Bioved Young Scientist Associate Award 2015	Bioved Research Institure of Agriculture & Technology, Allhabad India.
Dr. P.K. Rai	• Young Scientist Award 2014	Astha Foundation at DRR, Hyderabad During National Seminar.
	• Leadership Award 2014	Soil Conservation Society of India, New Delhi during International Conference
Dr. B.S Jamwal	"SAWR Fellow 2014"	Society for Advancement of wheat Research, Indian Institute of Wheat and Barley
Dr. Brij Nandan	"ISPRD Fellowship Awards 2014"	Indian Society of Pulses Research and Development (ISPRD)
Dr. Mahital Jamwal,	Post doctoral Fellow	Volcani Center, Ministry of Agriculture and Rural Development, Israel
Dr. Virender Kumar Singh,	New record of root-knot nematode *Meloidogyne incognita* infecting berseem in J&K (India)	- International Migration Institute (IMI), University of Oxford - Science Publishing Group (SPG) on behalf of the Academic World
Dr Vinod Gupta	• Professional Excellence Award	Soil Conservation Society of India, New Delhi
	• Appreciation Award in National Symposium on Natural Resource Management for Sustainable Hill Farming Systems for Livelihood Security .	Soil Conservation Society of India,
	• Professional Excellence Award	Soil Conservation Society of India, New Delhi
	• Appreciation Award on NRM and Hill farming System for Livelihood Security. July 23-24,2014, SKUAST –J	Soil Conservation Society of India, Jammu Chapter, Symposium
Dr Pawan Kumar Sharma	Best Oral Presentation on National seminar on Technology and Management of Micro Irrigation in Floriculture, SKUAST Jammu.	SKUAST-J
SKUAST-Jammu	`Uttam Stall' award in the National Kissan Mela at New Delhi	Indian Agriculture Research Institute (IARI) New Delhi.
SKUAST-Jammu	Awarded prize for third best stall in National Seminar cum Exhibition on Kissan Mela, Entreneurship programme and flower show 2015	CSIR-IIIM, Canal Road Jammu

Dr. Anil Bhat, Asstt. Professor (Agril. Economics) **Best Paper Presentation Award in National Symposium on Natural Resource Management and Sustainable Hill Farming System For Livelihood Security Hill**

Uttam Stall award received by SKUAST-J from Union Minister of State for Agriculture and Cooperation, Government of India

Dr. P.K. Rai, Sr. Scientist (Soil Science) receiving the Leadreship 2014 Award at NASC, New Delhi

Dr. Rajan Salalia Awarded best oral presentation on research paper

Dr. Brij Nandan Councillor for Zone 1(J&K,HP and Punjab) of Indian Society of Pulses Research and Development,(ISPRD), Kanpur (Since 2013)

Dr. Anil Kumar Sharma and Dr. Vikas Abrol, Sr. Scientist (Soil Science) receiving **Best Paper Award-2015 in 7th National Seminar on Sustainable Rural Livelihood: Technological and Institutional Perspective**

SKUAST-Jammu awarded prize for third best stall in National Seminar cum Exhibition on Kissan Mela, Entreneurship programme and flower show 2015 organized by CSIR-IIIM

7. ORGANIZATION OF NATIONAL/INTERNATIONAL SEMINARS /SYMPOSIA / CONFERENE / SHORT COURSES/TRAINNINGS/WORKSHOPS/ SUMMER AND WINTER SCHOOLS.

Major Programmes

- **National seminar on Sustainable Rural Livelihood: Technological and Institutional Perspective**

  A three-day National seminar on "**Sustainable Rural Livelihood: Technological and Institutional Perspective**" was organized during January 8-10, 2015 by Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu (SKUAST-J) & Society for Community Mobilization for Sustainable Rural Development, New Delhi.

  During the seminar, a separate session of farmer-scientist and farmer-farmer interaction was organized by the Directorate of Extension in which the farmers from states of Jammu & Kashmir, Haryana, Punjab, Uttrakhand and Uttar Pradesh participated and interacted with renowned agriculture scientists from different States

National Seminar on Sustainable Rural Livelihood:

- Two-day national seminar on "Technology and Management of Micro-irrigation in Floriculture" was organized on 19th-20th March 2015 at Main Campus, Chatha. Deputy Chief Minister Dr Nirmal Singh formally inaugurated the seminar, which was organized by the Directorate of Extension, SKUAST-J, in collaboration with the Department of Floriculture, Jammu, J&K Government and Division of Agricultural Engineering.

  During the inaugural session, Mr Singh, in his address, said that combating the water scarcity in our country is one of the greatest challenges which has its impact on the livelihood of the farming community. The time has come to take stock of the research inputs and vision of various stake holders for identification of the knowledge gaps in formulation of the strategies for meeting the irrigation water requirements of farmers through optimum use of modern technologies.

National seminar on "Technology and Management of Micro Irrigation in Floriculture (TIMMF)"

Dr Pradeep K Sharma, Vice Chancellor SKUAST-J, who presided over the function, stressed that water needs to be conserved and utilized efficiently. The adoption of micro-irrigation technology in floriculture helps to increase the irrigation efficiency with the limited water resources. He also impressed upon the farmers to go for commercial floriculture utilizing all the latest know how for harnessing maximum output per unit area. Dr K S Risam, Director Extension, emphasized that this seminar will be very helpful to the farmers of *Kandi* areas of Jammu region.

On this occasion various publications of the university *viz.*, Achievements (Education, Research, Exteansion & Infrastruture 2004-2008 of SKUAST-Jammu), Abstract book, Package of practices of Flower crops, Fruit crops, Vegetable crops, *Rabi* and *Kharif* crops, Jammu KVKs transforming agriculture and Farm records & Impact assessment indicators were released

- National Symposium on "Natural Resource Management and Sustainable Hill farming System for Livelihood Security" from July 23-24, 2014 at SKUAST-J.

National Symposium on "Natural Resource Management and Sustainable Hill farming System for Livelihood Security"

Other Programmes

Organizer	Name of Programme Sponsoring Institute	Title of the Programme/event	Date and Venue	No. of Participants
Division of Fruit Sciences	MIDH	Training and Demonstration on Rejuvenation of old/unproductive aonla orchards of Jammu sub-tropics	25th March,2015, Nai Basti, Akhnoor, Jammu	90
Division of Fruit Sciences	MIDH	Training and Demonstration on Rejuvenation of old/unproductive guava orchards of Jammu sub-tropics	28th March, 2015, Sarore, Samba	94
RHRSS, BHADERWAH	ICAR	High Density Planting for Higher Productivity in Apple and Almond	February 12, 2015. RHRSS, BHADERWAH	50
RHRSS, BHADERWA H	ICAR	Rejuvenation of old senile orchards in apple and almond	February 27, 2015. RHRSS, BHADERWAH	65
RHRSS, BHADERWAH	ICAR	Canopy management and plant architectural engineering for higher productivity and quality in apple	March 12, 2015. RHRSS, BHADERWAH	45
RHRSS, BHADERWAH	ICAR	Low cost propagation of walnut under poly house conditions.	March 25, 2015. RHRSS, BHADERWAH	55
RHRSS, BHADERWAH	ICAR	Rain water harvesting and moisture conservation techniques in apple and almond.	March 26, 2015. RHRSS, BHADERWAH	45

Division of Livestock Products Technology	SKUAST Jammu,	"Social economic upliftment of rural women through development of value added meat products"	R. S. Pura	60
Division of Livestock Products Technology	SKUAST Jammu,	"Empowerment of rural women through training programme on the development of value added livestock products"	R. S. Pura	60
Division of Teaching Veterinary Clinical Complex (TVCC):	SKUAST Jammu,	"Diagnosis and management of common disorders of livestock"	29th Jan to 30th Jan 2015. R.S. Pura	
AMFU, RARS, Rajouri (SKUAST- Jammu	India Meteorological Department	One day Farmer Awareness Programme and Kisan Mela on the theme "Weather, Climate and Farmers"	10th March, 2015 at RARS, Rajouri	250
SKUAST-Jammu	Ministry of Agriculture, GoI, Dept. of Agriculture & Cooperation	Organized 08 days' Model Training Course on "Agricultural Marketing Reforms through Contract Farming for Increasing Productivity and Income of Farming Community"	27th Jan. to 3rd of Feb., 2015 Chatha.	40
SKUAST-Jammu	National Institute of Agricultural Extension Management (MANAGE) Hyderabad	Organized Four days training programme on "Application of ICTs in modified Agricultural Extension Reforms	May 28-31, 2014 at main campus Chatha.	40
SKUAST-Jammu	Export Development Foundation (BEDF), Modipurram	One day workshop on "Quality Improvement in Production of Basmati Rice for Export"	27-06-2014 at Chatha	70

8. Participation of Scientists in National/ International Seminars / Symposia / Conferences / Short Courses / Training / Workshops / Summer and Winter Schools

- Dr. Anish Yadav, Associate Professor (VPA) attended an International short research stay programme at Faculty of Veterinary Sciences, University of Santiago de Compostela, Lugo, Spain w.e.f. 31st October 2014 to 24th November 2014.
- Dr. S. K. Gupta, Professor (Agro-forestry) attended International symposium Transforming Mountain Forestry" held at FRI, Dehra Dun sponsored by ICIMOD, Nepal w.e.f 18-22, . Jan. 2015.
- Dr. Vikas Sharma, Asstt. Professor (Biochemistry)
  - attended International "Asian Plant Science Conference" at Lumbini (Bhairahawa), Nepal (Chaired Section-II, Phytochemistry & Pharmacology) w.e.f 1-3 November, 2014.
  - attended Refresher course training on "Environmental Sciences (ID)" at UGC Academic Staff College, University of Jammu w..e.f 23rd Feb, to 16th March, 2015.
  - attended "National Seminar on Science and Technology for Human Development (in collaboration with ISCA) and UGC SAP Workshop on Biodiversity and Conservation" at Department of Zoology, University of Jammu, Jammu w.e.f 25-27, March 2015.
  - attended UGC SAP - National Seminar on Innovative Trends in Plant and Microbial Sciences at Department of Botany, University of Jammu, Jammu w.e.f 2-3 March, 2015,
- Dr. Peeyush Sharma, Assoc. Professor (Soil Sciences) participated in International Workshop on "Agricultural Coal Ash Uses- Strategy, Agronomy, Environment & Health" held in Institute of Soil Water and environmental Sciences', Volcani Centre, Beit Dagan, Israel 27th May, 2014.
- Dr. Ravinder Singh Sudan, Sr. Scientist (PBG)
  - attended 12th Asian Maize Conference and Expert Consultation on "Maize for Food, Feed, Nutrition and Environmental Security" organized by Asia-Pacific Association of Agricultural Research Institutions (APAARI), International Maize and Wheat Improvement Centre (CIMMYT), FAO Regional office for Asia and the Pacific, and Department of Agriculture (DOA)-Thailand, at Bangkok, Thailand w.e.f. October 30th to 1st November 2014
  - at MPUAT, Udaipur, Rajasthan w.e.f 21st to 23rd April, 2014
- Dr Vikas Abrol, Sr. Scientist (Soil Sciences)
  - participated in International Workshop on "Agricultural Coal Ash Uses- Strategy, Agronomy, Environment & Health" held in Institute of Soil Water and environmental Sciences, Volcani Centre, Beit Dagan, Israel 27th May, 2014.
  - attended Biennial Workshop of All Indian Coordinated Research Project on Dryland Agriculture (AICRPDA) held at DARP, CoA, Indore w.e.f 26th to 29th Dec, 2014
  - deputed to undergo training for one year (Nov 2013-Oct 2014) entitled "Biochar: Mechanism of action in agricultural soils" by Government of Israel at Agricultural Research Organization, Institute of Soil, Water and Environment Sciences, The Volcani Centre, Bet Dagan, Israel to pursue research
  - participated in International Workshop on "Agricultural Coal Ash Uses- Strategy, Agronomy, Environment & Health" held in Institute of Soil Water and environmental Scinces, Volcani Centre, Beit Dagan, Israel 27th May, 2014.
- Dr. H. R. Bhardwaj, Associate Professor (TVCC) attended 30th Annual Congress of International Symposium on "New Horizons of Camel surgery & large ruminant surgery" organized by Department of Veterinary Surgery and Radiology, Rajasthan University of Veterinary & Animal Science, Bikaner, Rajasthan w.e.f. 15th to 17th Oct 2014.
- Dr. R. K. Taggar, Professor (Animal Genetics & Breeding) attended International Symposium on "Sustainable Management of Animal Genetic Resources for Livelihood Security in Developing Countries" & XII Annual Convention of Society for Society for Conservation of Domestic Animal Biodiversity (SOCDAB) from February, 13-14, 2015, organized by TANUVAS, Chennai, India.
- Dr. H.K. Sharma, Asstt. Professor (VPH & Epidemiology) attended Pre conference of 2nd International Conference on Animal and Diary Sciences on "Addressing new challenges and emerging issues in animal sciences and dairy research" at SKUAST-Jammu on 20 August , 2014.
- Dr. P. S. Mahapatra, Assoc. Prof. & Head (VPB) attended an International conference on 'Reproductive Health' at NIRRH, Parel, Mumbai w.e.f 14-17th Feb, 2015 & presented paper entitled' Reprogramming of buffalo fetal fibroblasts with avian egg extract for generation of pluripotent stem cells.
- Er. Hemant Dadhich, Assistant Professor (Agricultural Engineering)
  - attended International Conference on "Technologies for Sustainable Development (ICTSD-2015)" at Don Bosco Institute of Technology, Kurla, Mumbai, India w.e.f. 4-6 February, 2015.
  - attended Summer School for 21 days on "Modern Techniques and Approaches in Storage of harvest and Processed Plant and Animal Food Products" at CIPHET, Ludhiana w.e.f. 11, June - 1 July, 2014.
  - attended Winter School for 21 days on "Applications of Sensors, Nano-sensors, wireless sensors network and instrumentation in precision/ conservation agriculture" at CIAE, Bhopal w.e.f. 3-23, December 2014.
  - attended National Seminar on "Technology and management of Micro Irrigation in Floriculture (TMMIF)" at SKUAST-Jammu w.e.f. 19th – 20th March , 2015.
- Dr. Sushmita M. Dadhich, Assistant Professor (Agricultural Engineering)
  - attended International Conference on "Technologies for Sustainable Development (ICTSD-2015)" at Don Bosco Institute of Technology, Kurla, Mumbai, India w.e.f. 4-6 February, 2015.
  - attended National Seminar on "Technology and management of Micro Irrigation in Floriculture (TMMIF)" at SKUAST-Jammu w.e.f. 19th – 20th March , 2015.
- Dr. Rajan Salalia, Asstt. Professor (Entomology)
  - attended International Conference on "Changing Scenario of Pest Problems in Agri-horti Ecosystem and their Management" at Rajasthan College of Agriculture, Maharana Pratap University of Agriculture & Technology, Udaipur, Rajasthan w.e.f. 27-29, November 2014

- attended National Symposium on "Nematode Management: A challenge to Indian Agriculture in the changing climate" and also presented two poster presentations at Yashwantrao Chavan Academy of Development Administration (YASHADA), Baner Road, Pune, organised by Nematological Society of India w.e.f. January 8-10, 2015.
- attended 21 days training entitled "DNA based tools & Bioinformatics" at Department of Animal Biotechnology, Lala Lajpat Rai University of Veterinary & Animal Sciences (LUVAS), Hisar, Haryana w.e.f. 4-24 February, 2015.

- Dr. Vikas Sharma, Assoc. Professor (Soil Sciences) presented an oral paper at International conference on "Natural Resource Management for Farming Systems and Rural Livelihood" which was held at New Delhi w.e.f.10-13 Feb.,2015
- Dr Ranbir Singh, Assistant Professor (Plant Pathology)
  - attended and presented paper in International Conference on Emerging trends in Biotechnology and Sciences with especial Reference to Climate Change at KVK, Banasthali, Tonk Rajasthan wet. 18-20' February. 2015.
  - attended training programme on Advances in molecular diagnostics of emerging plant diseases for biosecurity" at Indian Institute of Horticultural Research at Bangalore. w.e.f. 121hi August, 2014.
  - attended training programme on Genomics of plant virus for diagnosis and utilLzatlon as gene expression tool at Advanced Centre of Plant Virology. Division of Plant Pathology. Indian Agricultural Research Institute, New Delhi. w e.f. Octooer 15— November 6. 2014.
  - participated in National Seminar on Innovative Trends in Plant and Microbial Sciences" at University of Jammu. we f. 2'"-3' March 2015.
- Dr. V. M. Arya, Asstt. Professor (Soil Science)
  - participated in International conference on Natural Resource Management for Farming Systems and Rural Livelihood" which was held at New Delhi w.e.f.10-13 Feb.,2015
  - participated in Training Programme on Advances in Resource Conservation Technologies for Soil, Water and Crop Productivity at PAU, Ludhiana w.e.f. Oct.29-Nov.18, 2014
  - participated in National Symposium on Natural Resource Management for Sustainable Hill Farming Systems for Livelihood Security at Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu w.e.f 23-24, July 2014
  - participated in Annual Workshop of the externally funded project Aicrpam-Nicra at CRIDA, Hyderabad from 26-27th August, 2014
  - participated in National Symposium on Agricultural Diversification for Sustainable Livelihood and Environmental Security w.e.f. 18-20 November, 2014 at PAU, Ludhiana, Punjab
  - participated in National Seminar on Sustainable Rural Livelihood: Technological and Institutional perspective at SKUAST-J w.e.f 08-10 Jan.,2015
  - participated in National Seminar on Technology and Management of Micro Irrigation in Floriculture at Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu w.e.f March 19-20, 2015
- Dr. Anil Bhat, Asstt. Professor (Agril. Economics)
  - participated and presented a paper entitled "Marketing costs and price spread analysis for citrus in Samba district of Jammu region" in ICSSR Sponsored International Conference on "Shifting paradigms in Applied Economics and Management: Course Correction" held at SMVDU, Katra w,e,f : 01-02, Aug. 2014.
  - participated and presented the research papers in the International Conference on "Statistics & Information Technology for a Growing Nation" held at Dept. of Statistics, S.V. University, Tirupati w.e.f. : 30 Nov. – 02 Nov., 2014.
- Dr. Manish Kumar Sharma, Assoc. Professor (Statistics)
  - participated and presented the research papers in the International Conference on "Statistics & Information Technology for a Growing Nation" held at Dept. of Statistics, S.V. University, Tirupati w.e.f. : 30 Nov., 02, Dec., 2014.
  - participated and presented A Research Paper in the 32nd Annual Conference on ISMS - 2014 held at University of Jammu, Jammu, w.e.f. 1-3 Nov., 2014
- Dr. P.K. Rai, Sr. Scientist (Soil Science)
  - participated in International Conference on "Natural Resource Management for Food Security and Rural Livelihood" from February 10-13, 2015 at NASC, New Delhi from Feb. 10-13, 2015 organized by Soil Conservation Society of India, New Delhi.
  - participated in International Conference on "Natural Resource Management for Food Security and Rural Livelihood" from February 10-13, 2015 at NASC, New Delhi from 10-13 Feb., 2015 organized by Soil Conservation Society of India, New Delhi.
- Dr. Maninder Singh, Asstt. Professor (VPH & Epidemiology)
  - attended Pre conference of 2nd International Conference on Animal and Diary Sciences on "Addressing new challenges and emerging issues in animal sciences and dairy research" at SKUAST-Jammu on August, 20, 2014
  - attended Training Programme on "Recent advances in survey design and analysis of survey data using statistical software" at IASRI, New Delhi w.e.f October, 28- November, 17, 2014.
- Dr. L M Gupta, Assoc. Professor (Agro-forestry) attended DST sponsored training programme on "Climate Change Vulnerability and Adaptation Strategy" at ICFRE, Dehra Dun w.e.f. 2nd-6th February, 2015.
- Dr. R. Puniya, Asstt. Professor (Agronomy)
  - attended 53rd All India wheat and barley research meet at JNKVV Jabalpur (MP) w.e.f. 22nd – 25th Aug., 2014
  - attended 21 days training on "Augmentation of Soil and Crop productivity through organics" at Dept. of Agronomy, GBPUAT, Pannagar w.e.f. Sept. 26 - Oct. 16, 2014
- Dr. B.C Sharma, Professor (Agronomy)
  - attended 10 days training programmee on "Strengthening the capabilities in Agromet data analysis and modeling" at CRIDA Hyderabad w.e.f. 03 Feb. to 12 Feb. 2015
  - attended XIII Biennial Workshop of AICRP on Agrometreology at IGKV, Raipur w.e.f. 05th – 7th Nov. 2014

- Dr. Neetu Sharma, Asstt. Professor (Agronomy) attended the 10 days training course on "Advances in Weed Management" at ICAR, Directorate of Weed Science Research, Jabalpur w.e.f. 19th to 28th March, 2015
- Dr. Moni Gupta, Assoc. Professor (Biochemistry) attended and presented poster "Indian Science Congress (102)" at University of Mumbai, Mumbai w..e.f 1st January to 7th January, 2015.
- Dr. Gurdev Chand, Asstt. Professor (Plant Physiology) attended National Conference of Plant Physiology at OUAT, Bhubaneshwar w.e.f 23-25 November, 2014.
- Dr. Sushil Sharma, Professor and Head (Agricultural Engineering)
  - attended one day workshop on "Institutions identified for Testing & Certifying of Agricultural implements and machinery" organised at NASC Complex, ICAR, Pusa, New Delhi on September 9, 2014.
  - attended 49th Annual Convention of ISAE and Symposium on "Engineering Interventions in Conservation Agriculture" at PAU, Ludhiana, Punjab w.e.f. 23rd – 25th February, 2015.
  - attended National Seminar on "Technology and management of Micro Irrigation in Floriculture (TMMIF)" at SKUAST-Jammu w.e.f. 19th – 20th March , 2015.
- Dr. R. K. Srivastava, Associate Professor (Agricultural Engineering)
  - attended Technical Advisory Expert Committee Meeting for presenting DST project on Promotion of Soil and water Conservation Technologies for Improving Agriculture Systems in rainfed Area of Jammu District at Wildlife Institute of India Dehradun, Uttarakhand held on 27th October, 2014.
  - Sharma attended National Seminar on "Technology and management of Micro Irrigation in Floriculture (TMMIF)" at SKUAST-Jammu w.e.f. 19th – 20th March , 2015.
- Dr. Parshotam Kumar Sharma (Agricultural Engineering) attended National Seminar on "Technology and management of Micro Irrigation in Floriculture (TMMIF)" at SKUAST-Jammu w.e.f. 19th – 20th March , 2015.
- Dr. D. P. Abrol, Professor (Entomology) attended Expert group meeting at VPKAS, Almora on 1st April, 2014.
- Dr. R. K. Gupta, Associate Professor (Entomology)
  - attended the project review meeting at DBT, New Delhi on 1st to 2nd July, 2014.
  - attended the project review meeting of reconstituted task force on " Biotechnology based program for women" at DBT, New Delhi on 10th to 11th July, 2014.
  - attended the "Project Launch Workshop of Network Project on Conservation of Lac Insect Genetic Resources" at IINRG, Ranchi on 27th and 28th August, 2014.
  - attended the "National Entomologists' Meet" at IINRG, Ranchi w.e.f. 5 – 7 February, 2015.
  - attended the Progress Review Meeting of "Network Project on Conservation of Lac Insect Genetic Resources" on 10 March , 2015 at KFRI, Thrissur, Kerala.
- Dr. Uma Shankar, Assistant Professor (Entomology) attended 21 days training programme on "Forecast Modeling Analytics in Crops" at Indian Agricultural Statistics Research Institute (IASRI) w.e.f May 30 - 19 June, 2014)
- Dr. Amit Kumar Singh, Assistant Professor (Entomology) attended 21 days training programme on "Agroforestry for sustenance and climate moderation" at SKUAST-Kashmir (J&K) w.e.f 5-25th August 2014
- Dr. Devinder Sharma, Assistant Professor (Entomology) attended symposium on National Symposium on Natural resource Management and sustainable Hill farming systems for livelihood security 23-24 July, 2014.
- Dr. Rakesh Nanda, Professor (Agricultural Extension Education)
  - participated and chaired a session in two days workshop on agricultural Extension Reforms in South Asia Status Challenges and Policy options organized by International Food Policy Research Institute (IFPRI) at NASC- Pusa New Delhi from 17-18 Feb., 2015.
  - participated & presented a research paper in the 7th National Extension Education Congress organized by Society of Extension Education, Agra in collaboration with ICAR Research Complex for NEH Region, Umiam, Meghalaya, w.e.f. 8-11th November, 2014.
- Dr. Poonam Parihar Assistant Professor (Agricultural Extension Education)
  - participated & presented a research paper in the 7th National Extension Education Congress organized by Society of Extension Education, Agra in collaboration with ICAR Research Complex for NEH Region, Umiam, Meghalaya, w.e.f. 8-11th November, 2014.
  - participated & presented a research paper in the National Seminar organized by the Society of Extension Education, IARI, New Delhi in collaboration with Department of Extension Education, Rajmata Vijayaraje Scindia Krishi Vishwa Vidayalaya, Gwalior, M.P w.e.f., 26-28 February, 2015.
  - attended 21 days training programme on "Futuristic Agricultural Extension Approaches & Tools" at CAFT, IARI, New-Delhi w.e.f., 03-23 September, 2014.
- Dr. L. K. Sharma, Assistant Professor (Agricultural Extension Education) attended 21 days summer school training programme on "Temperate Agroforestry for sustenance and Climate Moderation" at SKUAST-Kashmir w.e.f. 5-25 August, 2014 .
- Dr. S.K. Rai, Asstt. Prof. (PBG)
  - attended 21 days "11th refresher course in Agricultural Sciences at B.H. U., Varanasi, U.P. w.e.f. 5th - 25th February, 2014.
  - attended 21nd Annual Oilseed Research Group Meeting at BCKV, Kalyani at BCKV, Kalyani w.e.f. 20-22nd Aug. 2014.

➢ Dr. Rajeev Bharat, Asstt. Prof./Jr. Scientist (Agronomy)
  - attended 2 days National Brassica conference entitled " Brassica for addressing edible oils and Nutritional Security at PAU, Ludhiana w.e.f. Feb. 14 to 16, 2014
  - 2 days National Symposium on " Natural Resource Management for sustainable hill farming system for livelihood security" at SKUAST-Jammu w.e.f. 23-24th July, 2014.
  - 21 days winter school " Strategies to enhance oilseed brassica production under climate and resource constraint scenario at DRMR, Sewar,

Bharatpur, Rajasthan w.e.f. 11th Nov.- 1st Dec, 2014.
  - attended 21nd Annual Oilseed Research Group Meeting at BCKV, Kalyani at BCKV, Kalyani w.e.f. 20-22nd Aug. 2014.
- Dr. Bupesh Kumar, Asstt. Prof./Jr. Scientist (PBG) attended 49th Annual Rice Research Group Meeting at Directorate of Rice Research Hyderabad at Directorate of Rice Research Hyderabad w.e.f. 5th -8th April, 2014.
- Dr. Anil Gupta, Chief Scientist (Plant Pathology) attended 49th Annual Rice Research Group Meeting at Directorate of Rice Research Hyderabad at Directorate of Rice Research Hyderabad w.e.f. 5th - 8th April, 2014.
- Dr. Anuradha Saha, Jr. Scientist (Agronomy) attended 49th Annual Rice Research Group Meeting at Directorate of Rice Research Hyderabad at Directorate of Rice Research Hyderabad w.e.f. 5th - 8th April, 2014.
- Dr. S.K Sudan, Assoc. Prof. (PBG) attended 49th Annual Rice Research Group Meeting at Directorate of Rice Research Hyderabad at Directorate of Rice Research Hyderabad w.e.f. 5th -8th April, 2014.
- Dr Tuhina Dey, Sr. Scientist (PBG)
  - attended 53rd Annual Wheat & Barley Research Workers Meet at JNKVV, Jabalpur w.e.f. 24th – 27th August 2014.
  - attended First Annual Science Meet of ACIAR project on Triple Rust Resistance in Wheat at DWR, Karnal w.e.f. 27-28th May, 2014.
- Dr. M.K. Pandey, Jr. Scientist (Plant Pathology) attended 53rd Annual Wheat & Barley Research Workers Meet at JNKVV, Jabalpur w.e.f. 24th – 27th August 2014.
- Dr S.K. Mondal, Professor (PBG)
  - attended 53rd Annual Wheat & Barley Research Workers Meet at JNKVV,
  - attended First Annual Science Meet of ACIAR project on Triple Rust Resistance in Wheat at DWR, Karnal w.e.f. 27-28th May, 2014.
- Dr. Kamlesh Bali, Asst. Prof. (Entomology) attended training programme on "Current trends in quality potato production, processing and marketing" at CPRI, Shimla w.e.f 08 –28 July, 2014 .
- Dr. Parshant Bakshi, Associate Professor (Fruit Sciences), attended training programme on "Data Analysis using SAS" organized by SKUAST-J and NDRI, Karnal under NAIP "Strengthening Statistical Computing for NARS" at SKUAST-Jammu w.e.f 17th March, 2015 to 22nd March, 2015.
- Dr. Nirmal Sharma, Asstt. Professor (Fruit Science), attended training programme on "Forecast Modelling Analytics in Crops" at IASRI, New Delhi w.e.f. 30th May, 2014 to 19th June, 2014.
- Dr. Amit Jasrotia, Asstt. Professor (Fruit Science) attended training programme on "Recent Advances in Temperate Fruit Production" at Department of Fruit Science, Dr. Y. S. Parmar University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh, w.e.f. 20th August to 9th September, 2014.
- Dr. Kiran Kour, Asstt. Professor (Fruit Science), attended training programme on "Recent Advances in Temperate Fruit Production" at Department of Fruit Science, Dr. Y. S. Parmar University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh, w.e.f. 20th August to 9th September, 2014.
- Dr. Deepji Bhat, Asstt. Professor (Fruit Science), attended training programme on "Recent Advances in Temperate Fruit Production" at Department of Fruit Science, Dr. Y. S. Parmar University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh, w.e.f. 20th August to 9th September, 2014.
- Dr. Arti Sharma, Assistant Professor (Fruit Science) attended 21 days winter school on "Hi-Tech interventions in fruit production for enhancing productivity, nutritional quality and value addition" w.e.f November 05 to November 25, 2014, at Central Institute of arid Horticulture, Bikaner
- Dr. Sandeep Chopra, Associate Professor (Vegetable Sciences) participated in 21 days Summer School on "Current Trends in quality Potato Production, Processing and Marketing" organized by Central Potato Research Institute. Shimla w.e.f. 08 – 28 July, 2014.
- Dr. Manoj Kumar, Asstt. Professor (Vegetable Sciences) participated in 21 days Summer School on "Current Trends in quality Potato Production, Processing and Marketing" organized by Central Potato Research Institute. Shimla w.e.f. 08 – 28 July, 2014
- Dr. Satesh Kumar, Assistant Professor (Vegetable Sciences) participated in 21 days Summer School on "New Paradigms in Heterosis Breeding: Conventional and Molecular Approaches" organized by GBPUAT, Pantnagar (Uttra Khand) w.e.f. 10 – 30th September, 2014.
- Dr. Sanjeev Kumar, Assistant Professor (Soil Science)
  - participated in National Seminar on "Innovative Trends in Plant and Microbial Science" organized by University of Jammu w.e.f. 02-03, March, 2015.
  - attended 21 days training course on "Advances in resource conservation technologies for soil, water and crop productivity" held at PAU Ludhiana (Punjab) w.e.f. October 29 - 18 November, 2014.
- Dr. Sudhakar Dwivedi, Associate Professor (Agril. Economics), Dr. S.P. Singh, Asstt. Professor (Agril. Economics) and Dr. Anil Bhat, Asstt. Professor (Agril. Economics) participated in the training programme on Formulation of C-DAP's /C-SAP under RKVY (Normal) held at SKUAST-Kashmir w.e.f. 04-05 September, 2014.
- Dr. Julie D. Bandral, Asstt. Professor (PHT) attended 21 days) ICAR sponsored summer school at CIPHET Ludhiana on "modern techniques and approaches in storage of harvested and processed plant and animal food products" w.e.f. 11th June-Ist July 2014
- Dr. Vishal Gupta, Assistant Professor (Plant Pathology)
  - attended workshop 'Considering NSS as elective subject and promote various youth programmes to promote national integration" at Chandigarh on 27 May, 2014
  - attended workshop to revise the 1PM packages of practices of different crops at NIPHM Hyderabad on 25.08.2014.
  - attended training programme, "Recent trends in bloinformatics and its application in agriculture' at NAARM, Hyderabad from 2'13m Jan. 2015.
- Dr. Anil Kumar Sharma Sr. Scientist & Incharge (ACRA)
  - attended Biennial Workshop of All Indian Coordinated Research Project on Dryland Agriculture (AICRPDA) held at DARP, CoA, Indore w.e.f 26th to 29th Dec, 2014.
  - attended Biennial Workshop of All Indian Coordinated Research Project on Dryland Agriculture (AICRPDA) held at DARP, CoA, Indore w.e.f 26th to 29th Dec, 2014
- Dr. Sonika Jamwal, Jr. Scientist (Plant Pathology) attended 21 days training programme on "Innovative approaches and

advances for diagnosis and detection of plant diseases in relation to their management" at GBPUAT-Pantnagar (Uttrakhand) w.e.f. September 02-22,2014

- Dr Anil Kumar Sharma, Professor (Agronomy) attended 10 days training programme on Bio-fortification in food crops at Indian Institute of Pulses Research, Kanpur (UP) w. e. f 04 – 13 August, 2014.
- Dr. Reena, Sr Scientist (Entomology) attended 21 days CAFT training on "Novel approaches in pest and pesticide management in agro-ecosystem" held by the Department of Entomology, CCSHAU, Hisar, Haryana w.e.f. 19th Aug. to 8th Sept., 2014.
- Dr Jai Kumar, Jr. Scientist (Agronomy)
  - attended 21 days CAFT training on "Augmentation of Soil and Crop Productivity through Organics" held in the Department of Agronomy, GBPUAT-Pantnagar (Uttrakhand) w.e.f. 26 Aug. – 16 Oct., 2014.
  - attended Biennial Workshop of All Indian Coordinated Research Project on Dryland Agriculture (AICRPDA) held at DARP, CoA, Indore w.e.f 26th to 29th Dec, 2014
  - attended 21 days CAFT training on "Augmentation of Soil and Crop Productivity through Organics" held in the Department of Agronomy, GBPUAT - Pantnagar (Uttrakhand) w.e.f. 26 Aug., - 16 Sept., 2014.
- Dr Brinder Singh, Jr. Scientist (Soil Science) attended 21 days training "Diagnosis assessment and management of salt affected soil and poor quality water to Improve productivity and livelihood security" organized by Central Soil Salinity Research Institute, Karnal (CSSRI), Karnal w.e.f. 11th November to 01th December, 2014
- Dr. Jafrin Ara Ahmed, Asstt. Prof (VPB)
  - attended a 21 days winter school on "Livestock based integrated farming systems for enhancing resource use efficiency and improving livelihood of small & marginal farmers" at Indian Grassland & Fodder Resource Institute (IGFRI), Jhansi w.e.f. 28th Jan to 17th Feb, 2015.
  - attended a 21 days training programme on "Advance Tools for Analysis of Phenomic and Genomic Data" at DCBD, NDRI, w.e.f 5-25th March, 2015.
- Dr. Dipanjali Konwar, Assistant Professor (LPM) attended Winter School on " Recent advances in diagnosis and management of emerging disease of livestock with special reference to pigs" at CVSc and AH, CAU, Selesih, Aizawl, Mizoram w.e.f. 4th – 24th November, 2014.
- Dr. Arvind Kumar, Asstt. Prof.(LPT) attended National Seminar on Science and Technology for human development and SAP workshop on "Biodiversity and conservation: present status and future perspective" in collaboration with Indian Science Congress held at Jammu University w.e.f 25-27 March, 2015.
- Dr. Sunil Kumar, Associate Professor and Head (LPT)
  - attended 6th Conference and National Symposium of Indian Meat Science Association on "Sustainable Meat Production for Nutritional Security and Consumer Well Being: Challenges and Strategies" 28th to 30th November, 2014 at DUVASU, Mathura.
  - attended 11th Conference of Association of Public Health Veterinarians and National Congress on Veterinary Public Health and Symposium on "Food Security and Public Health: Present Status and Future Road Map" 24th to 25th November 2014, NASC Complex New Delhi.
- Dr. Z. F. Bhat, Assistant Professor (LPT)
  - attended 6th Conference and National Symposium of Indian Meat Science Association on "Sustainable Meat Production for Nutritional Security and Consumer Well Being: Challenges and Strategies" 28th to 30th November, 2014 at DUVASU, Mathura.
  - attended 11th Conference of Association of Public Health Veterinarians and National Congress on Veterinary Public Health and Symposium on "Food Security and Public Health: Present Status and Future Road Map" 24th to 25th November 2014, NASC Complex New Delhi.
- Dr. W. A. A. Razzaque, Asstt. Professor (VGO) attended 21 days training course on "Rumen Function and Microbial Diversity: A Metagenomic Approach" at IVRI, Izatnagar, Bareilly w. e. f. 4th - 24th February, 2015.
- Dr. Utsav Sharma, Assoc. Professor (VGO) attended XXX Annual Convention of The Indian Society for study of Animal Reproduction(ISSAR) and National Symposium on "Research and Innovations to Improve Animal Fertility and Fecundity" organized by Dept. of Obstetrics and Gynaecology, College of Veterinary Science & Animal Husbandry, U.P. Pt. Deen Dayal Upadhaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan, Mathura, U.P. w.e.f 20-22 November, 2014.
- Dr. A.K. Pandey, Asstt. Prof. (VGO) attended XXX Annual Convention of The Indian Society for study of Animal Reproduction(ISSAR) and National Symposium on "Research and Innovations to Improve Animal Fertility and Fecundity" organized by Dept. of Obstetrics and Gynaecology, College of Veterinary Science & Animal Husbandry, U.P. Pt. Deen Dayal Upadhaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan, Mathura, U.P. w.e.f 20-22 November, 2014.
- Dr. Mohd Rashid, Assoc. Professor (VPH & Epidemiology) attended 3 days XIIIth Annual Conference of IAVPHS & National Symposium on "Safety of Foods of Animal Origin for Domestic and Export Market, at Hebbal, Bengaluru w.e.f. 10th-12th February, 2015.
- Dr. H.K.Sharma, Asstt. Prof., (VPH & Epidemiology) attended
  - 21 days Training course on "Exploitation of Poultry production by mitigating the climate and farm management to prevent global warming" w.e.f. 26-11-2014 to 16-12-2014 at Veterinary College and Research Institute, Namakkal, Tamil Nadu.
  - 3 days XIIIth Annual Conference of IAVPHS & National Symposium on "Safety of Foods of Animal Origin for Domestic and Export Market, at Hebbal, Bengaluru w.e.f. 10th-12th February, 2015.
- Dr. R K Sharma, Professor & Head (ANN)) attended IX Biennial Conference of Animal Nutrition Association of India on the theme 'Eco-responsive Feeding and Nutrition: Linking Livestock and Livelihood' held at Guwahati from 22-24 January, 2015.
- Dr A K Pathak, Assistant Professor, (ANN) attended IX Biennial Conference of Animal Nutrition Association of India on the theme 'Eco-responsive Feeding and Nutrition: Linking Livestock and Livelihood' held at Guwahati w.e.f. 22-24 January, 2015.
- Dr. Ankur Rastogi, Assistant Professor (ANN) attended ICAR sponsored ICAR Summer School on

"Food Quality and Safety: Recent advances in evaluation techniques" at CIPHET, Ludhiana w.e.f. 5-25th August, 2014.

- Dr. Vikas Mahajan, Assistant Professor (ILFC) has attended the National Training Programme on "Advanced tools for analysis of phenomic and Genomic data" organized by Centre of Advanced Faculty Training (AG& B), Dairy Cattle Breeding Division of ICAR, NDRI, Karnal w.ef. 5th -25th March, 2015.
- Dr Sabahat Gazal, Assistant Professor (VMC) attended UGC-NRC 12th Workshop on Molecular Virology at Department of Microbiology & Cell Biology, Indian Institute of Science, Bangalore w.e.f March 20, 2015 to March 31, 2015.
- Dr. Ashok Kumar, Assistant Professor (TVCC) attended training programme on "Current trends in Veterinary Surgery and imaging techniques" at Department of Veterinary Surgery and Radiology, COVS, Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana, Punjab-141004 w.e.f. September 03 to September 23, 2014.
- Dr. Ram Bilash Kushwaha, Assistant Professor (TVCC) attended training programme on "Current trends in Veterinary Surgery and imaging techniques" at Department of Veterinary Surgery and Radiology, COVS, Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana, Punjab-141004 w.e.f. September 03 to 23, September, 2014.
- Dr. Rajiv Singh, Professor & Head, (Veterinary Medicine)
  - participated in the GLobal Animal Nutrition Conference on theme "Climate resilient Livestock Feeding Systems for Global Food Security" at Bangaluru w.e.f. 20-22nd April, 2014.
  - participated in the Symposium on "Food-borne Zoonosis" organized by National Academy of Dairy Science, India on Foundation Day Celebration of NADSI at NDRI, Karnal on 26th May, 2014.
  - participated in a two days workshop jointly organized by the National Agricultural Innovation Project (NAIP), ICAR and the International Food Policy Research Institute (IFPRI) on 'Impact of capacity building programs under NAIP' at AP Shinde Auditorium, NASC Complex, Pusa, New Delhi w.e.f. 6-7 June, 2014.
- Dr. S A Khandi, Asstt. Prof., (Veterinary Animal Husbandry Extension Education) attended
  - "VII National Seminar of Society for Community Mobilization for Sustainable Rural Livelihood: Technological and Institutional Perspective" held at Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu, Chatha from 08-10 January, 2015.
  - Training programme on "Emerging Issues in Agricultural Policy Research" organised by National Institute of Agricultural Economics and Policy Research, New Delhi w.e.f. 19-25, March 2015.
- Dr. Pranav Kumar, Asstt. Prof., (Veterinary Animal Husbandry Extension Education) Participated in the ISSE National seminar on "Extension Innovations and Methodologies for Market- Led Agricultural Growth and Development, 26- 28 February:, 2015 at Gwalior.
- Dr. Mudasir Sultana, Prof. & Head, (Veterinary Pharmacology and Toxicology) attended & presented research paper in 14th ISVPT conference at Khanapara Assam Agriculture University Guwahati in November 2014.
- Dr. Dhirendra Kumar, Asstt. Prof. (Animal Genetics & Breeding) attended
  - XII Agricultural Science Congress on "Sustainable Livelihood Security for Smallholder Farmers" from February, 3-6, 2015, organized by ICAR-National Dairy Research Institute, Karnal, Haryana.
  - XII Agricultural Science Congress on "Sustainable Livelihood Security for Smallholder Farmers" from February, 3-6, 2015, organized by ICAR-National Dairy Research Institute, Karnal, Haryana.
- Dr. Shilpa Sood, Assistant Professor (Vety. Pathology) attended
  - 21 days CAFT training programme on "Advanced techniques for detection and control of parasitic diseases" from 10 Nov 2014 to 30 Nov 2014.
  - 21 days CAFT training programme on "Current trends in Veterinary surgery and imaging techniques" from 3 – 23 Sept., 2014.
- Dr. V.K. Singh, Assistant Professor/Jr. Scientist (Plant Pathology) attended
  - "4th Special Summer School" at UGC Academic Staff College, BHU, Varanasi (Uttar Pradesh) w.e.f. May 20 - 9 June, 2014.
  - participated in National Workshop on Advances in PGPR Research at BHU, Varanasi (Uttar Pradesh) w.e.f. 07-08 October, 2014.
- Dr. Neeraj Kotwal, Assistant Professor/Jr. Scientist (Entomology) attended a course on "Functional insect pest management" at CAFT, TNAU, Coimbatore (Tamil Nadu) w.e.f. 02-22 December, 2014.
- Dr. Neeraj Gupta, Jr. Scientist (Post Harvest Technology) attended
  - summer school on "Food quality and safety: Recent advances in evaluation techniques " at CIPHET, PAU, Ludhiana w.e.f. 5th -25th August, 2014.
  - National Symposium on "Natural Resources Management and Sustainable Hill Farming System for Livelihood Security Soil Conservation Society of India, Jammu Chapter" Organized by Div. of Soil Science & Agricultural Chemistry, SKUAST- Jammu, w.e.f 23-24 July, 2014
  - "10th JK Science Congress" Organized by University of Jammu, w.e.f 14th -16th March, 2015
- Dr. Rakesh Kumar, Jr. Scientist (Fruit Science) attended winter school on "Hi- Tech interventions in fruit production for enhancing Productivity, Nutritional Quality and value addition" CIAH, Bikaner, Rajasthan, w.e.f. 5-25th November 2014.
- Vijay Kumar, Jr. Scientist (Soil Science) attended
  - National Symposium on "Natural Resources Management and Sustainable Hill Farming System for Livelihood Security Soil Conservation Society of India, Jammu Chapter" Organized by Div. of Soil Science & Agricultural Chemistry, SKUAST- Jammu, w.e.f 23th -24th July, 201
  - National Seminar on "Technology and Management of Micro Irrigation in Floriculture" Organized by Div. of Ag. Engineering & Directorate of Extension, SKUAST-J, w.e.f 19-20 March, 2015

- Dr. Praveen Singh, Jr. Scientist (PBG) attended training programme on "New frontiers in rice breeding for improving yield, quality and stress tolerance for sustaining future production" Sponsored by ICAR held at DRR, Hyderabad w.e.f 10th - 30th Sept., 2014
- Dr. Narinder Panotra, Jr. Scientist (Soil Sciences) attended
  - 3rd Jammu and Kashmir Agricultural Science Congress on Organic Agriculture Prospects in Jammu and Kashmir at SKUAST-Kashmir w.e.f 12-14 May, 2014
  - National Symposium on Natural Resource Management and Sustainable Hill Farming System for Livelihood Security at SKUAST-Jammu, Chatha, Jammu (J&K) w.e.f 23-24 July, 2014
  - Formulation of C-DAP's/C-SAP under RKVY (Normal) be Kashmir w.e.f. 4-5 Sept., 2014 at SKUAST-Kashmir, Srinagar
  - Recent Advances in Survey Design and Analysis of Survey Data using Statistical Software" (21 days training programme) organized by IASRI, New Delhi w .e. f. Oct. 28th - 17th Nov., 2015 at IASRI, New Delhi
- Dr. Saurav Gupta, Jr. Scientist (Entomology) attended Recent Advances in Survey Design and Analysis of Survey Data using Statistical Software" organized by IASRI, New Delhi Oct. 28th - 17th Nov., 2015 at IASRI, New Delhi
- Dr. A. K. Sharma, ADR (Agronomy) attended National Seminar on Technology and Management of Micro Irrigation in Floriculture organized by Division of Agril. Engineering, SKUAST-Jammu w.e.f. 19-20 March, 2015

- Dr. Deepak Kumar, Jr. Scientist (Plant Pathology) attended National Seminar on Technology and Management of Micro Irrigation in Floriculture organized by Div.of Agril. Engineering, SKUAST-Jammu w.e.f. 19-20 March, 2015
- Dr. Rohit Sharma, Jr. Scientist (Agronomy) attended
  - National Symposium on "Natural resource management & sustainable hill farming system for livelihood security organized by SKUAST – Jammu w.e.f. July 23 – 24th, 2014
  - Working group meeting cum workshop on use of crop simulation model for decision making and yield forecasting. Organized by Rajasthan Agricultural Research Institute, Durgapura, Jaipur (KNAU, Jobner) w.e,f. 15-19 September, 2014
  - 8th Annual Review Meeting (ARM) of Gramin Krishi Mausam Sewa (GKMS organized by Birsa Agricultural University (BAU), Kanke, Ranchi w.e,f. 10 - 12th November, 2014.
  - Short course on "Satellite observations and products for Agro-meteorological Applications". Organized by Indian Institute of Remote Sensing (ISRO), Kalidass Road, Dehradun w.e.f. 01st - 05th December, 2014.
- Dr. B.S. Jamwal, Chief Scientist (PBG)
  - attended 21-days training programme on "Fundamentals of Plant Health Management for Plant Health Doctors'' at NIPHM, Hyderabad, A.P ,w.e.f 4th - 24th April 2014., Hyderabad, India 500030 .
  - attended 3 days National Conference on— Pulses : Challenges and opportunities under changing climate Scenario " JNKVV, Jabalpur, M.P (w.e.f 28 Sept., -01 Oct.,2014)
  - attended 3 days National workshop on Retrospective and prospective analysis of Indain Agriculture: The Roadmap Ahead, held at, w.e.f. 17-18, November, 2014 at GBPUA&T, Pantnagar, Uttarakhand, India
- Dr. Brij Nandan, Jr. Scientist, Agronomy:
  - attended 21-days training programme on "Fundamentals of Plant Health Management for Plant Health Doctors'' at NIPHM, Hyderabad, A.P ,w.e.f 4th - 24th April 2014.
  - attended 3 days National Conference on— Pulses : Challenges and opportunities under changing climate Scenario " JNKVV, Jabalpur, M.P (w.e.f 28 Sept., -01 Oct.,2014)
  - attended 3 days National workshop on Retrospective and prospective analysis of Indian Agriculture: The Roadmap Ahead, held at, w.e.f. 17-18, November, 2014 at GBPUA&T, Pantnagar, Uttarakhand, India
- Dr. Sonika Jamwal, Jr. Scientist (Plant Pathology) attended 21 days training programme on "Innovative approaches and advances for diagnosis and detection of plant diseases in relation to their management" at GBPUAT-Pantnagar (Uttrakhand) w.e.f. 02-22 September,2014
- Dr Anil Kumar Sharma, Sr. Scientist (Agronomy) attended 10 days training programme on Bio-fortification in food crops at Indian Institute of Pulses Research, Kanpur (UP) w. e. f 04 – 13 August, 2014.
- Dr. Reena, Sr Scientist (Entomology) attended 21 days CAFT training on "Novel approaches in pest and pesticide management in agro-ecosystem" held by the Department of Entomology, CCSHAU, Hisar, Haryana w.e.f. 19th Aug. to 8th Sept., 2014.
- Dr Brinder Singh, Jr. Scientist (Soil Science) attended 21 days training "Diagnosis assessment and management of salt affected soil and poor quality water to Improve productivity and livelihood security" organized by Central Soil Salinity Research Institute, Karnal (CSSRI), Karnal w.e.f. 11th November - 1st December, 2014

9. EXTERNALLY FUNDED ADHOC RESEARCH PROJECTS (as on 31.03.2015)

S.No.	Title of the Project/	Name of the PI	Duration
Funding Agency: Department of Biotechnology, GOI			
1	Isolation, identification and characterization of plant viruses affecting solanaceous crops in different agro climatic zones of Jammu region	Dr. Ranbir Singh (Plant Pathology)	2015-18
2	Erucic acid profiling and introgression of low erucic acid trait in desirable cultivars of Brassica juncea L.	Dr. G. K. Rai (Biotechnology)	2014-17
3	Expression profiling of dof genes for accumulation of seed storage protein and nitrogen profiling in beans (Rajmash)	Dr. Moni Gupta (Biochemistry)	2015-18
4	Exploration of respiratory metagenome of small ruminants and establishment of referral diagnostic facility	Dr. Anil Taku, (Vety. Microbiology & Immunology)	2015-18
5	SSR based Germplasm characterization for resistance to powdery mildew in cucumber (Cucumis sativus L.)	Dr. Susheel Sharma, (Biotechnology)	2015-18
6	Genetic dissection of heat tolerance in wheat using multiple bi-parental RIL mapping populations	Dr. R.R. Mir, (Biotechnolgy)	2015-18
7	Development of semi-dwarf blast and bacterial blight resistant version of Ranbir Basmati by marker assisted backcross breeding	Dr. R.K. Salgotra (Biotechnolgy)	2015-18
8	Economic empowerment of rural goat farmers through scientific intervention in block R.S. Pura of Jammu Division	Dr. J.S. Soodan, (Vety. Clinical Complex)	2015-18
9	Networking Project On Insect Biosystematics	Dr. D. P. Abrol (Entomology)	2010-16
10	Impact of chawki reared worms on double cropping system and its role in livelihood generation in rural areas	Dr. Ramesh Bali (Sericulture)	2012-15
11	Bovine Cryptosporidiosis and its Zoonotic Potential in Jammu district.	Dr. Rajesh Katoch, (Veterinary Parasitology)	2015-17
12	Exploration of respiratory metagenome of small ruminants & establishment of referral diagnostic facility	Dr Anil Taku, (Veterinary Microbiology)	2015-18
13	Social economic upliftment of rural women through development of value added meat products	Livestock Products Technology	2013-16
Funding Agency: Department of Science & Technology, GOI			
14	Farmers' participatory collection, characterization and conservation of endangered genetic diversity of ginger (Zingiber officinale Rosc.) in Shivaliks…	Dr. Susheel Sharma (Biotechnolgy)	2014-16
15	Molecular marker assisted introgression and validation of blast resistance genes in the rice cultivar K 343 recommendation for the hill zone of Jammu and Kashmir	Dr. Manmohan Sharma, (Biotechnolgy)	2014-16
16	Development and Evaluation of Automatic Timer Based Variable Speed Device For Sprinkler System	Dr. Sushmita M. Dadhich (Agriculture Engineering)	2013-15

17	Design and Development of A Tractor Operated Soil Compaction Measurement Device.	Dr. Manoj Kumar (Agril. Engineering)	2013-15
18	Nutri-genomics and Transcriptomics for Identification of Genes for Zinc, Iron and Protein content in Common bean	Dr. R. R Mir (Biotechnolgy)	
19	Diversity analysis of Pseudomonas fluorescens and its utilization in disease suppression and nutrient management	Dr. Vishal Gupta, (Plant Pathology)	2014-16
20	Empowerment of rural women through training programme on the development of value added livestock products	Livestock Products Technology (LPT)	2013-15
21	Breeding and management strategies in dairy animal for socio –economic upliftment of rural women.	Dr. Anil Kumar Pandey, (Veterinary Gynaecology and Obstetrics)	2010-14
22	Entrepreneurship opportunities for socio-economic up-liftment of rural farmers through QPM hybrid seed product techniques.	Dr. Vikas Sharma (Agronomy)	2013-16
23	Exploitation of Under-utilized fruits of kandi areas of Jammu region through value addition for human resource development	Dr. Neeraj Gupta (Post Harvest Technology)	2013-16

Funding Agency: Horticulture Mission for North East and Himaliyan States (HMNEH), GOI

24	Establishment of root stock and bud wood bank at SKUAST-J and their large scale multiplication	Dr. Arti Sharma (Fruit Science)	2011-15
25	Domestication of naturally occurring and wild relatives of some fruits for specific horticultural trait (s)	Dr. Amit Jasrotia (Fruit Science)	2011-15
26	Dissemination of refined production technology of rare exotic vegetable crops in Jammu region	Dr. R.K. Samnotra (Veg. Science & Floriculture)	2011-15
27	High density orcharding of mango and guava in Jammu sub-tropics	Dr. Akash Sharma (Fruit Science)	2011-15
28	Technology refinement and dissemination of ginger and turmeric in Jammu region	Dr. Sandeep Chopra (Veg. Science & Floriculture)	2011-15
29	Development of Aonla based cropping system for Jammu sub-tropics	Dr. Deep Ji Bhat (Fruit Science)	2011-15
30	Refinement and improvement of soil quality and water productivity enhancement technology in rainfed orchard of Jammu region	Dr. Vivek M Arya (Soil Science)	2011-15
31	Training and demonstration on rejuvenation of old/unproductive orchards in Jammu subtropical	Dr. Prashant Bakshi (Fruit Science)	2011-15

Funding Agency: Mission for Integrated Development of Horticulture (MIDH), GOI

32	Establishment of biological control laboratory in SKUAST-J	Dr. R.K. Gupta, (Entomology)	2015-18
33	National Bamboo Mission	Dr. Sushil K Sharma (Agroforestry)	2015-17
34	Centre of Excellence for Horticulture	Director Research	2015-19
35	Setting up of New Tissue Culture Unit	Dr. V.K. Wali, (Fruit Science)	2015-17
36	Training and demonstration on rejuvenation of old/unproductive orchards of Jammu subtropics	Dr. Prashant Bakshi (Fruit Science)	2015-17
37	High density orcharding of mango and guava in Jammu sub-tropics	Dr. Akash Sharma (Fruit Science)	2015-17

38	Development of aonla based cropping system for Jammu sub-tropics	Dr. Deep Ji Bhat (Fruit Science)	2015-17
39	Establishment of rootstock and bud-wood bank and their large scale production	Dr. Arti Sharma (Fruit Science)	2015-17
40	Domestication of naturally occurring and wild relatives of some fruits for specific horticultural trait(s).	Dr. Amit Jasrotia (Fruit Science)	2015-17
41	Dissemination of refined production technology of rare exotic vegetable crops in Jammu region	Dr. R.K. Samnotra (Veg. Science & Floriculture)	2014-16
42	Technology refinement and dissemination of ginger and turmeric in Jammu region	Dr. Sandeep Chopra (Veg. Science & Floriculture)	2014-16
43	Development of weather based forecasting model for genomically' important diseases in horticultural crops of Jammu province	Dr. V.K. Razdan (Entomology)	2015-18
44	Refinement & improvement of soil quality & water productivity enhancement technology in rain fed orchards of Jammu region	Dr. V. M. Arya (Soil Science)	2013-15

Funding Agency: National Bank for Agriculture and Rural Development (NABARD), GOI

45	Production & demonstration of quality planting material of commercially important cut and loose flowers in Jammu region under FITF	Dr. Arvinder Singh, (Floriculture)	2014 onwards
46	Diagnostic study of farmers in context of price spread analysis, marketing pattern and potential assessment of agricultural diversification in Chenani Block of Udhampur district	Dr. Anil Bhat (Agricultural Economics)	2015-16
47	Commercial production of vegetable seedlings for livelihood security: An entrepreneurship venture	Dr, Arvinder Singh, (Veg. Science)	2014-16
48	Interventional strategies for prevention and control of common parasitic zoonoses of sheep, goats and nomadic women for socio-economic upliftment of nomads	Dr. Modh. Rashid (Vety. Public Health &Epidemiology)	2015-17
49	Commercial production of vegetable seedlings for livelihood security: An Entrepreneurship venture	Dr. Manoj Kumar (Vegetable)	2014 onwards
50	Setting up of Spawn Production	Dr. Amrish Vaid (KVK, Kathau)	2015 onwards

Funding Agency: Rashtriya Krishi Vigyan Yojna, (RKVY), GOI

51	Detection of Acaricide resistance in ticks	Dr. Rajesh Katoch, (Vety. Parasitology)	2014-16
52	Nutritional enhancement of livestock through Urea Mollases Malnutrient Block and roughage block supplementation	Dr. Rajeev Singh, (Vety. Medicine)	2014-16
53	Production of quality planting material of commercially important vegetables of Jammu region	Dr. Sanjeev Kumar, (Veg. Science)	2014 onwards
54	Assessment of soil fertility and its spatial variability for nutrient management using GIS in various districts of Jammu Division	Dr. K.R. Sharma, (Soil Science & Agril. Chemistry)	2014-16
55	Demonstration of agro-techniques and mass production of planting material of Kala Zeera in Paddar valley	Dr. Susheel Kumar Gupta, (Agroforestry)	2014-16

56	Establishment of Nut Centre in intermediate agro-climate zone of Jammu Province to augment requirement of quality planting material	Dr. Rajesh Kumar, (Fruit Science)	2014-16

Funding Agency: UMEED Govt. Of J&K

57	Creation & capacity building of women self help group members from UMEED as paravets (Pashu Sakhi) of Jammu Division of J&K State	Dr. M.S. Bhadwal, (Vety & Animal Husbandry Extn Education)	2015-17
58	Biodiversity of aphids and their conccinellid predators in different crops of Jammu region	Dr. Kuldeep Srivastava, (Entomology)	2014-16
59	Molecular marker assisted selection of powdery mildew resistance genes into the elite cultivar of pea (Pisum sativum L.)	Dr. Susheel Sharma, (Biotechnology)	2014-16
60	Outreach Programme on Zoonotic Disease	Dr. S.K. Kotwal, (Vety. Public Health & Epidemiology)	2015-17

Funding Agency: Indian Council of Agricultural Research (ICAR)

61	Network Project on Conservation of Insect Genetic Resources	Dr. R. K. Gupta (Entomology)	2014-17
62	National Information System on Agricultural Education Network in India (NISAGENET)	Dr. Manish Sharma, (Statistics)	2010 onwards
63	Characterization of Bhakarwali Goat	Dr. R. K. Taggar (Animal Genetics Breeding)	2014-15
64	Characterization and Conservation of Poonchi sheep	(Dr. R. K. Taggar (Animal Genetics Breeding)	2014-16
65	Epidemiological studies on Scrub Typhus and Rabies in J&K	Dr. S.K.Kotwal, (Veterinary Public Health and Epidemiology)	2015-17
66	Networking Project on Outreach of Technologies for Temperate Fruit Crops	Dr. Mahital Jamwal, (Fruit Science)	2012 onwards
67	Conservation of insect genetic resources	Dr. R.K. Gupta, (Entomology)	2014-16
68	Livelihood Opportunities through Ago-technological Interventions of Tribal Communities of Budhal Block	Dr. R.S.Bandral (KVK Rajouri)	2014 onwards
69	Veterinary Type Culture Collection Centre	Dr.A.K. Taku (Vet. Microbiology)	2010 onwards
70.	Tribal Sub Plan under VTCC	Dr. A.K. Taku (Vet. Microbiology)	2015 onwards

Funding Agency: National Science Foundation (NSF) USA

71	Quality seed production for higher productivity of pulses through farmer's participatory programme in Shiwalik foot hills of Jammu region	Dr. Brij Nandan, (Agronomy),	2014-16
72	Establishment of micro irrigation systems under On farm water management component	Dr. Susheel Sharma, (Agril. Engineering)	2014-16

Funding Agency: National Horticulture Board (NHB), GOI

73	Establishment of Hi-tech mother plant nursery for high pedigree planting material of Citrus and Guava	Dr. V. K. Wali (Fruit Science)	2013-16

Funding Agency: Jammu and Kashmir State Govt. (Plan)

74	Animal Disease Monitoring and Surveillance	Dr Rajiv Singh, (Veterinary Medicine)	2012-16

Funding Agency: National Medicinal Plant Board (NMPB), GOI

75	Conservation, Production and Sustainable Management of Shatavar (Asparagus racemosusWilld.)	Dr. L. M. Gupta (Agroforestry)	2012-14

National Mission for Sustainable Agriculture (NMSA), GOI

76	Establishment of Micro Irrigation System	Dr. Sushil Sharma (Agri. Engineering)	2015 onwards

Funding Agency: Application of Micro-organisams in Agriuclture and allied sectors (AMAAS), GOI

77	Exploration of Plant Growth Promoting Rhizobacteria antagonistic and plant pathogenic microbial resources from high altitude agro-climatic/cropping systems of Jammu and Kashmir State for sustainable agriculture…	Dr. Vijay Kumar Razdan (Plant Pathology)	2014-16
78	Degradation and effective utilization of agrowastes through technologies evolving mushroom or macro-fungi…	Dr. Sachin Gupta (Plant Pathology)	2014-16

Funding Agency: Central Research Institute for Dryland Agriculture (CRIDA), GOI

79	NICRA	Dr Anil Kumar Sharma, (Soil)	2011 onwards

Funding Agency: Department of Animal Husbandry, Dairy and Fisheries (DAHDF), GOI

80	Genetic improvement of sheep through embryo transfer technology.	Dr. Anil Kumar Pandey, (Veterinary Gynaecology and Obstetrics)	2010-14

Funding Agency: Indian Council for Social Science Research (ICSSR), GOI

81	NeGP-A	Dr. Manish kumar Sharma, (Statistics)	2014-17

Funding Agency: Ayurvet Limited

82	To study efficacy of herbal ectoparasiticidal and fly repellant product (Keetguard Liquid) to control ectoparasites and fly population in poultry broiler farm	Dr. Rajesh Katoch, (Veterinary Parasitology)	2014 onwards

Funding Agency: Ministry of Earth Sciences, GOI

83	Forecasting Agricultural Output using Space, Agrometeorology and Land based observations (FASAL), Jammu	Dr.Meenakshi Gupta (Agronomy)	2010-17

Funding Agency: Defence Research and Development Establishment, GOI

84	Screening of suspected animal samples for the presence of Coxiella burnetii	Dr. S.K.Kotwal, (Vety. Public Health and Epidemiology)	2015-16

All India Coordinated Research Projects (ICAR)

S.No.	Title of the project	Directorate/Division
1	All India Coordinated rice improvement project.	Division of Genetics & Plant Breeding
2	All India Coordinated Research project on Integrated Farming System Research Centre.	Division of Agronomy
3	All India Coordinated project on wheat and barley.	Division of Genetics & Plant Breeding
4	All India Coordinated project on Water Management Research Centre.	Division of Soil Science & Agriculture Chemistry
5	All India Coordinated Research Project on Chickpea.	Directorate of Research (PRSS Samba)
6	All India Coordinated Research Project on Agro meteorology.	Division of Agronomy
7	All India Coordinated Research Project for Dryland Agriculture.	Directorate of Research (DLRSS, Dhiansar)
8	All India Coordinated Research Project on Maize.	Directorate of Research (MRC, Udhampur)
9	All India Coordinated Research Project on Rape Seed and Mustard.	Division of Plant Breeding &Genetics
10	All India Coordinated Research Project on Weed Control`	Division of Agronomy
11	All India Coordinated Research Project on Honeybees and Pollinators	Division of Entomology
12	All India Coordinated Research Project on Linseed (voluntary centre)	Division of Entomology
13	All India Coordinated Research Project on Wheat and Barley (voluntary centre)	Division of Plant Breeding & Genetics
14	All India Coordinated Research Project on Rice (voluntary centre)	Division of Agronomy
15	All India Coordinated Research Project on Onion and Garlic (voluntary centre)	Division of Olericulture & Floriculture

10. RESEARCH PUBLICATIONS IN NATIONAL/ INTERNATIONAL JOURNALS

- Abrol, D. P. and Shankar, U. 2014. Bumblebee diversity in India: Current status and future prospects. IUCN Bumblebee Specialist Group Newsletter, 2(1):14-18.
- Abrol, Vikas, Sharma, Peeyush, Sankar, Maruthi, G.R., Sharma, Manish, Chandra, Ramesh and Sharma, Vikas 2015. Soil management effects on soil quality and crop performance in dry sub-humid inceptisols of India. Indian Journal of Soil Conservation. 43(1): 255-259.
- Abrol, Vikas, Sharma, Peeyush, Sankar, Maruthi, G.R., Sharma, M., Chandra, R. and Sharma, R. 2015. Soil management effects on soil quality and crop performance in dry sub-humid inceptisols of India, Indian Journal of Soil Conservation, 43 (1): 47-57.
- Agarwal, P., Kumar, M., Kumar, K., Singh, R., Mahapatra, P. S., Kumar, A., Bhure, S.K., Malakar, D., Sarkar, M., & Bag, S. 2014. Isolation and propogation of neural stem cells in caprine (Capra hircus). Cell Biology International doc. 10.1002/cbin. 10282.
- Agrawal, Rajesh, Shukla, P.C., Sharma, Varsha, Katoch, Rajesh, Yadav, Anish and Pande, Nishi . 2014. Molecular identification of Cryptosporidium species prevelant in bovine calves of Jabalpur, India. Veterinary Practitioner, 15(1): 50-51.
- Ahamed, I., Yadav, Anish, Katoch, R. and Godara, R. 2014. Longitudinal study of cryptosporidiosis in lambs from birth to one year of age. Indian Vet. J., 91(10): 63-65.
- Ahanger, R.A., Gupta, V., Bhat, H.A. and Dhar, N.A. 2014 Effect of weather parameters on disease severity and rate of disease progress of yellow rust (Puccinia striformis) of wheat in Jammu subtropics of India African Journal of Agricultural Research, 9(30)2358-2361.
- Ahmad, M., Prawez, S., Sultana, M., Raina, R., Pankaj, N.K., Verma, P.K. and Rahman, S. 2014. Anti-Hyperglycemic, Anti-Hyperlipidemic and Antioxidant Potential of Alcoholic-Extract of Sida cordifolia (Arial Part) in Streptozotocin-Induced-Diabetes in Wistar-Rats. Proc. Natl. Acad. Sci., India, Sect. B Biol. Sci. 84(2):397–405.
- Ahmad, M., Prawez, S., Sultana, M., Raina, R., Pankaj, N.K., Verma, P.K., Rahman, S. and Dangi, A. 2014. Ameliorative effects of aquous and alcoholic extracts Sida cordifolia on pancreas and renal histomorphology in Streptozotocin-induced diabetes Rats. Vety. Practitioner 15(1) 60-62.
- Ahmed, N., Singh, J.M., Kaul, R.K., Bakshi, P., Malik, A., Kour, H., Chauhan, H. and Gupta, P. 2014. Comparative study of effect of different drying method on nutritional quality of peach cultivars during storage. Ecoscan. Special issue VI: 1-6.
- Ahmed, Naseer, Singh, Jagmohan and Kaul, Raj Kumari 2015. Effect of drying methods on organoleptic evaluation of peach cultivars during storage. Indian Journal of Ecology 42(1): 197-200
- Ahmed, Naseer, Singh, Jagmohan, Kaul, Raj Kumari, Bakshi, Parshant, Malik, Anisa, Kour, Harleen, Chauhan, Harmeet and Gupta, Prerna 2014.Comparative study of effect of different drying methods on nutritional quality of peach cultivars during storage. The Ecoscan V:01-04.
- Ahmed, S., Sharma, A., Bhushan, B., Wali, V. K., Bakshi, P. and Singh, A. K. 2014. Studies on hardening and acclimatization of micro-propagated plantlets of banana cv. Grand Naine, The Bioscan, 9(3): 965-967.
- Ahmed, S., Sharma, A., Singh, A. K., Wali, V. K. and Kumari, P. 2014. In vitro multiplication of banana (Musa spp.) cv. Grand Naine. African Journal of Biotechnology, 13(27): 2696-2703.

- Alam, Tanweer, Masud, Sahar and Jha, Alok. 2015 current Trends and Innovation in Packaging for Meat Industry, Processed food Industry. (ISSN: 09721649), 18(6) 33-41.
- Alyas, Mohd, Razzaque, W.A.A., Rao, M.M., and Bharadwaj, H.R. 2015. Improving reproductive efficiency and fertility rate in anestrus buffaloes treated with progesterone based hormonal protocol. Indian Journal of Animal Sciences, 85 (2): 155–157.
- Anju, B., Kumari, Raj, Anand, V. and Anjum, M.A. 2014. Preparation,quality evaluation and storage stability of peach-soy fruit leather. SAARC Journal of Agriculture, 12(1), 73-88.
- Archana, Dwivedi, Sudhakar, Khan, A.B., Sharma, Manish and Singh, Harminder. 2014. An Economic analysis of input structure in context to information in accuracy, improvement and predictions. Economic Affairs; 59(4) : 505-514.
- Azad, M.S., Raina, A.K. and Mahajan, Sumit. 2014. Introduction of Corriedale Rams for improving meat and wool quality in Hilly regions of Jammu & Kashmir, Asian J. Dairy and Food Res., 33(1): 44-47
- Baba, N.A., Raina, R., Verma, P.K., Sultana, M. 2014. Alterations in plasma and tissue acetylcholinesterase activity following repeated oral exposure of chlorpyrifos alone and in conjunction with fluoride in wistar rats. Proc. Natl. Acad. Sci., India, Sect. B Biol. Sci. 2014,4(4):969–972.ISSN: 0369-821.
- Bakshi, P., Bhushan, B., Sharma, A. and Wali, V.K. 2014. Studies on variability in physico-chemical traits and multiplication of different Daru collections. Indian Journal of Horticulture. 71(1): 11-15.
- Bali, R.K. and Pandit, R.K.2014. Weed flora of mulberry gardens in Jammu & Kashmir, India. Pak.J.Weed Sci. Res., 20(3):375-384.
- Bashir, Y., Sharma, R.K., Rastogi, A., Pathak, A. K., and Khan, N. 2014. Effect of dietary incorporation of olive (Olea europoea) meal on live weight and heamato-biochemical profile of goats. Veterinary Practitioner, 15(1): 157-159.
- Beigh, S.A. and Singh, R. 2014. Oxidative Stress in Blood and Milk of High and Low Yielding Frieswal (Holstein×Sahiwal Cross) Cows During the Peri-Parturient Period. Proceedings of the 30th Biennial Conference of the Australian Society of Animal Production. Animal Production in Australia 30: 403-404.
- Bhardwaj, R. K., Gupta, A. K., Soodan, J.S., and Singh, R. 2014. Diagnosis and treatment of cholanigo-hepatitis with ursodeoxycholic acid in a dog. Indian Journal of Canine Practice 6(1): 13-15.
- Bhat, Anil, Kachroo, J., Rizvi, S.E.H., Kumar, Manish, Dwivedi, Sudhakar, Singh, S.P., Sharma, Pawan and Peer, Q.J.A. 2014. Productivity trends of foodgrain crops in Jammu and Kashmir – A comparative study with national trends. New Agriculturist. 25(2): 201-206.
- Bhat, Anil, Kachroo, Jyoti and Singh, S. P. 2014. A study on behaviour of arrivals and prices of citrus in Narwal market of Jammu, India. Indian Journal of Agricultural Research, 48(1): 23-28.
- Bhat, Anil, Sharma, Manish, Dwivedi, Sudhakar, Singh, S.P. and Sharma, Arti. 2014. A study on behaviour of arrivals and prices of fruits in Narwal market of Jammu. Journal of Hill Agriculture, 5(1):24-29.
- Bhat, Anil, Sharma, Manish and Singh, S.P. 2014. Dynamics of food grain production in Jammu and Kashmir and Haryana. International Journal of Agricultural Sciences. 10 (01): 92-95.
- Bhat, Anju, Kaul, Raj Kumari, Gupta, Neeraj and Reshi, Monica. 2014. Effect of polyamines on shelf life and chilling injury of mango cv. Dashehari. The Bioscan,9(3): 1097-1100.
- Bhat, Z. F., Kumar, S. and Bhat, H. 2015. Bioactive peptides from egg: A review. Nutrition and Food Science 45(2): 190-212.

- Bhat, Z. F., Kumar, S. and Kumar, P. 2015. Effect of Aloe vera on the Lipid Stability and Storage Quality of Chicken Nuggets. Nutrition and Food Science 45(1): 54-67.
- Bhat, Z.F., Kumar, S. and Bhat, H. 2015. In Vitro Meat Production: challenges and benefits over conventional meat production. Journal of Integrative Agriculture 14(2):60345-7.
- Bhat, Z.F., Kumar, S. and Bhat, Z.F. 2014. Antihypertensive Peptides of Animal Origin: A review. Critical Reviews in Food Science and Nutrition ID: 898241 DOI: 10.1080/10408398.2014.898241.
- Bhat, Z.F., Kumar, S. and Bhat, Z.F. 2014. In Vitro Meat: A Future Animal-Free Harvest. Critical Reviews in Food Science and Nutrition ID: 924899 DOI: 10. 1080 / 10408398 .2014 .924899.
- Bhat, Z.F., Kumar, S. and Bhat, Z.F. 2015. Bioactive Peptides of Animal Origin: A Review. Journal of Food Science and Technology. DOI: 10.1007/s13197-015-1731-5.
- Bukhari, S.A.A., Pathak, V., Bhat, Z. F. and Ahmed, S. R. 2014. Evaluation of efficacy of lactic acid as coagulant in the preparation of Kaladhi-a hard and dry cheese. International Journal of Research in Agricultural Sciences 1(3): 2348-3997.
- Chakraborty, D. and Dhaka, S.S. Sire evaluation based on first lactation 305 day and test day records in Murrah buffaloes. Buffalo Bulletin, 33(4):376-384.
- Chakraborty, D., Singh, A., Tantia, M.S., Verma, A. and Chakravarty, A. K. 2015. Genetic polymorphism of BoLA-DRB3.2 locus in Sahiwal cattle. Animal Science Reporter, 9(1): 33-40.
- Chand, Gurdev and Prava, Chander . 2015. Nitrate reductase activity in different moisture tolerant genotypes of maize (Zea mays L.) in flooding and non-flooding regimes. Journal of Soil and water conservation. 14: 69-74.
- Chang, H.W., Chen, S.Y., Chuang, L.Y. and Guleria, S. 2014. Toxicology and Disease/Cancer Therapy in Reactive Oxygen Species-Mediated Drugs and Treatments. Special Issue. The Scientific World Journal (Hinadawi, USA).
- Chaudhary, S.K. 2014. Transformations of native and applied potassium under wheat-maize cropping sequence in mid hill soils of Himachal Pradesh. Bioinfolet., 11 (4).\
- Choudhary, Punit, Gupta, S.K., Tandon, Vikas, Mahajan, Vishal and Sharma, Rakesh. 2014. Biotechnological interventions for improvement of forest trees. Indian J. Of Ecology (2014),41 (1): 42-48
- Cress, B.F., Toparlak, Ö.D., Guleria, S., Lebovich, M., Stieglitz, J.T., Englaender, J.A., Jones, A., Linhardt, R.J. and Koffas, M.A.G. 2015. CRIS Path Brick: Modular combinatorial assembly of type II-A CRISPR arrays for dCas9-mediated multiplex transcriptional repression in E. coli. ACS Synthetic Biology. DOI: 10.1021/ acssynbio. 5b00012.
- Dar, K. H., Gupta, A.K., Bhadwal, M.S., Gupta, S.K., Gupta, P., Kushwaha, R.B. and Raina, R. 2014. Evaluation of xylazine-diazepam-ketamine anaesthesia in mules: Anaesthetic haemato-biochemical and blood gas studies. Indian J. Anim. Sci., 84(2): 130-135.
- Dar, M.A., Raina, R., Mir, A.H., Sultana, M. and Pankaj, N.K. 2014. Effect of Dermal Application of Bifenthrin on Acetylcholinesterase and Oxidative Stress Indices in Rat Blood, Lung and Kidney. Proc. Natl. Acad. Sci., India, Sect. B Biol. Sci. DOI 10.1007/s40011-014-0390-z.
- Dar, N.A., Singh, S.K., Ahanger. R. A., Bhat, H.A., Gupta. Vikas. 2015. Status and epidemiology of brown rust (Puccinia recondita) of wheat in Jammu sub-tropics of India. Environment & Ecology 33 (1B): 573-576.

- Dar, N. A., Ahanger R. A., Singh. S. K., Bhat, H. A., Gupta, Vikas and Razdan, V.K. 2014 Management of brown rust (Puccinia recondita) of wheat and its impact on yield under Jammu sub-tropics of India Journal of Pure and Applied Mtcrobiology 8 (4): 3357-3362.
- Dar, Yousuf, Sharma, Kamal, Suri, Shalini and Devi, Jonali. 2014. Biometrical studies on the tongue of goat foetii (Capra hircus). Indian Journal of Veterinary Anatomy, 26 (1): 52-53.
- Dar, Yousuf, Sarma, Kamal, Suri, Shalini and Devi, Jonali. 2014. Histochemical studies on the tongue of goat foetii (Capra hircus). Indian Journal of Veterinary Anatomy, 26 (6): 99-100.
- Das, A. K., Chakraborty, D., Kumar, Nishant, Gupta, Parul, Khan, Nusrat N., and Bukhari, Saba 2014. Effect of non-genetic factors on performance traits of Kashmir Merino sheep. Indian Journal of Animal Research 48 (2) : 106-108.
- Devi, Jyoti, Bakshi, Parshant, Wali, V. K., Bhat, Anil and Bhat, Deep Ji. 2015. Cost and return analysis of phalsa (Grewia asiaticaL.) propagation by semi-hard wood cuttings. Economic Affairs. 60(1): 131-136.
- Dixit, Jagvir, Namgial, Deldanl, Sharma, Sushil, Lohan, Shiv Kumar and Kumar, Dinesh. 2014. Anthropometric survey of farm workers of Ladakh region of India and its application in equipment design. Agric Eng Int: CIGR Journal Open access at http://www.cigrjournal.org 16 (2):80-88
- Dolkar, D., Bakshi, P., Wali, V.K., Bhushan, B. and Sharma, A. 2014. Growth and yield attributes of commercial guava (Psidium guajava L.) cultivars under sub-tropical condition. Indian Journal of Plant Physiology. D.O.I 10.1007/s40502-014-0076-9.
- Dwivedi, D. K., Kushwaha, R. B., Sharma, Ankur and Kumar, Sharad. 2014. Surgical drainage of a large abscess in the sternal area in a buffalo: A case report. Buffalo bulletin, 33(1): 6-7.
- Dwivedi, S. and Sharma, P.K. 2014. Economic scenario of poverty, hunger and malnutrition in India. Agro Economist-An International Journal 1(1):9-16.
- Dwivedi, S., Sharma, P.K. and Singh, H. 2014. A study of temporal changes in land use and cropping pattern in Jammu district of J&K state. Agro Economist-An International Journal 1(1):17-23.
- Gani, M., Gupta, R.K., Bali, K.2014. Efficacy of Spodoptera litura multiple nucleopolyhedrovirus after serial passage through the homologous insect larval host. Indian Journal of Experimental Biology, 52(4): 369-374.
- Garg, N.K. and Dadhich, S.M. 2014. Integrated non -linear model for optimal cropping pattern and irrigation scheduling under deficit irrigation. Agricultural Water Management, 140: 1-13.
- Garg, N.K. and Dadhich, S.M. 2014. A proposed method to determine yield response factors of different crops under deficit irrigation using inverse formulation approach. Agricultural Water Management, 137: 68-74.
- Gazal, S., Taku, A., Bhat, M.A., Badroo, G. 2014. Group A rotavirus and bacterial agents associated with diarrhoea-induced hospitalisations in children below 5 years of age in Jammu. Indian Journal of Medical Microbiology 32(1): 57-59.
- Godara, R., Katoch, R. and Yadav, Anish. 2014. Hydatidosis in goats in Jammu, India. J. Parasitic Dis.38 (10: 73-76).
- Godara, R., Katoch, R., Yadav, Anish and Borah, M.K. 2014. Dicrocoeliosis in goats in Jammu, India. J. Parasitic Dis.38(2): 201-204.
- Gupta, A.K., Gupta, P., Dwivedi, D. K., Kushwaha, R. B., Bhardwaj, R. K. and Sharma, A. 2014. HienekeMiculitzpyloroplasty for acquired functional pyloric stenosis in a dog. Indian Veterinary Journal,91 (8): 81-83.

- Gupta, Bhavana, Peer, Q.J.A. and Bhat, Anil. 2014. Analysis of constraints being confronted by the farm entrepreneurs. Bioved. 25(2): 1-7.
- Gupta, M., Singh, S. P. and Pankaj, N. K. 2014. Evaluation of protective effect of Erythrina variegata and Spirulina platensis in cockerels intoxicated with imidacloprid. Journal of Vet. Pharma. And Toxico. 13(2):146-151
- Gupta, N. K., and Manhas, J. S. 2014. Learning index of trainers' Training course on watershed management, Ind. J. Extn. Educ. & R.D. 22 : 1-5, 2014
- Gupta, Nancy, Zargar, Sajad Majeed, Gupta, Moni and Gupta, S.K. 2014. Assessment of Genetic variation in Indian mustard (Brassica junea, L.) using PCR based markers. Mol. Plant Breeding 5(3): 10-17
- Gupta, P., Chakraborty, D., Das, A. K., Kumar, N. and Khan, N. 2015. Genetic studies on growth and wool production traits in crossbred sheep of India. Indian Journal of Animal Sciences, 85 (3): 258-261.
- Gupta, Pankaj, Gupta, A.K., Kushwaha, R.B., Dwivedi, D.K., and Sharma, Ankur.2014. Urethral and rectal obstruction caused by vaginal tumor in a bitch. Indian Veterinary Journal, 91 (4): 79-80.

  Gupta, Parul, Chakra borty, Dibyendu, Taggar, Raman, Kumar, Dhirendra, Sharma, Rajan and Singh, Vishav P. 2014. Genomic Imprinting in Mammals - A Review. Agricultural Reviews 35 (2): 148 - 152.
- Gupta, R. K., Gani, M., Jasrotia, P., Srivastava, K. and Kaul, V. 2014. A comparison of infectivity between_polyhedra of the Spodoptera litura multiple nucleopolyhedrovirus before and after passage through the gut of the stink bug, Eocanthecona furcellata. Journal of Insect Science, 14(96): 1-8.
- Gupta, R., Sharma, M.P., Sharma, K. R., Sharma, V., Sharma, B.C. and Sharma, Vishal 2014. Effect of INM on quality parameters and nutrient balance under rainfed maize G. Sarson sequence. J. Soil and Water Conservation, 13 (1) : 42-46
- Gupta, S., Kumar, A., Kumar, S., Bhat, Z.F., Hakeem, H.R. and Abrol, A.P.S. 2014. Recent trends in carcass evaluation techniques. Journal of Meat Science and Technology 1(2): 50-55.
- Gupta, S., Upaadhyay, R.N., Kumar, S., and Razdan, V.K. 2014. Integrated disease management module for management of downy mildew of cucumber Indian Phytopathology 67:268-273
- Gupta, V., Razdan, V.K., Kaur, K. and Kumar, R. 2014. Evaluation of different fungicides for the management at leaf rust of wheat caused by Puccinia tritcina. Indian Phytopathology, 67(1) 104-105
- Gupta, Vikas, Sharma, Anil, Kumar, Jai, Abrol, Vikas, Singh, Brinder, Singh, Mahender 2014. Integrated nutrient management in maize (Zea mays L.)-gobhi sarson (Brassica napus L.) cropping system in low altitude sub-tropical region in foothills of Northwest Himalayas. Bangladesh Journal of Botany.43(2):147-155.
- Gupta, Vinod, Rai, P.K., Abrol, Poonam, Khar, Sanjay and Kumar, Prem 2014. Diversification and Innovation in Farming System Changes the Livelihood of the Farmer of District Samba of Jammu Region(J&K)- A Success Story. Journal of Community Mobilization and Sustainable Development 9(1), 84-88.
- Hameed, Asma, Azmi, Shagufta, Rahman, Shafiqur, Sharma, Maneesh. 2014. Prevalence of spontaneously occurring neoplasm amongst canines in Jammu. Indian Journal of Canine Practice, 6: 87-91.
- Haq, A. and Konwar, D. 2015. Effect of ascorbic acid and amla powder (embilica officinalis) supplementation on physiological parameters in cross-bred dairy cattle during heat stress. International Journal of Advanced Research . 3(4): 830-837.
- Ilyas, K. M., Sharma, A., Wali, V. K., Bakshi, P. and Rani, S. 2014. Growth and survival of budded kinnow plants as influenced by

different types of [potting material and propagation media. African Journal of Agricultural Research, 9(22): 1672-1680.

- Singh, Inderpal, Gupta, A.K., Bhadwal, M.S., Sharma, Ankur, Gupta, Pankaj and Suri, Shalini 2015. Evaluation of diazepam-Ketamine Anaesthesia in Butorphanol- Xylazine premedicated mules. Indian Veterinary Journal, 92 (02): 21-24.
- Ishfaq, A., Sharma, R.K., Rastogi, A., Malla, B.A. and Farooq, J. 2015. In vitro utilization of lime treated olive cake as a component of complete feed for small ruminants. Veterinary World, 8(1): 109-115.
- Jamwal, V. V.S., Ahmad, H., Sharma, D., Srivastva, K. and Ganai, S. A. 2014. Natural enemies associated with Epilachna vigintioctopunctata (F.) on brinjal. Indian Journal of Entomology, 76(4) : 356-358.
- Jani, S.M.Y., Kushwaha, R.B., Gupta, A. K., Malik, K. and Soodan, J.S. (2014). Occurrence of fractures in dogs: A retrospective study of five years. Indian Journal of Veterinary Surgery, 35 (1): 73-74.
- Jasrotia, A., Bakshi, P., Wali, V.K., Bhushan, B. and Bhat, D. 2014. Influence of girdling, zinc and boron application on growth, quality and leaf nutrient status of olive cv. Frontoio. African Journal of Agricultural Research, 9(18): 1354-1361.
- Jasrotia, A., Wali, V.K., Bakshi, P., Bhushan, B., Sharma, A. and Kumar, R. 2014. Influence of pruning time and severity on growth, fruit quality and leaf nutrient status of olive (Olea europea) cv. Frontoio. Indian Journal of Agricultural Sciences, 84(4): 461-467.
- Jeelani, R., Khandi, S. A., Beig, M. Y., Kumar P. and Bhadwal, M. S. 2014. Relationship of Socio-economic Profile of Gujjars (Pastoralists) with Knowledge and Adoption of Improved Animal Husbandry Practices. Indian Journal of Extension Education. 50 (3&4).
- Kachroo, D., Thakur, N.P., Kour, M., Kumar, P. and Sharma, R. 2014. Diversification of rice (Oryza sativa) based cropping system for enhancing productivity and employment. Journal of Agronomy, 59(1): 21-15.
- Khajuria, B.K., Malik, M.A., Tiwari, A., Sharma, Neelesh, and Hussain, K. 2014. Seroprevalence studies of brucellosis at organized and unorganized cattle farms in North India. International Journal of Agriculture, Environment & Biotechnology, 7(4): 711-717.
- Khajuria, Bhanu Kirti, Malik, M. A., Tiwari, Anisha, Sharma, Neelesh, Hussain, Kafil. 2014. Seroprevalence of brucellosis in buffaloes in North India. International Journal of Agriculture, Environment & Biotechnolog 7 :711.
- Khajuria, Bhanu Kirti, Malik, M.A., Tiwari, Anisha, Sharma, Neelesh and Hussain, Kafil. 2014. Seroprevalence of brucellosis in buffaloes in North India, International Journal of Agriculture, Environment & Biotechnology, 7(4): 711-717.
- Khajuria, Varun, Godara, R., Yadav, Anish and Katoch, R. 2014. Deltamethrin Resistance in Rhipicephalus microplus of Jammu region. Indian Vet. J.91:21-24.
- Khan, A.A. and Konwar, D. 2015. Effect of ascorbic acid supplementation on physiological and blood biochemical parameters in goats during summer. Animal Nutrition and Feed Technology, 15: 137-143.
- Khan, N. N., Kumar, N., Das, A. K., Chakraborty, D., Taggar, R. K. and Gupta, P. 2015. Genetic studies on wool production traits in Rambouillet crossbred sheep in J & K state. Indian Journal of Animal Research, 49(1):40-43.
- Khan, T.Y., Raina, R., Verma, P.K., Sultana, M., Jyoti, M.K. 2014. Phytochemical constituents and antidiabetic potential of Ipomoea carnea Jacq leaves extracts in wistar rats. Journal of Experimental and Integrative Medicine 4(2): 137-142.

- Khan, T.Y., Raina, R., Verma, P.K., Sultana, M., Jyoti, M.K., 2015. Protective effect of Ipomoea carnea Jacq leaves extracts on streptozotocin induced oxidative stress in wistar rats. Journal of Experimental and Integrative Medicine 5(1): 127-132.
- Khateeb, Adil, Khandi, S. A., Kumar, Pranav, Bhadwal M. S., and Jeelani, Rizwan. 2015. Ethno-veterinary practices used for the treatment of animal diseases in Doda district, Jammu & Kashmir. Indian Journal of Traditional Knowledge. 14 (2).
- Kour, Gaganpreet, Wali V. K., Bakshi, Parshant, Kumar, Rakesh and Khushu, M. K. 2015. Impact of metrological parameters on growth and quality of peach (Prunus Perica) cv Earld Grand under subtropical condition. Indian Journal of Agricultural Science 85 (3): 423-425.
- Kour, J., Kher, S.K., Quadri, J. and Slathia, P.S. 2014. Constraints and suggestions perceived by mushroom growers in Jammu district of J&K state. Annals of Biology, 30(3): 556-558
- Kour, Navdeep, Rahman, Shafiqur, Azmi, Shagufta, Hussain, Kafil, Raghuvanshi, Pratiksha, and Dutta, Sahil. 2014. Effect of Cadmium toxicity on general growth performance parameter in Wistrar rat. Indian Journal of Veterinary Sciences & Research, 43: 288-297.
- Kour, P., Kumar, A., Sharma, B.C., Kour, R., Kumar, J. and Sharma, N. 2014. Effect of weed management on crop productivity of winter maize (Zea mays) + potato (Solanum tuberosum) intercropping system in Shiwalik foothills of Jammu and Kashmir. Indian Journal of Agronomy 59(1): 65-69.
- Kour, R., Rastogi, A., Sharma, R.K., Kumar, A. and Raghuwanshi P. 2014. Chemical composition, anti-oxidative activity and in vitro dry matter degradability of Kinnow mandarin fruit waste. Veterinary World 7(10): 803-806.
- Kour, Ranjeet, Sharma, B.C., Kumar, Anil, Brij Nandan & Kour, Paramjeet. 2014. Effect of weed management treatment on Chikpea (Cicer ariefinum L) + Indian mustard (Brassica juncea L) intercropping system under irrigated sub-tropical conditions of Jammu. Indian Journal of Agronomy 59(2): 39-43.
- Kour, S., Devi, J., Kour, K. and Chakraborty, D. 2014. Effect of thermal stress on thyroid hormone and cortisol levels in goat. Ruminant Science, 3(1): 71-74.
- Kumar, B., Gupta, B.B and Singh, B. 2014. Genetic diversity for morphological and quality traits in rice. The Bioscan Journal. 9(4):1759-1762
- Kumar, G., Kushwaha, H.R., Kumari, S., Joshi, R., Karan, R., Panjabi nee Sabharwal, V., Singla Pareek, S.L., and Pareek, A., (2014) Clustered metallothionein genes are co-regulated in rice and ectopic expression of OsMT1e-P confers multiple abiotic stress tolerance in tobacco via ROS scavenging. BMC Plant Biology. doi.10.1186/1471-2229-12-107
- Kumar, K., Singh, R., Kumar, M., Agarwal, P., Mahapatra, P.S., Kumar, A., Malakar, D., & Bag, S. 2014. Isolation and characterization of neural stem cells from buffalo. International journal of Neuroscience 124(6): 450-456.
- Kumar, M., Dadhich, H. and Dadhich, S.M. 2015. Development of a Tractor Operated Soil Compaction Measurement Device. Technologies for Sustainable Development (ICTSD-2015), International Conference, IEEE, pp. 1-4. DOI 10.1109 / ICTSD. 2015. 7095877
- Kumar, Manoj and Bhattacharya, T. K. 2014. Fuel properties of denatured anhydrous and aqueous ethanol of different proofs. Agricultural Mechanization in Asia, Africa, and Latin America, 45 (1): 30-34.
- Kumar, Manoj, Hussain, Kafil, Himalini, and Singh, Gopal 2015. Immunization in dogs. Livestock Line. 8: 40-41.
- Kumar, N., Singh S.P., Kumar, M., Sharma, P.K and Singh, H.. 2014. An economic analysis of

okra cultivation in Jammu district of J&K state. Econ. Env. & Cons. 20(Supl.): 403 - 405.

- Kumar, R., Peshin, R., Shankar, U., Kaul, V. and Sharma, S. 2015. Impact evaluation indicators of IPM in vegetable crops of Jammu. Crop Protection, 67:191-199.
- Kumar, R., Saravanan, S., Jasrotia, A., Bakshi, P., Shah, R and Raina, V. 2014. Influence of gibberellic acid and blossom removal on flowering and yield of strawberry (Fragaria x ananassa Duch.) cv. Belrubi. International Journal of Agricultural Sciences. 10 (1): 272-275.
- Kumar, Sandeep, Hussain, Kafil, Chibber, Shruti, Gupta, S.K., Sharma, Neelesh and Kumar, Manoj. 2014. Otic cytology and antimicrobial susceptibility patterns of bacteria causing otitis externa in dogs. , J Veterinar Sci Technology, 5:3.
- Kumar, Sandeep, Hussain, Kafil, Sharma, Raman, Chhibber, Shruti, and Sharma, Neelesh 2014. Prevalence of Canine Otitis Externa in Jammu. Journal of Animal Research, 4(1):121-130.
- Kumar, Sudhir, Sharma, Utsav, and Dwivedi, D.K. 2014. Uterine torsion and fetal maceration in a cross bred heifer cow. Intas Polivet 15(II): 246-247.
- Kumar, Suneel, Hussain, Khalid, Shah, I.A., Sharma, H.K., Shah, M.A. and Vivek, Sanjay 2015. An Overview of Livestock Diseases in Different Species in Shivalik Hill Zone of Himachal Pradesh. International Journal of Livestock Research, 5(3):53-60.
- Kumari, N., Thakur, S. K., Kumar, D. and Kumari, K. 2015. Single Strand Conformation Polymorphism (SSCP)-A REVIEW Indian Res. J. Genet. & Biotech 7(1) : 27 – 3.
- Kumari, S., Joshi, R., Singh, K., Roy, S., Tripathi, A.K., Singh, P., Singla, S.L., Pareek, A .2014 Expression of a cyclophilin OsCyp2-P isolated from a salt tolerant landrace of rice in tobacco alleviates stress via ion homeostasis and limiting ROS accumulation. Functional and Integrative Genomics. DOI 10.1007/s10142-0142-0429-5
- Kushwaha, R.B., Gupta, A. K., Dwivedi, D. K. and Bhadwal, M. S. 2014. Surgical management of traumatic proptosis in three dogs. Indian Journal of Veterinary Surgery, 35(1):81
- Singh, Mahadeep, Sarma, Kamal, Suri, Shalini and Devi, Jonali. 2014. Histochemical studies on the liver of goat foetii (Capra hircus). Indian Journal of Veterinary Anatomy, 26 (1): 56-57.
- Mahajan, S., Agrawal, R., Kumar, M., Mohan, A., and Pande, N, 2014. Comparative evaluation of different F and N gene based reverse transcription polymerase chain reaction for molecular detection of peste des petits ruminant's virus from clinical samples. Veterinary Arhiv, 84: 485-492.
- Mahajan, V., Das, A.K., Taggar, R.K., Kumar, D. and Kumar, N. 2015. Polymorphoism of Keratin-associated protein (KRP) 3.2 gene and its association with wool traits in Rambouillet sheep. Indian Journal of Animal Sciences, 85(3)262-265.
- Malik, Anisa Anjum, Bhat, Anju, Ahmed, N. and Kaul, Raj Kumari. 2014. Efect of plant extracts on qualitative parameters of Guava Indian J.Ecol. 41 (2)
- Mallick, S.A., Kousar, Azaz, Gupta, Moni and Gupta, Sachin. 2014. Post anthesis stages moisture defict stress and grain nutritional quality of wheat genotypes. Indian Journal of Plant Physiology 19(1):107-110.
- Masud, S., Khan, A. and Rashid, M. 2014. Effect of poultry litter on water quality and isolation of bacteria from Cyprinus carpio, Periodic Research (ISSN: 2231-0045). 3 (2) p. 30-35.
- Masud, Sahar, Masud, Shadab, and Alam, Tanweer. 2014. Value Addition in Fishery through Suitable Packaging System, Processed food Industry. (ISSN: 09721649), 18(1) p. 24-32.

- Mir, A.H., Sultana, M., Dar, M.A., Chirag, S., Sagar, R., Raina, R. and Pankaj, N.K. 2014. Biochemical alterations induced by tefluthrin and aluminium in rats. J. Of Vet. Pharma. and Toxico. 13(2):112-14.
- Mir, I.A., Kumar, B., Taku, A., Bhardwaj, R.K., Bhat, M.A. and Badroo, G. A. 2015. Prevalence and Antibiogram study of Rhodococcus equi in equines of Jammu and Kashmir, India. Journal of Equine Science 26 (1): 21 –24.
- Mir, Reyazul Rouf, Bhat, Javid Akhter, Jan, Nelofer, Singh, Bikram, Ashok Kumar Razdan, Bhat,Mohd Ashraf, Kumar, Ajay Ekta, Srivastava and Malviya, Nupur. 2014. Role of Molecular Markers C. In Alien Gene Transfer in Crop Plants Vol. 1 Innovation, Methods and Risk Assessment, Springer Science, New York\
- Mondal, A. K., Rai, A.P., Wali, P. and Kumar, Manoj. 2015. Available micronutrient status and their relationship with soil properties of vegetable growing area of Jammu district. Progressive Horticulture 47(1): 95-98.
- Ahmed, Naseer, Singh, Jagmohan, Kaul, Raj kumari, Bakshi, Parshant, Malik, Anisa, Kour, Harleen, Chauhan, Harmeet and Gupta, Prerna. 2014. Comparative study on effect of different drying methods on nutritional quality of peach cultivars during storage. The Ecoscan: Special issue.
- Nisar, Shazia, Suri, Shalini and Sarma, Kamal. 2014. Micrometrical, histological and histochemical studies on the seminal vesicles of Bakerwali goat (Kaghani). Indian Journal of Animal Research 48 (4): 350-354.
- Pande, Nishi, Agrawal, R.G., Agrawal, Rajesh, Shrivastava, O.P. and Jain, S.K. 2014. Prevelance of periparturient reproductive disorders and calving pattern in buffaloes. Intas Polivet, 15(II): 205-207.
- Gupta,Parul, Chakraborty, Dibyendu, Das, A. K., Kumar, Nishant and Khan, Nusrat.2015. Genetic studies on growth and wool production traits in Rambouillet crossbred sheep in J&K State. Indian Journal of Animal Science. 85 (3) : 25.
- Peer, Q.J.A., Kumar, S., Aziz, M. A., Kour, J., Chesti, M.H. and Bhat, A. 2014. Adoption behavior of potato growers in sub-tropical zone of Jammu Division. African Journal of Agricultural Research 9(2): 202-205\
- Singh, Praveen, Singh, A.K. and Sharma, M. 2014. Genetic divergence study in maize inbred lines (Zea mays). Indian Journal of Agricultural Sciences. 84 (10): 1211-6.
- Singh, Praveen.2015. Genetic distance, heterosis and combining ability studies in maize for predicting F1 hybrid performance. SABRAO Journal of Breeding and Genetics. 47 (1): 21-28.
- Proch, A., Khan, A. and Koul, A. 2014. Effect of water showering on hemato-bio-chemical parameters of crossbred cows during peak summer season, Periodic Research (ISSN: 2231-0045). 2 (4) p. 22-24
- Choudhary, Punit, Gupta,S.K., Tandon, Vikas, Mahajan, Vishal and Sharma, Rakesh. Biotechnological interventions for improvement of forest trees 2014. Indian Journal of Ecology: 41(1) 42-47
- Qayoom, Sameera Khanday, B. A., Lone, B.A., Singh, Purshotam, Singh, Lal, Singh, Gurdeep, Panotra, Narinder, Ganai, M. A. and Singh, K. N. 2014. Evaluation of CERES-Rice model (DSSAT 4.5) for simulating the response of rice (Oryza sativa) cultivars to age of seedlings in temperate Kashmir. Indian Journal of Agronomy. 59 (2): 261-267
- Rai. A. P., Mondal, A. K., Rai, P. K. and Sharma, V. 2014. Micronutrient status in erosion prone basmati rice growing soils of Jammu. Journal of Soil & Water Conservation. 13 (2) : 84-87
- Raina, A.K., Bharti, Vijay and Samanta, A. 2015. Impact of effective rainfall in rainy season on irrigation efficiency in canal commands of Jammu, Journal of Environment and Ecology 33 (1A) : 243—246.
- Raina, N.S., Sain, V., Sehgal, S.,Gupta, S. K. and Sood, K.K. Exploration of plant based ethno-botanical knowledge of rural

community: Basis for biodiversity conservation. Indian Journal of Ecology 41(1): 27-31.

- Raina, R., Baba, N. A., Verma, P. K., Sulatana, M. and Singh, M. 2015. Hepatotoxicity induced by subchronic exposure of fluoride and chlorpyrifos in Wistar rats: Mitigating effect of ascorbic acid. Biological Trace Element Research, doi: 10.1007/s12011-015-0263-1.
- Rameez, A., Razzaque, Waquar, Sharma, Utsav, Pande, A. and Hussain, K. 2014. Survivability of caprine oocytes in conventional and open pulled straws Turkish J Vet Anim Sci, 38:707-711.
- Rana, Ranbir Singh, Chander, Navell, Sharma, Rohit, Sood, Ruchi. and Sharma, J. D. 2014. Modeling impacts and adaptations of climate change on soybean (Glycine max) production in Himachal Pradesh, India. Indian Journal of Agricultural Sciences 84 (10): 1172–1177.
- Rani, S., Singh. R., Gupta. S., Dubey, S. and Razdan, V.K. 2015. Identification of resistant sources and epidemiology of early blight (Alternaria solani) of tomato (Iycopersicum esculentum) in Jammu and Kashmir. Indian Phytopathology 68:87-92.
- Rather, M. I., Kushwaha, R.B., Dwivedi, D.K., Gupta, A.K. and Jani, S. M. Y. 2014. Comparative evaluation of iohexol and iopamidol contrast materials for myelographic studies in dogs. Indian Journal of Veterinary Surgery, 35 (1): 59-60.
- Razvi, Raheeqa, Suri, Shalini and Sarma, Kamal .2014. Gross skin thickness in relation to age in different regions of Bakerwali goat. Indian Journal of Veterinary & Animal Science Research 43 (1): 65-68.
- Razvi, Raheeqa, Suri, Shalini, Taggar, R.K., Sarma, Kamal and Sharma, Ramesh. 2015. Histomorphological Studies of Sebaceous Glands in relation to age in different regions of Bakerwali goats. Journal of cell & Tissue Research, 15(1) 4751-4754.
- Reena, Brij Nandan, Kumar, Anil, Dwivedi, M. C. and Singh, S. K. 2014. Effect of seed priming and foliar nutrition on seed yield and insect pest attack in desi chickpea. Journal of Food Legumes 27(4): 342-343.
- Reshi, Monica, Kaul, Raj Kumari, and Bhat, Anju. 2015. Effect of Post harvest treatments and low temperature on physic-chemical parameters of litchi (litchi chinensis sonn.) cultivar Dehradun Green Farming 5 (6)1134-1137
- Salathia, P.S., Nanda, R., Peshin R., Sharrma, L.K., Gupta, S.K., Kumar, R. and Kumar, R. 2015. Production recommendations and information source utilization of rapessed mustard growers in sub-tropics of Kathua district in Jammu division. Indian Journal of Extension Education, 51(1&2): 66-69.
- Samnotra, A., Kolte, M and Samnotra, R.K. 2014. Collision Avoidance by using path departure warning system. International Journal of Recent Advances in Engineering & Technology 2(1): 30-33
- Sampat, Chopra, S., Kumar, A. and Samnotra, R.K. 2014. Chemical weed management in Garlic. Indian Journal of Weed Science 46(2):146-150
- Sehgal, S., Wahid, J., Sood, K.K., Raina, N.S. and Gupta, S.K. 2014. Effect of container types and potting media on the growth of Melia composite Willd. Seedlings. Indian Journal of Ecology 41(1): 170-71
- Shankar, S., Kumar, D. and Mandal, K.G. 2014. Effect of genetic and non-genetic factors on morphometric traits of buffaloes. Buffalo Bulletin 33 (3).
- Sharma D., Abrol, D. P., Ahmad H., Srivastava, K. and Jamwal, V. V. S. 2014. Plants For Bees Brankad: Adhatoda vasica Nees. Bee World, 91(2) 49-50.
- Sharma, Inder Jeet, Samnotra, R. K., Kumar, Vijay and Dhotra, Balbir. 2014. Stability studies for quality traits in chilli (Capsicum annuum L.) under sub tropical areas. An Asian

Journal of Soil Science, 9 (2): 192-195.

- Sharma, Rakesh, Khar, Sanjay, Choudhary, Punit, Sinha, Abhey. Kumar. and Deshpande,K.Y.2014. Constraints faced by Wheat farmers in Adoption of Recommended Practices in intermediate region of J&K. Indian J. Social Res. 55(2): 353-360.
- Sharma, Rakesh, Peshin, Rajinder, Khar, Sanjay and Ishar, Arvind K. 2014. Agriculture Innovation System Approach for Sustainable Agriculture Development: A review Agro Economist. 1(1):1-8.
- Sharma, D. and Abrol, D. P. 2014. Effect of insecticides on foraging behaviour and pollination role of Apis mellifera L. (Hymenoptera: Apidae) on toria (Brassica campestris var. toria) crop. Egyptian Journal of Biology, 16 : 79-86
- Sharma, D., Ahmad, H., Srivastva, K. and Jamwal, V. V. S. 2014. Screening of rose cultivars against rose aphid, Macrosiphum rosae L. (Hemiptera : Aphididae). Indian Journal of Entomology, 76(3) : 262-263
- Sharma, D., Abrol, D. P., Ahmad, H., Ishar, Arvind and Bandral, R. S. 2014. Traditional beekeeping in Jammu and Kashmir, India. Bee World, 91 (3) : 31-35
- Sharma, Deep Shikha, Kaul, Raj Kumari. 2014. Quality evaluation and storage stability of jamun-mango blended jam.The Bioscan 9 (3), 953-957
- Sharma, G., Lata, S., Yadav, A., Sharma, O. C. and Sharma N. 2015. Assessment of variation in pear genotypes through genetic divergence and cluster analysis using D^2 statistics. African Journal of Agricultural Research, 10(10): 1063-1066.
- Sharma, I., Samnotra, R.K. and Kumar, V. 2014. Influence of bio fertilizer application methods and in organic fertilizers on growth, seed yield and economics. Cost of okra (Abelmoschus esculentuin L.). Moench sub-tyropical irrigated area of Jammu. International Journal of Agricultural Sciences 10(1):322-28
- Sharma, Maneesh, Azmi, Shagufta, Rahman, Shafiqur, Gupta, A. K., Khajuria, Amit. 2014. Adenomatous carcinoma in lachrymal gland of female dog,. Indian Veterinary Journal, 91: 104-105.
- Sharma, Pawan Kumar, Parkash, Suraj and Jamwal, Sudhir. 2014. Maize production in the intermediate hills of Jammu & Kashmir: An economic evaluation of front line demonstrations. New Agriculturist, 25(2): 163-168.
- Sharma, R. and Peshin, R. 2015. Impact of vegetable integrated pest management farmer field school programme in sub-tropical region of Jammu & Kashmir. Indian Journal of Extension Education, 51(1&2): 9-14.
- Sharma, R., Kachroo, D., Bharat, R., Thakur, N.P. and Kour, M. 2015. Role of irrigation scheduling, puddling intensity and source of nutrients on yield of rice (Oryza sativa) and its residual effect on succeeding wheat under irrigated agro-ecosystem of Jammu. Journal of Soil and Water Conservation, 14(1): 56-62.
- Sharma, R., Peshin, R., Shankar, U., Kaul, V. and Sharma, S. 2015. Impact evaluation indicators of an integrated pest management program in vegetable crops in the subtropical region of Jammu and Kashmir, India. Crop Protection, 67: 191-199.
- Sharma, R.M., Kour, K., Singh, B., Kotwal, N., Rana, J.C., Sharma, N. and Bandral, J.D. and Jamwal, M. 2014. Exploiting genetic diversity of walnut (Juglans regia) from Jammu region of India for export related traits. Indian Journal of Agricultural Sciences, 84 (9): 1040–44.
- Sharma, R.M., Kour, K., Singh, B., Yadav, S., Kotwal, N., Rana, J.C. and Anand, R. 2014. Selection and characterization of elite walnut (Juglans regia L.) clone from seedling origin trees in north western Himalayan region of

India. Australian Journal of Crop Science, 8(2): 257-262.

- Sharma, Sushil and Pannu, C.J.S. 2014. Development and evaluation of seed metering system for water soaked cotton seeds. Agricultural Mechanization in Asia, Africa and Latin America, 45(1): 41-47.
- Sharma, Utsav, Kumar, Sharad, Kumar ,Sudhir, Kushwaha, R. B. and Risum N.S. 2014. Successful delivery of malposture fetus in protracted dystocia by forelimb amputation and detruncation in a crossbred heifer cow. Indian Vet, J. 91(08).
- Sharma, Utsav, Kumar, Sudhir, Kumar Sharad, and Soodan, J.S. 2014. Therapeutic management of post-partum uterine prolapse in a pluriparous Murrah buffalo.Veterinary Practioneer, 15(1):126-127.
- Sharma, V. 2014. Anticancer activity of some medicinal plants from Jammu region. Bioinfolet, 11 (4B): 1126-1127
- Sharma, V. 2014. Physico-chemical and enzymatic studies on bacteria of Chenab, Tawi and Ravi riverine ecosystem in Jammu region. Bioinfolet, 11 (4B): 1122-1125
- Sharma, V., Hussain, S., Bakshi, M., Bhat, N. and Saxena, A.K. 2014. In vitro cytotoxic activity of leaves extracts of Holarrhena antidysenterica against some human cancer cell lines. Indian Journal of Biochemistry and Biophysics, 51:46-51
- Sharma, V., Hussain, S., Gupta, M. and Saxena, A.K. 2014. In vitro anticancer activity of extracts of Mentha spp. against human cancer cells. Indian Journal of Biochemistry and Biophysics, 51: 416-419
- Sharma, Vikas, Hussain, Shabeer. Sharma, K.R. and Arya, Vivak M. 2014. Labile carbon pools and soil organic carbon stocks in the foothill Himalayas under different land use systems. Geoderma, 232–234: 81-87.
- Shrivastava, K., Mahajan, V., Kumar, D., Joshi, H. and Thakur, M.S. 2014. Isolation of genomic DNA from fresh and old clotted blood samples of indian ghariyal (Gavialis gangeticus) Progressive Research 9 (1) : 70-73 (2014).
- Singh P.K., Kumar, S., Bhat, Z. F. and Kumar, P. 2014. Effect of Clove Oil on the Storage Quality of Aerobically Packaged Fiber-Enriched Chevon Cutlets. Journal of Meat Science 10(1): 48-54.
- Singh S.P., Kumar, N., Rizvi, S.H.E., Sharma, P.K. 2014. An Economic analysis of gladiolus cultivation in Jammu District of J&K state. Economic Affairs 59(40):515-519.
- Singh, A. K., Sharma,V., Singh, A. K. and Singh, V. K. 2014. Effect of leaf extracts, fungicides and bio-agents against root rot of pea (Pisum sativum L.). Research on Crops, 15(3):651-654.
- Singh, G., S. Rajeev., Verma, P.K., Singh, R. and Anand, A. 2014. In-vitro Anthelmintic Efficacy of Aqueous Extract of Scindapsus officinalis (Roxb.) Schott Fruits Against Haemonchus contortus of Small Ruminants. Proceedings of the National Academy of Sciences, India Section B: Biological Sciences. ISSN 0369-8211. Proc. Natl. Acad. Sci., India, Sect. B Biol.Sci. DOI 10.1007/s40011-014-0389-5.
- Singh, G., S. Rajeev., Verma, P.K., Singh, R., and Anand, A. 2014. Anthelmintic efficacy of aqueous extract of Zanthoxylum armatum DC. seeds against Haemonchus contortus of small ruminants. Journal of Parasitic Diseases. ISSN 0971-7196. J Parasit Dis. DOI 10.1007/s12639-014-0540-5.
- Singh, G., S., Rajeev, Verma, P.K., Singh, R., Sharma, R.K., Wazir, V. S. and Anand, A. 2014. Aqueous extract of Mallotus philippensis (Lam.) failed to control Haemonchus contortus infestation in sheep and goats. Indian Journal of Veterinary Medicine 35 (1): 50-51.
- Singh, J. P., Thakur, T.C., Sharma, Sushil, Sharma, Parshotam Kumar. 2014. Effects of Various Parameters on Specific Amount of Liquid Retention, Liquid Retaining Efficiency

and Moisture Content of Balled Paddy Straw. Environment & Ecology 33 (1B) : 468-472

- Singh, M., Kumar, S., Pandey, A. K., Rao, M. M., Gupta S. K., and Raina, R. 2014. Performance of soya milk extender in cattle semen freezing. Veterinary Practitioner, 15(1):152-153.
- Singh, P., Singh, A. K. and Sharma, M. 2014. Genetic divergence study in maize inbred lines (Zea mays). The Indian Journal of Agricultural Sciences, 84(10):61-66.
- Singh, P., Singh, A. K., Sharma, M. and Salgotra, S. K. 2014. Genetic divergence study in improved bread wheat varieties (Triticum aestivum). African Journal of Agricultural Research, 9 (4) : 507-512.
- Singh, P.K., Kumar, S., Bhat, Z. F. and Kumar, P. 2015. Effect of Sorghum bicolour and Clove Oil on the Quality Characteristics and Storage Quality of Aerobically Packaged Chevon Cutlets. Nutrition and Food Science 45(1): 145-63.
- Singh, P.K., Kumar, S., Bhat, Z. F. and Kumar, Pavan. 2014. Utilization of Barley in the Development of Fiber Enriched Chevon Cutlets. Journal of Meat Science 10(1): 28-35.
- Singh, P.K., Kumar, S., Bhat, Z. F., Kumar, P. and Kumar, A. 2015. Effect of processed oats and clove oil on the characteristics and storage quality of aerobically packaged chevon cutlets. Indian Journal of Small Ruminants 21(1): 76-84.
- Singh, P.K., Kumar, S., Kumar, P. and Bhat, Z. F. 2014. Effect of mincing on the quality characteristics of chevon cutlets. Journal of Animal Research 4(2): 193-200.
- Singh, P.K., Kumar, S., Kumar, P. and Bhat, Z. F. 2014. Standardization of shredded potato and added water levels in the development of chevon cutlets. Journal of Animal Research 4(2): 251-261.
- Singh, R., Kumar, K., Kumar, M., Agarwal, P., Mahapatra, P.S., and Bag, S. 2015. Expression analysis of BAX & GHR genes between parthenogenetic and IVF embryos in caprine. Indian Journal of Biotechnology 14:117-119.
- Singh, S., Das, A. K., Chakraborty, D., Taggar, R. K., Kumar, N., Gupta, P and Mahajan, V. 2014. Studies on genetic and non-genetic factors affecting performance traits of Frieswal cows. Indian Journal of Animal Research, 48(6):537-540.
- Singh, S.P., Kumar, Nimit, Rizvi, S.E.H. and Sharma, Pawan Kumar. 2014. An economic analysis of Gladiolus cultivation in Jammu district of J&K state. . Economic Affairs-Quarterly Journal of Economics. 59(4):515-519.
- Singh, Simran, Das, A.K., Chakraborty, D., Taggar, R.K., Kumar, N., Gupta, Parul and Mahajan, Vikas. 2014. Studies on genetic and non-genetic factors affecting performance traits of Frieswal cows. Indian Journal of Animal Research 40 (6):537-540.
- Slathia, P.S., Paul, N, Nanda, R, Peshin, Kher, S. K. 2014. Problems of ethno-veterinary practices of Gujjar and Bakarwals of Jammu Region. Journal of Community Mobilization and Sustainable Development. 9(2).
- Spaldon, S., Samnotra, R.K. and Chopra, S. 2015. Climate resilient technologies to meet the challenges in vegetable production. International Journal of Current Research and Academic Review 3(2): 28-47
- Srivastava, R.K. and Sharma, H.C., Singh, J.P., Dadhich, Sushmita and Dadhich, Hemant. 2014. Estimation of runoff of Western Himalayan watershed using Remote Sensing and Geographical Information System. Journal of Soil and Water Conservation 13(2): 127-133.
- Taggar, R. K., Das, A. K., Kumar, D. and Mahajan, V. 2014. Genetic analysis of performance traits of Jersey cows in sub-temperate environment of Himachal Pradesh. Indian Journal of Animal Research, 48(5):413-417.

- Taggar, R. K., Das, A. K., Kumar, D. and Mahajan, V. 2014. Genetic studies on performance traits of Jersey crossbred cows in sub-temperate region. Indian Journal of Animal Sciences, 84(7)57-60.
- Tahir, M., Sood, K. K. and Peshin, R. 2014. Delineating key determinants of domestic fuelwood consumption of rural households in Western Himalyan- policy implications. Journal of Mountain Science, 11(1): 195-204.
- Taku, A.K., Bhardwaj, R., Gazal, S., Bhat, M.A., Badroo, G.A. and Sawant, P. 2015. Proteus mirabilis strain Jammu 16S ribosomal RNA gene, partial sequence. Accession no. KP401767.
- Tyagi, S., Mir, R.R., Kaur, H., Chhuneja, P., Ramesh, B., Balyan, H.S., Gupta, P.K. 2014. Marker-assisted pyramiding of eight QTLs/genes for seven different traits in common wheat (Triticum aestivum L.).Molecular Breeding DOI 10.1007/s11032-014-0027-1
- Varshney, R.K., Mir, R.R., Bhatia, S., Thudi, M., Hu Y, Azam S, Zhang, Y., Jaganathan, D., You, F.M., Gao, J., Riera-Lizarazu, O., Luo M-C. 2014. Integrated physical, genetic and genome map of chickpea (Cicerarietinum L.).Functonal Integrated Genomics DOI 10.1007/s10142-014-0363-6
- Verma, P.K., Raina, R., Sultana, M. 2014. Phytochemical constituents and antioxidant potential in floral extracts of Calendula officinalis Linn. World Journal of Pharmaceutical Research, 3 (6): 2067-2083.
- Vohra, V., Niranjan, S.K., Mishra, A.K., Jamuna, V., Chopra, A., Sharma, Neelesh, and Jeong, D.K. 2015. Phenotypic characterization and multivariate analysis to explain body conformation in lesser known buffalo Bubalus bubalis from North India. Asian Australasian Journal of Animal Sciences, 28(3): 311-317.
- Wani, Heena, Rahman, Shafiqur, Azmi, Shagufta, Sultana, Mudasir, Kour, Navdeep, Khajuira, Amit. 2015. Haematobiochemical alteration in induced chlorpoyriphos toxicity in broiler chicken. Applied Biological Research, 17: 48-54.
- Yadav, Anish, Katoch, R., Godara, R. and Borah, M.K. 2014. Occurrence and histopathology of Przhevalskiana silenus larvae in sheep. J. Parasit. Dis., 38(3):324-327.
- Yadav, Anish, Katoch, R., Godara, R., Sood, S., Katoch, M. and Ahamed, I. 2014. Field efficacy of of minidosed pour-on ivermection and eprinomection against goat warble fly infestation by Przhevalskina silenus. Trop. Anim. Klth. Prod., 46: 537-539.
- Zahoor, S., Sharma A., Iqbal, U. and Wali, V. K. 2014. Effect of plant growth regulators on vegetative growth, yield and quality of strawberry. African Journal of Agricultural Research, 9(22): 1694-1699.

11. LINKAGES AND COLLABORATION

The university has developed strong linkages with national and international organizations with a view to harness the information, materials, expertise and exchange of scientists and students visits. MoUs have been signed by the University with national and international organizations to facilitate the exchange of new technology of mutual interest, students and the faculty.

Given the national leadership in almost all major agricultural research areas, the university has close linkages with following other institutes of the country.

- Cornell University, USA.
- Indian Agricultural Research Institute, New Delhi.
- National Dairy Research Institute, Karnal, Haryana
- CSK HP Agricultural University, Palampur, HP
- Integrated Farming System Research, Modipuram (UP)
- Institute of Himalayan Bio-resource Technology (CSIR), Palampur (H.P)
- State Forest Research Institute, Jammu & Kashmir
- Directorate of Sheep Husbandry, Jammu.
- ICRISAT, Hydrabad
- NBAIM, Mau Nath Bhanjan (UP).
- IPFT, Gurgoan.
- VPKAS, Almora.
- IFGRI, Jhansi.
- IUST, Kashmir.
- IIHR, Banglore.
- BGBSU, Rajouri.
- PAU, Ludhiana.
- National Research Centre on Litchi, Muzaffapur (Bihar)
- CIPHET, Ludhiana.
- NRC on Equines, Hisar.
- SRFI, J&K.

12. STATUTORY MEETING

University Council Meeting

11th University Council Meeting

11th University Council meetings was held on 09.04.2014 at Raj Bhavan, Jammu under the Chairmanship of Sh. N.N. Vohra, Hon'ble Governor of Jammu & Kashmir and Chancellor of SKUAST-Jammu.

Sh. N.N.Vohara, Hon'ble Governor J&K, and Chancellor SKUAST-Jammu chairing the 11th University Council Meeting

Sh. N. N. Vohra, Hon'ble Governor emphasized the importance of all existing courses being critically reviewed to introduce modified or new courses, as required, keeping in view the geographical and climatic conditions of the State and the emerging job markets. He said this while chairing the 11th Council meeting of SKUAST-Jammu at Raj Bhavan, today. The Chancellor said that every effort must be made to ensure that no seat, in any discipline, remains unfilled in the ensuing Academic Session.

Keeping in view the decision of ICAR's team for selecting the sites for establishing Krishi Vigyan Kendras, the Governor asked the Vice Chancellor, Dr. Pradeep K. Sharma, to most urgently follow up with all the concerned authorities for securing possession of suitably located lands for the KVKs to be set up at Samba, Ramnagar (District-Udhampur), and Ramban. He said that KVKs are the nerve centres for the transfer of agricultural technologies to the farmers and thus act as crucial instruments for enhancing agri-productivity and production in the State on a sustained basis. The Chancellor urged the VC to ensure optimum utilization of physical infrastructure, manpower and other logistics and resources available with the Farm Universities and also focus on developing strong linkages between the two Farm Universities, line departments and extension agencies of the Government.

He observed that the actual outcome of the decisions taken in this regard should be analyzed and follow up action should be taken on a regular basis.

The Chancellor asked Sh. Asgar Hassan Samoon, Commissioner, Agriculture Production Department to formulate an Action Plan to increase the production of meat, poultry, fish and dairy products in the State. He also emphasized the importance of collecting data related to suitability and acceptance of new varieties of seeds at micro level and to prioritize the value addition of the local agricultural products along with introduction of the substantial agricultural brands in the market. He urged the VC to see that the achievements of progressive farmers are properly documented and their success stories given wide spread publicity.

The Chancellor observed that the Pecanut Mission should be taken up on an extensive scale in the State under Horticulture Technology Mission to benefit the farmers. He asked the VCs of both the Universities to motivate the people towards community participation for the total eradication of Lantana weed.

Regarding the revision of Statutes of the State Agricultural Universities, the

Chancellor asked the Vice Chancellors of both the Universities to jointly review the Statutes and list the provisos which require to be amended on a time bound basis. It was urged upon both the Universities to propose establishment of new schools and courses, preferably on self sustainable basis.

The meeting was attended by Dr. Pradeep K. Sharma, Vice Chancellor, SKUAST-Jammu, Dr. Tej Partap, Vice Chancellor, SKUAST-Kashmir, Dr. A. R. Trag, Vice Chancellor, Islamic University of Science and Technology, Awantipore, Mr. B. R. Sharma, Principal Secretary, Planning and Development, Mr. B. B. Vyas, Principal Secretary to the Chief Minister and Principal Secretary, Finance, Mr. Rakesh Kumar Gupta, Principal Secretary to the Governor, Dr. Asgar Hassan Samoon, Commissioner/Secretary, Agriculture Production, Dr. Manjit Singh Kang, Former Vice Chancellor, Punjab Agricultural University, Ludhiana, and Dr. B. B. Gupta, Registrar, SKUAST, Jammu.

12th University Council Meeting

12th University Council meetings was held on 20.10.2014 at Raj Bhavan, Jammu under the Chairmanship of Sh. N.N. Vohra, Hon'ble Governor of Jammu & Kashmir and Chancellor of SKUAST-Jammu.

During the meeting Sh. N. N. Vohra, Governor emphasized the vital importance of State farm Universities and Agriculture Production Departments devoting specific attention towards the identification of all possible measures for improving the productivity of rainfed areas in the state. The Governor also stressed the importance of popularizing the best practices in the agriculture and horticulture sectors and providing recognition and encouragement to progressive farmers. To reach out to the maximum number of farmers, the Governor suggested that every Krishi Vigyan Kendra should organize half yearly Kissan Melas, particularly in the remote and far-off areas of the State. He also impressed upon the Vice Chancellors of the two State Farm Universities to publish the research material in vernacular languages for their wide and effective reach to the target population.

The Governor and the Chief Minister called on the University to play a significant role in the propagation of high quality seeds and plant materials and to work according to an annual Seed Plan. The Governor observed that all available resources and expertise should be optimally utilized for producing quality seeds of various crops and ensuring their timely supply to the farmers. The Chief Minister added that possibilities should also be explored for encouraging promotion of "Agricultural Villages" with thrust on one particular crop. To make this concept viable, he urged the need for working out potential market linkages and sufficient technological and scientific support to these villages.

The Council discussed issues relating to the colossal losses caused to the existing infrastructure in the University and the Chief Minister assured financial support to repair the damaged infrastructure. Both the Chancellor and the Pro Chancellor impressed upon the Vice Chancellor to urgently complete the construction work of the University auditorium. The Chief Minister advised the Vice Chancellor to prioritize completion of all the ongoing infrastructural projects. Progress of upcoming Krishi Vigyan Kendras at Samba, Ramban and Udhampur was reviewed during the meeting and the Chief Minister asked the Agriculture Production Commissioner to ensure speedy delivery of possession of the required lands to the University.

Sh. Ghulam Hassan Mir, Minister for Agriculture, emphasized the need for optimum utilization of available resources and expertise for increasing seed

production in the State and dwelt on the initiatives already being taken towards this direction. He further said that efforts need to be further intensified for increasing the production of dairy, mutton, poultry and fish in the State. Dr. Pradeep K. Sharma, Vice Chancellor, SKUAST, Jammu, presented a detailed report on the status of teaching, research and extension activities undertaken by the varsity. He dwelt on the achievements of the University in varied fields and the new varieties of seeds of different crops which had been developed and proposals mooted to the State Government for clearing the new varieties for distribution to the farmers. He also gave details of the various ongoing research projects and those in the pipeline.

The meeting took stock of various research projects and other initiatives taken after the last meeting of the Council of the SKUAST-J, besides discussing other agenda items which included a review of the follow-up action in respect of various decisions taken at the last meeting.

The meeting was attended by Sh. Mian Altaf Ahmad, Minister for Forests; Sh. Nazir Ahmad Khan (Gurezi), Minister of State for Animal and Sheep Husbandry; Dr. Tej Pratap, Vice Chancellor, SKUAST-K; Dr. A. R. Trag, Vice Chancellor, Islamic University of Science and Technology, Awantipore; Sh. B. R. Sharma, Principal Secretary, Planning and Development; Sh. B. B. Vyas, Principal Secretary to the Chief Minister and Principal Secretary, Finance; Sh. Rakesh K. Gupta, Principal Secretary to the Governor; Dr. Asgar Hassan Samoon, Commissioner, Agriculture Production; Dr. B. B. Gupta, Registrar, SKUAST, Jammu.

BOARD OF MANAGEMENT

The Board of Management is the principal executive body of the University. It has the power of management and administration of all the affairs of the University, including finance, revenue, property and academic affairs. 23rd meeting of Board of Management of SKUAST-Jammu was held on 22.12.2014 in the Committee Hall of Vice Chancellor's Secretariat, SKUAST-J, Chatha, Jammu

Dr. Pradeep K. Sharma, Hon'ble Vice-Chancellor Chairing the 23rd Board of Management Meeting

13. VISITS OF IMPORTANT DIGNITARIES

Dr. Nirmal Singh, Deputy Chief Minister, J&K State.

Dr. S. Ayyappan, Director General, ICAR & Secretary DARE, Govt. of India

Dr. A.K. Singh, Vice-Chancellor, Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Gwalior

Dr. Arvind Kumar, DDG (Edn), ICAR & Vice-Chancellor, Rani Lakshmi Bai Central Agricultural University, Jhansi

Dr. A.C. Varshney, Vice-Chancellor, UP Pt. Deendayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, Mathura (UP)

Dr. Tej Pratap, Vice-Chancellor, SKUAST-Kashmir

Sh. B.B. Vyas, IAS, Principal Secreatry to Govt., Finance Department, Govt. of J&K

Sh. A.H. Samoon, IAS, Commissioner/ Secretary to Govt., Agriculture Production Department, Govt. of J&K

Sh. Shantmanu, IAS, Divisional Commissioner, Jammu on Van Mahatsav

Dr. Nazeer Ahmad, Director (CITH, Srinagar Kmr)

Sh. M. R. Matoo, Director Planing, APD Govt. J&K

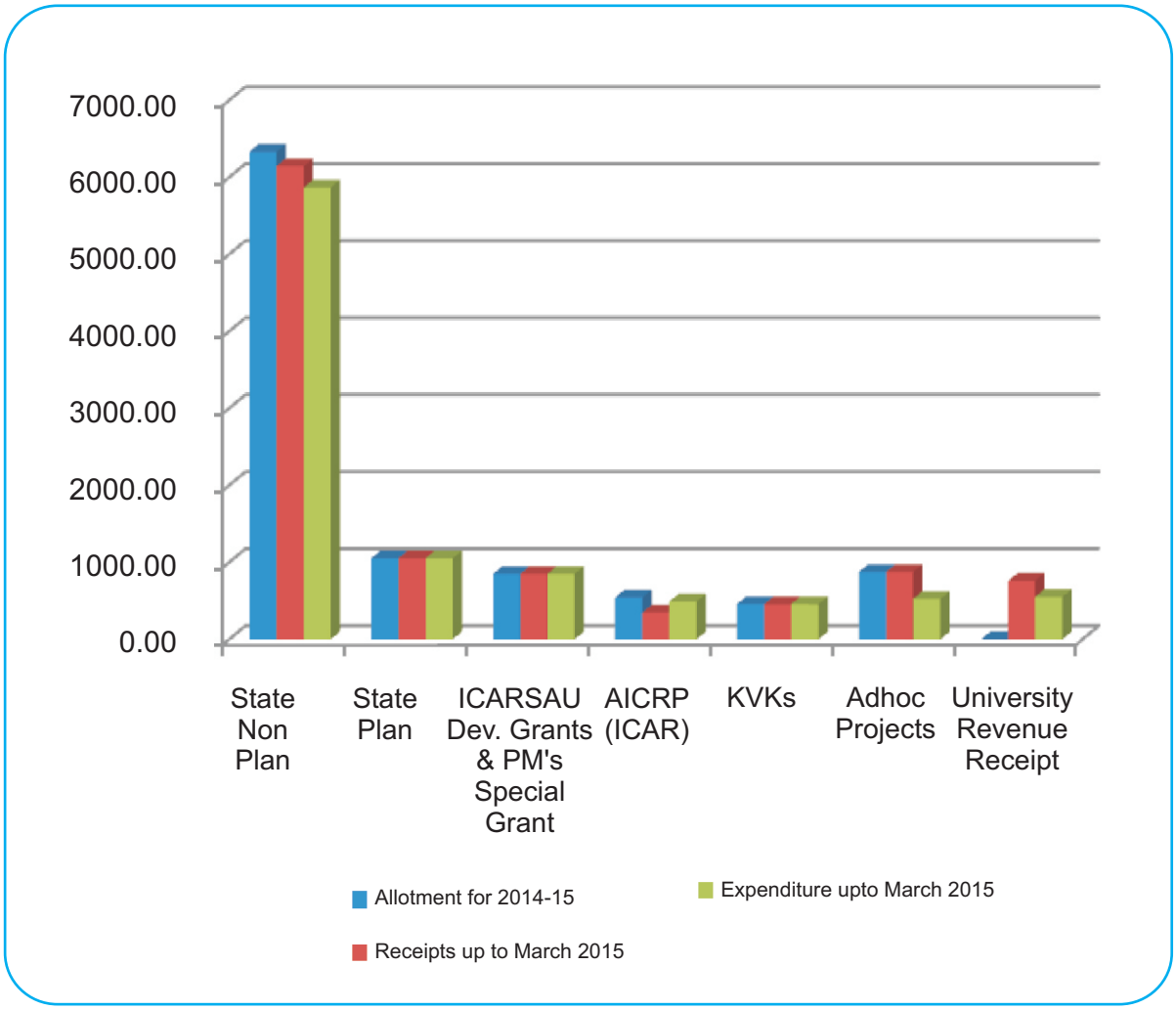
Dr. Nirmal Singh, Deputy CM, inaugurated two-day national seminar on "Technology and Management of Micro irrigation in Floriculture"

Sh. Shantmanu, IAS, Divisional Commissioner, Jammu planting a tree during Van Mahatsav

14. RESOURCES AND FINANCIAL ESTIMATES (2014 -15)

(Rs. In Lakhs)

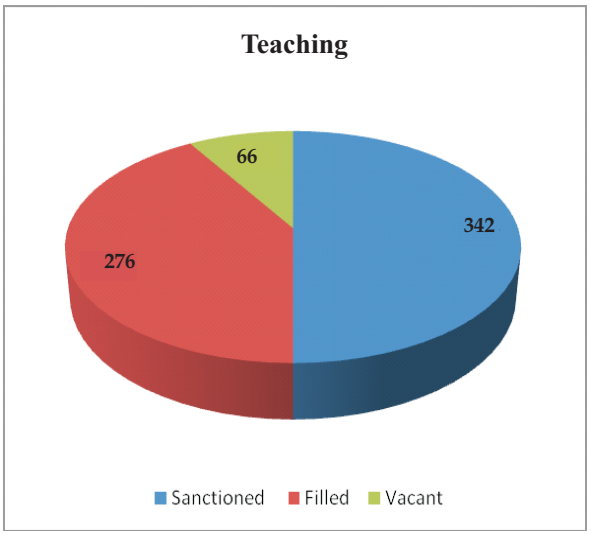
S.No	Particulars	Allotment for 2014-15	Receipts up to March 2015	Expenditure upto March 2015
1	State Non Plan	6330.11	6145.00	5866.19
2	State Plan	1050.00	1050.00	1050.00
3	ICAR SAU Dev.Grants & PM's Special Grant	850.00	850.00	848.20
4	AICRP (ICAR)	541.25	346.63	488.83
5	KVKs	456.35	454.00	455.04
6	Adhoc Projects	874.00	874.00	525.00
7	University Revenue Receipt	--	759.08	550.00
	Total	**10101.71**	**10478.71**	**9783.26**

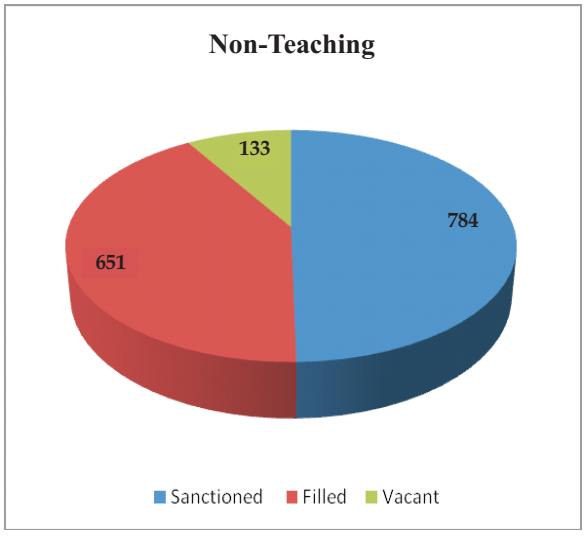


15. STAFF POSITION

Staff Position (As on March 31, 2015)

Category	Sanctioned	Filled	Vacant
A. Teaching			
Dean	02	01	01
Associate Dean	02	01	01
Professor / Equivalent	34	15	19
Assoc . Professor / Equivalent	86	66	20
Asstt .Professor / Equivalent	218	193	25
Total	**342**	**276**	**66**
B. Non-Teaching			
Administrative Officers	9	8	1
Administrative staff	232	186	46
Technical staff	36	29	7
Auxiliary / supporting staff	507	428	79
Total	**784**	**651**	**133**
Total A+B	**1126**	**927**	**199**





16. APPOINTMENTS, PROMOTIONS AND SUPERANNUATION

A) Apointments

S.No.	Name	Appointed As	Disccipline
Teaching			
1	Dr. Sanjay Koushal S/o Gian Chand Koushal	SMS	Soil Science
2	Dr. Rohit Sharma S/o Sat Paul Sharma	Asstt.Prof./Jr. Scientist	Agronomy
3	Dr. Vishal Sharma S/o Ramesh Chander Sharma	SMS	Agronomy/Soil Science
4	Dr. Rohit Sharma S/o Manmohan Rai Sharma	Technical Officer	Agro-Meterorology
5	Dr. Satish Kumar S/o Late Raj Dev Sharma	Farm Manager	
6	Dr. Muzafar Ahmad Mir S/o Ali Amohd. Mir	SMS	Horticulture (Fruit Sc.)
7	Dr. Muneeshwar Sharma S/o Iqbal Nath Sharma	SMS	Plat Protection
8	Dr. Prachi Sharma D/o R.K. Sharma	Asstt. Prof./Jr. Scientist	Plant Pathology
9	Dr. Narinder Paul S/o Janak Raj	SMS	Agril. Extension Education
10	Dr. Jasvinder Singh Sasan S/o Gurmeet Singh Sasan	Asstt. Prof./Jr. Scientist	Vety. Anatomy
11	Dr. Vijay Kumar Sharma S/o JaganNath	SMS	Animal Sciences
12	Dr. Nazam Khan S/o Mohd. Aslam Khan	Asstt. Prof./Jr. Scientist	Animal Nutrition
13	Dr. Vikas Mahajan S/o Kishori Lal Mahajan	Asstt. Prof./Jr. Scientist	Animal Breeding
14	Dr. Parul Gupta D/o Ashok Kumar Gupta	SMS	Animal Sciences
15	Dr. Suraj Ashokrao Amrutkar	Asstt. Prof./Jr. Scientist	LPM (Poultry Production Management)
16	Dr. Jag Paul Sharma S/o Mansa Ram	Director Research	
17	Dr. Tasleem Ahmad Shamas Ganai S/o Late Abdul Qadeer Ganai	Director Education	
18	Dr. Malik Mohammad Shams-Uz-Zama S/o Sh. Habib Ahmad Ansari	Dean, FVSc. AH	

B) Promotions

Teaching

Placement of Associate Profesor/Programme Coordinator in the pay band -IV of Rs37400-67000 + AGP of Rs.9000/- under Career Advancement Schem under Career Advancement Scheme (CAS)

S.No.	Name with Discipline
1	Dr. R.K. Salgotra, Assoc. Prof. (PBG) &-Coordinator, School of Biotechnology
2	Dr. Manish Kumar, Assoc. Prof. Agril. Economics & Statistics
3	Dr. Kamal Sarma, Assoc. Prof., Vety. Anatomy, FVSc. & AH
4	Dr. Jonali Devi, Assoc. Prof., Vety. Physiology, FVSc. & AH
5	Dr. Asma Khan, Assoc. Prof., LPM, FVSc. & AH
6	Dr. Sanjay Khar, Programme Coordinator, KVKs
7	Dr. Sunil Kumar, Assoc. Prof., LPT, FVSc. & AH
8	Dr. Rakesh Singh Bandral, Programme Coordinator, KVK
9	Dr. Lalit Mohan Gupta, Assoc. Prof., Agroforesty
10	Dr. Sandeep Chopra, Assoc. Prof., Vegetable Science
11	Dr. Vikas Sharma, Assoc. Prof., Soil Science &Agril.Chemisty
12	Dr. TuhinaDey, Sr. Scientist (PBG), AICW&BIP

Placement of Asstt. Prof./Jr. Scientists/SMS as Asstt. Prof./Junior Scientist/SMS (Senior Scale) under Career Advancement Scheme (CAS)

S. No.	Name with Discipline
1	Dr. Magdeshwar Sharma, Jr. Scientist (Entomology)
2	Dr. Brij Nandan Singh, Jr. Scientist, (Agronomy)
3	Dr. Amit Jasrotia, Jr. Scientist (Fruit Science)
4	Dr. Rajesh Kumar, Asstt. Professor, Section of Fruit Science
5	Dr. Anil Sharma, Ex Asstt. Prof. (Soil Science)
6	Dr. Renu Gupta, Asstt. Prof. (Soil Science & Agril. Chemistry)
7	Dr. Rakesh Kumar Sharma, Jr. Scientist (Fruit Science)
8	Dr. Meenakshi Gupta, Asstt. Prof. (Agroforestry)
9	Dr. NarinderPanotra, Jr. Scientist (Agronomy)
10	Dr. Shilpa Sood, Asstt. Prof. (Vety. Pathology)
11	Dr. Neelesh Sharma, Asstt. Prof. (Vety. Medicine)
12	Dr. Pratiksha Raghuwanshi, Asstt. Prof. (Vety. Physiology & Boichemistry)
13	Dr. Nishi Pande, Asstt. Prof. (Gynecology & Obstetrics)
14	Dr. Banarsi Lal, SMS (Extesnion Education)
15	Dr. Sanjay Khajuria, SMS (Agroforestry)
16	Dr. Berjesh Ajrawat, SMS (Extesnion Education
17	Dr. Anamika Jamwal, SMS (Plant Pathology)
18	Dr. Vishal Mahajan, SMS (Agroforestry)

Promotion of Associate Professor/Sr. Scientists & equivalent as Professor/Chief Scientists & equivalent under Career Advancement Scheme

S. No.	Name with Discipline
1	Dr. Pardeep Wali, Dy. Director Research
2	Dr. Sushil Sharma, Associate Prof. (Agril. Engg.)
3	Dr. P.K. Raina, Ex-Assoc. Prof. (Plant Pathology)
4	Dr. Anil Kumar, Assoc. Prof. (Plant Pathology)
5	Dr. K.K. Sood, Assoc. Prof. (Agroforestry)
6	Dr. Mohd. Altaf Bhat, Assoc. Prof. (Vety. Microbiology)
7	Dr. Shalini Suri, Assoc. Prof. (Vety. Anatomy)
8	Dr. Ramesh Kumar Sharma, Assoc. Prof. (Animal Nutrition)
9	Dr. ShaguftaAzmi, Assoc. Prof. (Vety. Pathology)
10	Dr. Raman Kant Taggar, Assoc. Prof. (Animal Breeding & Genetics

Designating Asstt. Prof./Jr. Scientist/SMSs (Selection Grade) as Associate Professor/Sr. Scientist under Career Advancement Scheme

S. No.	Name with Discipline
1	Dr. S.K. Sudan, Asstt. Prof. (SG), PBG
2	Dr. Dalip Kumar Koul, SMS (SG), PBG
3	Dr. Anil Kumar Sharma, SMS (SG) (Agronomy)

Promotion of Asstt. Professor/Jr. Scientists/SMS (Senior Scale) & equivalent as Associate Prof./Sr. Scientists and SMS (Selection grade/Sr. Scientists) under Career Advancement Scheme

S. No.	Name with Discipline
1	Dr. VikasAbrol, Jr. Scientist (Soil Science)
2	Dr. P.K. Rai, Jr. Scientist (Soil Science)
3	Dr. Peeyush Sharma, Jr. Scientist (Soil Science)
4	Dr. Meenakshi Gupta, Asstt. Prof., (Agronomy)
5	Dr. Bodu Ram Bazaya, Asstt. Prof., (Agronomy)
6	Dr. Vijay Bharti, Jr. Scientist, (Agronomy)
7	Dr. BrijNandan, Jr. Scientist (Agronomy)
8	Dr. Manmohan Sharma, Jr. Scientist (PBG)
9	Dr. Ravinder Singh Sudan, Jr. Scientist (PBG)
10	Dr. Anil Kumar Singh, Asstt. Prof./Jr. Scientist (Biotechnology)
11	Dr. J.P. Singh, Asstt. Prof. (Agril. Engg.)
12	Dr. Reena, Jr. Scientist (Entomology)
13	Dr. Sandeep Sehgal, Asstt. Prof. (Agroforestry)
14	Dr. Mohd. Rashid, Asstt. Prof. (VPH& Epidemiology)
15	Dr. Sahar Masud, Asstt. Prof. (Fisheries)
16	Dr. Kafil Hussain, Asstt. Prof. (Vety. Medicine)
17	Dr. Rajesh Agrawal, Asstt. Prof. (Vety. Medicine)
18	Dr. Dr. Rakesh Sharma, SMS (Agril. Exten. Education)
19	Dr. Vinod Gupta, SMS (Agril. Exten. Education)

Non-Teaching

Placement of Senior Technical Asstt. to Asstt. Professor : Sh. Rakesh Kumar, STA (Agronomy)

- 53 Employees given Placement under CAS
- 22 Employees given Selection scale

Superannuation:

S.No.	Name	Designation	Date of Superannuation
Teaching			
1.	Sh. R.L.Bhagat	Asstt. Professor, Division of Sericulture	30.04.2014
Supporting Staff			
1	Sh. Agya Ram	OCC, Division of Vety. Microbiology	30.04.2014
2	Sh. Tarseem Raj	Driver, DLRSS, Dhiansar	31.05.2014
3	Sh. Rattan Lal	Mali, Division of Fruit Sciences	30.06.2014
4	Sh. Khzan Singh	FCLA, Division of Agronomy	31.03.2015

17. PERSONNEL (AS ON 31.03.2015)

* Assistant Professor / Equivalent and above

Governance:

Vice - Chancellor's Secretariat

S.No	Name	Designation
1	Dr. Pradeep K. Sharma	Vice-Chancellor
2	Sh. Ajay Sharma	Secretary to Vice Chancellor

Registrar Office

S.No.	Name	Designation
1.	Dr. B.B. Gupta	Registrar
2.	Sh. Jatinder Raina	Dy. Registrar (Est.)
3.	Sh. Sanjay Sharma	Dy. Registrar (Secy.)
4.	Dr. Bharat Bhushan	Dy. Registrar (Acad.)
5.	Smt. Hansey Koul	Assistant Registrar (Est.)
6.	Sh. Tarseem Raj	Assistant Registrar (R&C)
7.	Sh. Manohar Lal	Assistant Registrar (Acad.)
8.	Sh. Atul Mahajan	Assistant Registrar (Legal)

Project Planning & Monitoring Office

S.No	Name	Designation
1.	Dr. Deepak Kher	PPMO
2.	Sh. Ajay Kumar	Asstt. PPMO

Comptroller Office

S.No.	Name	Designation
1.	Dr. S.K. Sen	Comptroller
2.	Sh. Sohan Lal Sharma	Dy. Comptroller
3.	Sh. Ganesh Dass	Dy. Comptroller
4.	Sh. Devinder Samnotra	Assistant Comptroller
5.	Sh. Manmohan Singh	Assistant Comptroller
6.	Smt. Veena Gupta	Assistant Comptroller
7.	Sh. Raman Sharma	Assistant Comptroller

Estates Division Office

S.No	Name	Designation
1.	Sh. T.R. Bhagat	Estates Officer
2.	S. Iqbal Singh Sudan	Executive Engineer
3.	Sh. Kewal Kumar Raina	Assistant Executive Engineer
4.	Sh. R.K. Kapoor	Assistant Comptroller

Directorate of Education

S.No	Name	Designation
1	Dr. T.A.S. Ganai	Director Education
2	Dr. S.B.Bakshi	Dy. Director, Student Welfare
3	Dr. A.K.Gupta	Medical Officer
4	Dr. (Mrs.) Sushma Gupta	Medical Officer
5	Sh. Keemti Lal	Assistant Registrar

Directorate of Extension

S.No.	Name	Designation
1.	Dr. K. S Risam	Director Extension
2.	Dr. R.R. Jat	Associate Director Extension
3.	Dr. R.K. Arora	Associate Director Extension

Directorate of Research

S.No.	Name	Designation
1.	Dr. J.P. Sharma	Director Research
2.	Dr. Parmod Baru	Associate Director Research
3.	Dr. Pradeep Wali	Associate Director Research
4.	Dr. M. C. Dwivedi	Farm Manager

Library

S.No	Name	Designation
1.	Dr. V.K. Razdan	University Librarian
2.	Smt. Shashi Prabha Raina	Assistant Librarian
3.	Sh. Leela Dhar Mengi	Assistant Librarian

Faculty of Agriculture, Chatha

Dean Office

S.No	Name	Designation
1.	Dr. R.M. Bhagat	Dean
2.	Smt. Raj Kumari Aima	Administrative Officer
3.	Sh. Vijay Sharma	Account Officer

Division of Agricultural Extension Education

S.No.	Name	Designation
1.	Dr. Rakesh Nanda	Professor
2.	Dr. S.K.Kher	Professor
3.	Dr. Rajinder Peshin	Associate Professor
4.	Dr. P.S.Slathia	Associate Professor
5.	Dr. Poonam Parihar	Assistant Professor
6.	Dr. L.K. Sharma	Assistant Professor
7.	Dr. J.S.Manhas	Assistant Professor

Division of Agriculture Engineering

S.No.	Name	Designation
1.	Dr. Sushil Sharma	Professor & Head
2.	Dr. R.K. Srivastava	Associate Professor
3.	Dr. J.P. Singh	Assistant Professor
4.	Er. Sushmita M. Dadhich	Assistant Professor

Division of Agronomy

S.No	Name	Designation
1.	Dr. Dileep Kachroo	Professor & Head
2.	Dr. B.C. Sharma	Professor
3.	Dr. Anil Kumar	Professor
4.	Dr. N.P. Thakur	Senior Scientist (Soils)
5.	Dr. Ashok Gupta	Senior Scientist
6.	Dr. Vijay Khajuria	Sr. Scientist
7.	Dr. Meenakshi Gupta	Sr. Scientist
8.	Dr. R. Puniya	Assistant Professor
9.	Ms. Neetu Sharma	Assistant Professor
10.	Dr. Veena Sharma	Technical Officer

Division Agricultural Economics & Statistics

S.No.	Name	Designation
1.	Dr. S. E. H. Rizvi	Professor & Head
2.	Dr. Jyoti Kachroo (Punjabi)	Professor
3.	Dr. Manish Kr. Sharma	Associate Professor
4.	Dr. Sudhakar Dwivedi	Associate Professor
5.	Dr. S. P. Singh	Assistant Professor
6.	Dr. Anil Bhat	Assistant Professor

Division of Biochemistry and Plant Physiology

S.No.	Name	Designation
1	Dr. S. A. Mallick	Professor & Head
2	Dr. Sanjay Guleria	Associate Professor
3	Dr. Moni Gupta	Associate Professor
4	Dr. Vikas Sharma	Assistant Professor
5.	Dr. Gurudev Chand	Assistant Professor
6.	Dr. B. K. Sinha	Assistant Professor

Division of Agroforestry

S.No.	Name	Designation
1	Dr. K.K. Sood	Professor & Head
2	Dr. S. K. Gupta	Professor
3	Dr. N. S. Raina	Associate Professor
4	Dr. L.M. Gupta	Associate Professor
5	Dr. Sandeep Sehgal	Associate Professor
6	Ms. Meenakshi Gupta	Assistant Professor

Division of Entomology

S. No.	Name	Designation
1	Dr. V. Kaul	Professor & Head
2	Dr. D. P. Abrol	Professor
3	Dr. Hafeez Ahmad	Professor
4	Dr. R. K. Gupta	Associate Professor
5	Dr. Uma Shankar	Assistant Professor
6	Dr. Devinder Sharma	Assistant Professor
7	Dr. Amit Kumar Singh	Assistant Professor

Division of Vegetable Science & Floriculture

S. No.	Name	Designation
1.	Dr. R.K.Samnotra	Professor & Head
2.	Dr. R.K.Gupta	Professor
3.	Dr. R. K. Pandey	Associate Professor
4.	Dr. Sandeep Chopra	Associate Professor
5.	Dr. Satesh Kumar	Assistant Professor
6.	Dr. Sanjeev Kumar	Assistant Professor
7.	Dr. Manoj Kumar	Assistant Professor
8.	Dr. Sheetal Dogra	Assistant Professor
9.	Dr. Arvinder Singh	Assistant Professor
10	Dr. Nomita Laishram	Assistant Professor

Division of Plant Breeding & Genetics

S.No	Name	Designation
1	Dr. A.K. Razdan	Professor & Head
2	Dr. Bikram Singh	Professor
3	Dr. S.K. Gupta	Professor
4	Dr. S.K. Mondal	Professor
5.	Dr. Anil Gupta	Chief Scientist
6.	Dr. Tuhina Dey	Sr. Scientist
7.	Dr. S.K. Sudan	Associate Professor
8.	Dr. R.R. Mir	Assistant Professor
9.	Dr. Sanjeev Kumar	Assistant Professor
10.	Dr. Anuradha Saha	Junior Scientist,
11.	Mr. Rajan Salalia	Junior Scientist
12.	Dr. Bupesh Kumar	Junior Scientist
13.	Dr. M.K. Pandey	Junior Scientist
14.	Dr. S.K. Rai	Junior Scientist
15.	Dr. Rajeev Sangra	Junior Scientist

Division of Plant Pathology

S. No.	Name	Designation
1	Dr. Anil Gupta	Professor & Head
2	Dr. V.K. Razdan	Professor
3	Dr. S. K. Singh	Associate Professor
4	Dr. Sachin Gupta	Assistant Professor
5	Dr. A.K. Singh	Assistant Professor
6	Dr. R.S. Sodhi	Assistant Professor
7	Dr. Vishal Gupta	Assistant Professor
8	Dr. Prachi Sharma	Assistant Professor

Division of Fruit Science

S.No.	Name	Designation
1	Dr. V. K. Wali	Professor & Head
2	Dr. Parshant Bakshi	Associate Professor
3	Dr. Deep Ji Bhat	Assistant Professor
4	Dr. Mahital Jamwal	Assistant Professor
5	Dr. Arti Sharma	Assistant Professor
6	Dr. Akash Sharma	Assistant Professor
7	Dr. Rajesh Kumar	Assistant Professor

8	Dr. Nirmal Sharma	Assistant Professor
9	Dr. Amit Jasrotia	Assistant Professor

Division of Food Science & Technology

S.No	Name	Designation
1	Dr Raj Kumari Kaul	Professor
2	Dr Anju Bhat	Associate Professor
3	Dr Jagmohan Singh	Assistant Professor
4	Dr Monika Sood	Assistant Professor
5	Dr. Julie Dogra	Assistant Professor

Division of Sericulture

S. No.	Name	Designation
1.	Dr. R.K. Bali	Assoc. Professor
2.	Sh. Darshan Singh	Asstt. Professor
3.	Dr. Kamlesh Bali	Asstt. Professor

Division of Soil Science and Agricultural Chemistry

S. No	Name	Designation
1	Dr K.R. Sharma	Professor & Head
2.	Dr. A. K. Raina	Chief Scientist (Water Management)
3.	Dr. A.K. Bhat	Professor
4.	Dr. M.P Sharma	Professor
5.	Dr. A. K. Mondal	Professor
6	Dr. Vikas Sharma	Associate Professor
7.	Er. N. K. Gupta	Senior Scientist
8.	Dr. Abhijit Samanta	Senior Scientist
9.	Dr. Vijay Bharti	Senior Scientist
10	Dr. B.R. Bazaya	Senior Scientist
11.	Dr. A.P. Rai	Assistant Professor
12.	Dr. Renu Gupta	Assistant Professor
13.	Dr. Peeyush Sharma	Assistant Professor
14.	Dr. Vivak Arya	Assistant Professor
15.	Dr. Sarabdeep Kour	Assistant Professor

Division of Microbiology

S. No	Name	Designation
1	Dr. Upma Dutta	Assistant Professor
2	Dr. Brajeshwar Singh	Assistant Professor

School of Biotechnology

S. No	Name	Designation
1	Dr. R.K.Salgotra	Coordinator
2	Dr. A K Singh	Assistant Professor
3	Dr. G K Rai	Assistant Professor
4	Dr. Sumita Kumari	Assistant Professor
5	Dr. Ravinder Singh	Assistant Professor
6	Dr. Manmohan Sharma	Assistant Professor
7	Dr. Susheel Sharma	Assistant Professor

School of Agri Business Managment

S. No	Name	Designation
1	Dr. Jyoti Kachroo (Punjabi)	Coordinator

FACULTY OF VETERINARY SCIENCES AND ANIMAL HUSBANDRY R.S.PURA

Dean Office

S.No.	Name	Designation
1.	Dr. M.M.S. Zama	Dean
2	Dr. M.S.Bhadwal	Associate Dean
3	Sh. Babu Ram	Asstt. Comptroller

Division of Pharmacology and Toxicology

S.No.	Name	Designation
1.	Dr. Mudasir Sultana	Professor & Head
2	Dr. Rajinder Raina	Professor
3	Dr. N.K. Pankaj	Assistant Professor
4	Dr. P.K. Verma	Assistant Professor

Division of Veterinary Public Health & Epidemiology

S.No.	Name	Designation
1.	Dr. S.K. Kotwal	Professor
2	Dr. M.A.Malik	Associate Professor
3	Dr. M.Rashid	Associate Professor
4	Dr. H.K.Sharma	Associate Professor
5.	Dr. Maninder Singh	Assistant Professor

Division of Veterinary Pathology

S.No.	Name	Designation
1.	Dr. Shagufta Azmi	Professor & Head
2.	Dr. Nawab Nashiruddullah	Associate Professor
3.	Dr. Shilpa Sood	Assistant Professor
4.	Dr. Shafiqur Rahman	Assistant Professor

Division of Veterinary Animal Husbandry Extension

S.No.	Name	Designation
1.	Dr. S.A. Khandi	Assistant Professor
2	Dr. Pranav Kumar	Assistant Professor

Division of Veterinary Microbiology

S.No.	Name	Designation
1.	Dr. Anil Taku	Professor & Head
2	Dr. Mohd Altaf	Professor
3	Dr. Sabahat Ghazal	Assistant Professor

Division of Parasitology

S.No	Name	Designation
1.	Dr. Rajesh Katoch	Professor and Head
2.	Dr. Anish Yadav	Associate Professor
3.	Dr. Sanku Borkataki	Assistant Professor
4.	Dr. Rajesh Godara	Assistant Professor

Division of Veterinary Physiology & Biochemistry

S.No.	Name	Designation
1.	Dr. P.S.Mahapatra	Associate Professor & Head
2.	Dr. Jonali Devi	Associate Professor
3.	Dr. Jafrin Ara Ahmed	Assistant Professor
4.	Dr. Aditi Lal Koul	Assistant Professor
5.	Dr. Pratiksha Raghuwanshi	Assistant Professor
6.	Dr. Kawardeep Kour	Assistant Professor

Division of Veterinary Anatomy

S.No	Name	Designation
1.	Dr. Kamal Sarma	Associate Professor & Head
2.	Dr. Shalini Suri	Professor
3.	Dr.Ashok Dangi	Assistant Professor

Division of Livestock Products Technology

S.No	Name	Designation
1.	Dr. Sunil Kumar	Associate Professor & Head
2.	Dr. Arvind Kumar	Assistant Professor
3.	Dr. Zuhaib Fayaz Bhat	Assistant Professor

Division of Teaching Veterinary Clinical Complex

S. No.	Name	Designation
1.	Dr. J S Soodan	Professor and Head
2.	Dr. H R Bhardwaj	Associate Professor
3.	Dr. Ashok Kumar	Assistant Professor
4.	Dr. Sharad Kumar	Assistant Professor
5.	Dr. R B Kushwaha	Assistant Professor

Division of Veterinary Medicine

S.No	Name	Designation
1.	Dr. Rajiv Singh	Professor & Head
2.	Dr. S.K. Gupta	Professor
3.	Dr. V. S. Wazir	Associate Professor
4.	Dr. Kafil Hussain	Assistant Professor
5.	Dr. Rajesh Agarwal	Assistant Professor
6.	Dr. Neelesh Sharma	Assistant Professor
7.	Dr. S.R. Upadhyay	Assistant Professor
8.	Dr. R. K. Bhardwaj	Assistant Professor
9.	Dr. Abha Tikoo	Assistant Professor

Division of Livestock Production and Management

S.No	Name	Designation
1.	Dr. Asma Khan	Associate Professor
2.	Dr. Depanjali Konwar	Assistant Professor

Division of Veterinary Gynecology and Obstetrics

S.No.	Name	Designation
1.	Dr. Utsav Sharma	Associate Professor & Head
2.	Dr. Sanjay Agarwal	Assistant Professor
3.	Dr. Sudhir Kumar	Assistant Professor
4.	Dr. Anil Kumar Pandey	Assistant Professor
5.	Dr. Nishi Pande	Assistant Professor

Division of Veterinary Surgery & Radiology

S.No.	Name	Designation
1.	Dr. A.K.Gupta	Associate Prof. & Head
2.	Dr. Ankur Sharma	Assistant Professor
3.	Dr. D.K.Dwivedi	Assistant Professor
4.	Dr. Pankaj Gupta	Assistant Professor

Division of Animal Genetics & Breeding

S.No	Name	Designation
1.	Dr R K Taggar	Professor & Head
2.	Dr. Nishant Kumar	Assistant Professor
3.	Dr. Dhirender Kumar	Assistant Professor
4.	Dr. Dibyendu Chakraborty	Assistant Professor

Division of Animal Nutrition

S. No.	Name	Designation
1.	Dr Ramesh Kumar Sharma	Professor & head
2.	Dr Ankur Rastogi	Assistant Professor
3.	Dr Anand K. Pathak	Assistant Professor

Instructional Livestock Farm

S. No.	Name	Designation
1.	Dr. Manpreet Kour	Assistant Professor
2.	Dr. Nazam Khan	Assistant Professor
3.	Dr. Vikas Mahajan	Assistant Professor
4.	Dr. Suraj Amrutkar	Assistant Professor

Regional/Sub-Stations/Centres/Schemes

Regional Agricultural Research Station, Rajouri

S. No	Name of the Scientist	Designation
1.	Dr. A.K.Sharma	Associate Director Research
2.	Dr. Vikas Sharma	Junior Scientist, (Agronomy)
3.	Dr. Deepak Kumar	Junior Scientist, (Plant Pathology)
4.	Dr. Narinder Panotra	Junior Scientist, (Agronomy)
5.	Dr. Saurav Gupta	Junior Scientist (Entomology)
6.	Sh. Anil Bhushan	Junior Scientist, (Vegetable Science)
7.	Sh. S.K. Mishra	Junior Scientist (Plant Pathology)
8.	Dr. Rajesh Kumar	Junior Scientist (Fruit Science)
9.	Dr. Rohit Sharma	Technical Officer

Maize Breeding Research Sub Station, Poonch

S.No.	Name	Designation
1.	Dr. A.K. Singh	Junior Scientist, (Entomology)
2.	Sh. Magdeshwar Sharma	Junior Scientist, (Entomology)
3.	Dr. Praveen Singh	Junior Scientist, (Plant Breeding & Genetics)

Regional Horticulture Research Sub-station, Bhaderwah

S No	Name	Designation
1.	Dr. Mahital Jamwal	Junior Scientist (Fruit Science)

2.	Dr. Neeraj Kotwal	Jr. Scientist (Etiology)
3.	Dr. Sanjeev Kumar	Jr. Scientist (Soil Science)
4.	Dr. D.K. Chauhan	Jr. Scientist (PBG)
5.	Dr. Rohit Sharma	Jr. Scientist (Agronomy)

Rainfed Research Sub-station for sub-tropical fruits, Raya

S.No.	Name	Designation
1.	Dr. Vijay Bahadur Singh	Junior Scientist (Plant Pathology)
2.	Sh. Vijay Kumar	Junior Scientist (Soil Science)
3.	Dr. Neeraj Gupta	Junior Scientist (PHT)
4.	Dr. Rakesh Kumar	Junior Scientist (Soil Science)

Dry Land Research Sub-Station Dhiansar

S.No.	Name	Designation
1.	Dr. Mahender Singh	Senior Scientist (Agronomy)
2.	Dr. Reena	Junior Scientist (Entomology)
3.	Dr. P.K.Rai	Junior Scientist (Soil-Science)
4.	Dr. V. K. Singh	Junior Scientist (Plant Pathology)
5.	Dr. Sonika Jamwal	Junior Scientist (Plant Pathology)
6.	Dr. Jai Kumar	Junior Scientist (Agronomy)
7.	Dr. Brinder Singh	Junior Scientist (Soil Science)
8.	Sh. Vikas Gupta	Junor Scientist (Agronomy)

Pulse Research Sub-Station Samba

S.No.	Name	Designation
1.	Dr. B.S. Jamwal	Chief Scientist (PBG)
2.	Sh. B.N.Singh	Senior Scientist (Agronomy)

Maize Research Centre, Udhampur

1.	Dr. R.S.Sudan	Senior Scientist, (PBG)
2.	Sh. Akhil Verma	Junior Scientist, (Agronomy)

Krishi Vigyan Kendras

S.No	Name	Designation

KVK, R.S.Pura

1.	Dr. Sanjay Khar	Programme Coordinator
2.	Dr. Rakesh Sharma	SMS (Agri. Extn.)
3.	Dr. Puneet Chowdhary	SMS (Agro Forestry)
4.	Mr. S.P. Gupta	SMS (Horticulture)
5.	Mr. Prem Kumar	SMS (Fisheries)

KVK, Rajouri

1.	Dr. Vikas Tandon	Programme Coordinator
2.	Dr. Vinod Gupta	Sr. Scientist (Extn. Education)
3.	Dr. Arvind Ishar	SMS (Entomology)
4.	Dr. A.K. Sinha	SMS (Ag. Engg.)
5.	Dr. Vishal Sharma	SMS (Agronomy)
6.	Dr. Parul Gupta	SMS (Animal Sciences)

KVK, Bhaderwah, Doda

1.	Dr. R.S.Bandral	Programme Coordinator
2.	Dr. B. Brahama	SMS (LPM)
3.	Ms. Ravneet Kour	SMS (Horticulture)
4.	Mr. Sanjay Khajuria	SMS (Agroforestry)
5.	Dr. Amit Singh Charak	SMS (Agronomy)
6.	Dr. Narinder Paul	SMS (Ag. Extension)
7.	Dr. G.N. Jha	SMS (Fisheries)

KVK, Reasi

1.	Dr. Shahid Ahamad	Programme Coordinator
2.	Dr. Sheetal Badyal	SMS (Home Sc.)
3.	Dr. Banarsi Lal	SMS(Ag. Extension)
4.	Mr. Lalit Upadhyay	SMS (Agro Forestry)
5.	Dr. Mandeep Singh Azad	SMS (Animal Sc.)
6.	Dr. Sanjay Koushal	SMS (Agronomy/ Soil Sciences)
7.	Dr. Suja Nabi Qureshi	SMS (Horticulture)

KVK, Poonch

1.	Dr. Sanjay Swami	Programme Coordinator
2.	Dr. Ajay Gupta	SMS (Agronomy)
3.	Sh. Suraj Parkash	SMS (Ag. Extension)
4.	Sh. Pawan Kumar	SMS (Ag. Economics)
5.	Dr. Muzaffar Mir	SMS (Horticulture)
6.	Dr. Muneeshwar Sharma	SMS (Plant Protection)

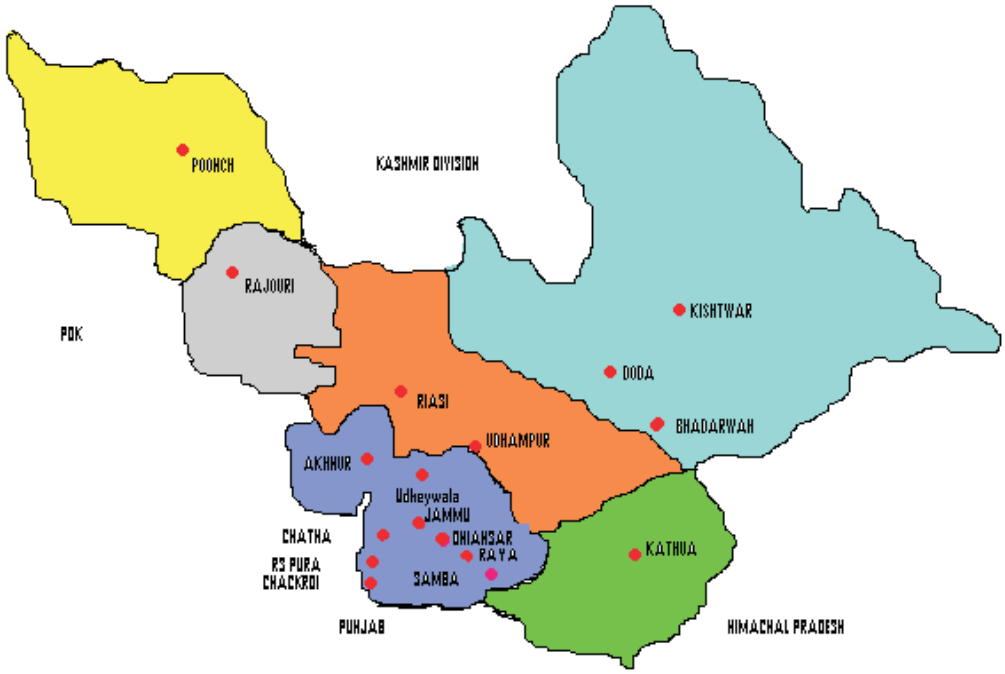
KVK Kathua

1.	Dr. Amrish Vaid	Programme Coordinator
2.	Dr. A.P. Singh	SMS (Agronomy)
3.	Dr. Vishal Mahajan	SMS (Agro Forestry)
4.	Dr. Berjesh Ajrawat	SMS (Extn. Edu.)
5.	Dr. Anamika Jamwal	SMS (Plant Protection)
6.	Dr. Neerja Sharma	SMS (Horticulture)
7.	Dr. Vijay Kumar Sharma	SMS (Animal Sc.)

- Not as per the Seniority*

SHER-E-KASHMIR
UNIVERSITY OF AGRICULTURAL
SCIENCES AND TECHNOLOGY OF JAMMU (J&K)

Territorial Jurisdiction of SKUAST - Jammu (Jammu Division)



Head Quarter:
Administrative Building
Main Campus, Chatha

Faculties:
Agriculture: Chatha/Udheywalla
Veterinary Sciences & AH: RS Pura

Schools:
School of Biotechnology
School of Agri-Business Management

Krishi Vigyan Kendras:
R.S.Pura (Jammu)
Bhaderwah (Doda)
Tandwal (Rajouri)
Reasi (Udhampur)
Poonch (Poonch)
Kathua (Kathua)

Research Stations/Sub Stations/Centre:

- Regional Agricultural Research Station, Rajouri
- Dry land Research Sub-Station, Dhiansar
- Rain fed Research Sub-Station for Sub-tropical Fruits, Raya
- Regional Horticulture Research Sub-Station,Bhaderwah
- Pulses Research Sub-Station, Samba
- Maize Breeding Research Sub-Station, Poonch
- Maize Research Centre , Udhampur
- Seed Production Farm, Chakroi, R. S. Pura

SHER-E-KASHMIR
UNIVERSITY OF AGRICULTURAL SCIENCES & TECHNOLOGY OF JAMMU (J&K)