ANNUAL REPORT

2005-2006

CHAUDHARY SARWAN KUMAR
HIMACHAL PRADESH KRISHI VISHVAVIDYALAYA
PALAMPUR-176 602 (H.P.) INDIA

ANNUAL REPORT

2005-2006

Chaudhary Sarwan Kumar
Himachal Pradesh Krishi Vishvavidyalaya
Palampur-176062 (H.P)

Published: June, 2007

Compiled and Edited under the directions of

Sh. Narendra Sharma
Registrar

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Printed and Published by Sh. Narendra Sharma, Registrar for and on behalf of CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur -176062 (H.P.)

Foreword

This Annual Report offers yet another opportunity to share with you the CSK Himachal Pradesh Krishi Vishvavidyalaya's achievements for the year 2005-06 and its hopes and aspirations for the year ahead.

For the University as a whole the year has been marked with significant progress towards realising plans and aspirations. The award of IS/ISO 9001:2000 certificate to the University illustrates our continuing drive towards international excellence in teaching, research and extension education. Increased budgetary support from the Prime Minister's special grant and other funding sources have enabled us to develop state of art infrastructures (laboratories, hostels, residences, trainees/farmers hostels, International Student Hostel, Working Women Hostel, indoor stadium etc.), at the campus as well as at the Research & Extension Centres including KVKs of the University. Scarcity of irrigation and hygienic drinking water supply in the University has ever been a burning issue. By systematic planning, installation of bore wells as well as renovation of existing gravity flow water system (*Kuhl*) we have increased our net irrigated farm area to about 90 ha and assured drinking water supply to residences, hostels, laboratories and livestock farm. Efforts have also been made to develop and extend the cultivated area by clearing the weeds/shrubs infested land, which will be utilized for commercial cultivation/seed production to enhance the domestic income. About 60 ha land has been added to the net cultivated area of the university. Several other projects, *viz.*, establishment of Biolab and Referral Lab equipped with modern high end equipments, Tissue Culture Lab at Dhaulakuan, Niche area of excellence in Organic Farming, Experiential learning for enhancing the vocational competence of graduates, Hill Farming School, etc. are at different stages of implementation. With the implementation of these projects, path is being paved to develop the Vishvavidyalaya into an International Hill Agriculture University. This will attract the students from abroad for various degree programmes thereby strengthening the budgetary structure of the University. We have also entered into Private-Public partnership for enhancing our research and extension programmes through external funding.

The University's mission statement emphasizes our commitment to impart quality education and promulgate research and scholarship. Efforts have been made in development of cost effective and on-farm viable technologies for efficient utilization of natural resources (soil, water, vegetation, environment), high yielding and disease/pest resistant varieties of different crops, mechanization of hill farms, livestock improvement and animal health care and assisting rural women in efficient home management and income generation. Concerted efforts have been made to transfer the innovative technologies to the farming community through field demonstrations, on-campus and off-campus trainings and visits.

The University has been able to make progress mainly because of the patronage and guidance received from the State Government and the Chancellor of CSK HP Krishi Vishvavidyalaya during the year under report. Without the budgetary support from the ICAR and Sate Government and other funding agencies, the development of the University would not have been possible. I express my sincere thanks and gratitude to all of them. The contribution of the Senate, Board of Management, Academic Council, Research & Extension Council, etc. in the smooth running of the entire business of the University has been equally important. I am highly grateful to these governing and decision making bodies. My thanks are due to the Statutory Officers and other staff members for their cooperation and sincere efforts made in the progress of CSK HPKV.

I place on record my appreciation to Shri Narendra Sharma, the Registrar and his team for compiling, editing and presenting this report in the present shape.

(D.S. Rathore)
Vice Chancellor

Acknowledgements

The Annual Report of the University is prepared in terms of section 45(1) of the H.P. Universities of Agriculture, Horticulture & Forestry Act, 1986 and statute 3.5(2) (i) of CSKHPKV Statutes, 1988.

The present Annual Report for the year 2005-06 contains the salient achievements/activities carried out by the University in the fulfilment of its aims and objectives concerning teaching, research and extension education in agriculture and other allied branches.

The compilation and publication of Annual Report is a collective effort of all the constituent units of the University. It was not possible for me to compile and present this report without the active cooperation of all Statutory Officers, Heads of Departments, Scientists, Teachers/ Officers/Employees of the University for which I am highly grateful.

I express my deep sense of gratitude to the Hon`ble Vice-Chancellor, Dr. D.S.Rathore for his valuable suggestions and guidance in bringing out the Report.

The efforts put in by the members of Annual Report Committee comprising Dr. O.P.Kaila, Dr. P.C. Sharma, Sh. S.K.Vashist, Sh. Param Dev Sharma in compiling and editing of the Report in the present shape, are highly commendable. The compiling & computerization of the Annual Report by Sh. Rajinder Singh, Jr. Assistant is also acknowledged. I place on record my appreciation to all of them.

(Narendra Sharma)
Registrar

University Authorities

The Senate, Board of Management, Academic Council, Research Council and Extension Council are the authorities of the University. The constitution of these authorities is as under: -

SENATE

1. Chancellor (Chairman)
2. Vice-Chancellor
3. Secretary (Agriculture), H.P. Govt.
4. Secretary (Animal Husbandry), H.P. Govt.
5. Director of Agriculture, H.P.
6. Director of Animal Husbandry, H.P.
7. Director of Horticulture, H.P.
8. Director-cum-Chief Warden of Fisheries, H.P.
9. Dean, Postgraduate Studies
10. Dean, College of Agriculture
11. Dean, Dr. G.C.Negi College of Vety & Animal Sciences
12. Dean, College of Home Science
13. Dean, College of Basic Sciences
14. Director of Research
15. Director of Extension Education
16. Comptroller
17. Estate Officer
18. Librarian
19. Students' Welfare Officer
20. Sh. Jagjiwan Paul, MLA, Sullah (Kangra)
21. Thakur Surinder Paul, MLA, Joginder Nagar (Mandi)
22. Dr. D.R.Thakur, Scientist, Department of Agril. Economics, CSKHPKV, Palampur
23 Dr. Anup Katoch, Asstt. Professor, Department of Extension Education, CSKHPKV, Palampur
24. Sh. Romesh Kumar, Supdt. (EC), o/o the Comptroller, CSKHPKV, Palampur
25. Registrar (Member Secretary)

BOARD OF MANAGEMENT

1. Vice-Chancellor (Chairman)
2. Vice-Chancellor, UHF, Solan
3. Secretary (Agriculture), H.P. Govt.
4. Secretary (Animal Husbandry), H.P. Govt.
5. Secretary (Finance), H.P. Govt.
6. Director of Agriculture, H.P.
7. Director of Animal Husbandry, H.P.
8. Director of Horticulture, H.P.
9. Director-cum- Chief Warden of Fisheries, H.P.
10. Dr. Manoranjan Kalia, Dean, College of Home Science, CSKHPKV, Palampur (upto 28.10.2005)
    Dr. S.K.Sharma, Dean, College of Basic Sciences, CSKHPKV, Palampur(w.e.f. 4.1.2006 to 14.6.2006)
11. Dr. S.S.Johl, Former Vice-Chancellor, Ludhiana, Punjab (upto 8.10.2005)
    Dr. Keshav Dutt Verma, Vill. Kogi, PO Durgapur, Shimla (w.e.f. 4.1.2006)
12. Dr. R.G.Verma, Director (AH) (Retd.), Sukh Dham Building, Near Hotel Grace, Shankli, Shimla-171001 (H.P)
13. Sh. Nagender Katoch, Vill. Talsan PO Mahalpatt, Tehsil Baijnath Distt. Kangra (w.e.f. 6.08.2005)
14. Smt. Kanta Mehra Ward No. 6, Nagrota Bagwan, Distt. Kangra (H.P) (w.e.f. 6.08.2005)
15. Mrs. Anita, V&PO Udaipur Distt. L&S (H.P) (upto 18.3.2006)
16. Smt. Janki Verma, V&PO Matiana, Tehsil Theog, Distt. Shimla (upto 28.10.2005)
    Smt. Neera Bhandari, V&PO Darang, Tehsil Palampur, Distt. Kangra (H.P) (w.e.f. 4.1.2006)
17. Sh. Kailash Sharma, Managing Director, Himalayan Lap Aromatics, V&PO Arsu, Distt. Kullu (H.P)
18. Er. J.N.Sharma, Retired Engineer-in-Chief (IPH), Tapovan Road, Sidhwari, Tehsil Dharamshala, Distt. Kangra (H.P) (w.e.f. 6.08.2005)
19. Dr. V.N.Sharda, Director, Central Soil & Water Conservation Research Training Institute, Kaulagarh Road, Dehradun (w.e.f. 27.09.2005)
20. Sh. R.P.S.Katwal, Director General, ICFR&E, Dehradun (upto 30.6.2005)
    Dr. S.P.Singh, Secretary, ICFR&E, Dehradun (w.e.f. 4.08.2005)
21. Registrar (Member Secretary)

ACADEMIC COUNCIL

1. Vice-Chancellor (Chairman)
2. Dean, Postgraduate Studies
3. Dean, College of Agriculture
4. Dean, Dr. G.C.Negi College of Vety & Animal Sciences
5. Dean, College of Home Science
6. Dean, College of Basic Sciences
7. Director of Research
8. Director of Extension Education
9. Director (Forestry Education), Forest Research Institute, Dehradun
10. Librarian
11. Students' Welfare Officer
12. Dr. Kahan Bassi, Professor, Department of Agronomy (up to 23.12.2005)
    Dr. B.C.Sood, Sr. Plant Breeder, Department of Plant Breeding & Genetics (w.e.f. 19.1.2006)
13. Dr. Satish Chander Sharma, Associate Director, Directorate of Research (upto 16.11.2005)
    Dr. H.N.Verma, Professor, Department of Agril. Engineering (w.e.f. 19.01.2006)
14. Dr. L.S.Sudhakar, Professor, Department of Vety Anatomy & Histology (upto 16.11.2005)
    Dr. Sanjeet Katoch, Professor, Department of Animal Breeding, Genetics & Bio-statistics (w.e.f. 19.1.2006)
15. Dr. C.L.Marwaha, Sr. Scientist (Animal Science), Department of Livestock Production Management
16. Dr. C.P.Awasthi, Professor, Department of Chemistry & Biochemistry
17. Dr. Kiran Katoch, Professor, Department of Botany & Zoology (up to 16.11.2005)
    Dr. S.K.Kaushal, Professor, Plant Physiology (w.e.f. 19.01.2006)
18. Dr. (Mrs) Avinash Sharma, Professor, Department of Family Resource Management
19. Dr. (Mrs) Shubhangna Sharma, Professor, Department of Human Development (upto 5.12.2005)
    Dr. (Mrs) Sumati Rekha Malhotra, Professor, Department of Food Science & Nutrition (w.e.f. 19.1.2006)
20. Dr. O.S.Parmar, Sr. Dairy Cattle Breeder-cum-Head, Department of Animal Breeding & Genetics, College of Vety. Sciences, PAU, Ludhiana (Punjab)

21. Dr. K.S.Kapoor, Incharge, IARI Vegetable Research Station, Katrain, Distt. Kullu (H.P.) (upto 26.08.2005)
Dr. T.S.Verma, Emeritus Scientist, Division of Vegetable Crops, IARI, New Delhi (w.e.f. 8.09.2005)
22. Registrar (Member Secretary)

RESEARCH COUNCIL

1. Vice-Chancellor (Chairman)
2. Director of Agriculture, HP
3. Director of Animal Husbandry, HP
4. Director-cum-Chief Warden of Fisheries, HP
5. Director, CPRI, Shimla
6. Dean, Postgraduate Studies
7. Dean, College of Agriculture
8. Dean, Dr. G.C.Negi College of Vety & Animal Sciences
9. Dean, College of Home Science
10. Dean, College of Basic Sciences
11. Director of Extension Education
12. Director of Research, UHF, Solan
13. Associate Directors, Regional Research Stations, Dhaulakuan, Bajaura and Kukumseri
14. Dr. P.C.Katoch, Professor, Department of Plant Breeding & Genetics (upto 14.05.2006)
15. Dr. H.B.Singh, Sr. Seed Production Scientist, Seed Production Unit (upto 30.09.2005)
Dr. Kahan Bassi, Professor, Department of Agronomy (upto 14.05.2006)
16. Dr. B. Prasad, Professor, Department of Vety Clinical Medicine, Ethics & Jurisprudence (upto 14.05.2006)
17. Dr. G.L. Bansal, Professor, Department of Plant Physiology (upto 14.05.2006)
18. Dr (Mrs.) S.R.Malhotra, Professor, Department of Food Science & Nutrition (upto 14.05.2006)
Two progressive farmers of HP, one from tribal area and another from non-tribal area
19. Sh. Megh Singh Rana, V&PO Goshal, Teh. Keylong, Distt. L&S (H.P.) (upto 14.05.2006)
20. Sh. Krishan Pal Sharma, V&PO Nagwain, Distt. Mandi (H.P.) (upto 14.5.2006)

One outstanding social worker

21. Kumari Satya Pitahan, Pitahan Vatika, Chirgaon, Distt. Shimla (H.P.) (upto 14.5.2006)

Two outside eminent scientists

22. Dr. M.R.Thakur, Former Vice-Chancellor, V&PO Raja-ka-Bag, Tehsil Nurpur, Distt. Kangra (H.P.) (upto 14.5.2006)
23. Dr. K.R. Kaundal, Director, National Research Centre for Plant Biotechnology, IARI, New Delhi
24. Registrar
25. Comptroller
26. Director of Research (Member Secretary)

EXTENSION COUNCIL

1. Vice-Chancellor (Chairman)
2. Director of Agriculture, HP
3. Director of Animal Husbandry, HP
4. Director-cum-Chief Warden of Fisheries, HP
5. Director, CPRI, Shimla
6. Dean, Postgraduate Studies
7. Dean, College of Agriculture
8. Dean, Dr. G.C.Negi College of Vety & Animal Sciences
9. Dean, College of Home Science
10. Dean, College of Basic Sciences
11. Director of Research
12. Director, Extension Education, UHF, Solan (H.P.)
13. Associate Directors, Regional Research Stations, Bajaura, Dhaulakuan & Kukumseri
14. Dr. Kahan Bassi, Professor, Department of Agronomy (w.e.f. 1.08.2005)
15. Dr. S.C.Sharma, Associate Director of Research (w.e.f. 1.08.2005)
16. Dr. K.K.Dogra, Professor, Department of Vety Biochemistry (w.e.f. 1.08.2005)
17. Dr. R.G.Sud, Professor, Department of Chemistry & Biochemistry (w.e.f. 1.08.2005)
18. Dr. (Mrs.) Avinash Sharma, Professor, Department of Family Resource Management (w.e.f. 1.08.2005)

Four progressive farmers of HP, one from tribal area and three from non-tribal area

19. Sh. Charan Dass Shashni, V&PO Goshal, Distt. L&S (H.P.)

20. Sh. Tidi Singh Negi, Vill.Saran, PO Chinon, Tehsil Banjar, Distt. Kullu (H.P.)
21. Sh. Chandu Lal, V&PO Chaukath, Tehsil Dehra, Distt. Kangra (H.P.)
22. Sh. Ved Parkash, Vill. Dedag, Tehsil Rajgarh, Distt. Sirmaur (H.P.)

One outstanding social worker

23. Sh. Ranvijay Singh Negi, Vill. Anabasa, PO Kansakoti, Tehsil Rohru, Distt. Shimla (H.P.)

Two progressive farmers women from agriculturist of the State, one from tribal and one from non-tribal area

24. Smt. Kamla Devi, w/o Sh. Partap Chand, Vill. Bari, PO Bharmour, Distt. Chamba (H.P.)
25. Smt. Bimla Mahant, Khoi Ropa Dhalpur, Kullu (H.P.)

Two outside eminent scientists

26. Dr. A.K.Mehta, Sr. Extension Specialist (Vegetable), Deptt. of Vegetable Crops, PAU, Ludhiana (Punjab)
27. Dr. Jeet Singh, Additional Director of Research, CCS HAU, Hissar (Haryana)
28. Registrar
29. Comptroller
30. Director of Horticulture, HP, Shimla - special invitee
31. Director, All India Radio, Shimla -special invitee
32. Director, Extension Education (Member Secretary)

Registrar's Report

STATUTORY OFFICERS & TEACHERS

	Regular	Officiating	Adhoc/Contract/Part Time basis	Total
Statutory Officers	4	8	-	12
Professors/equiv.	124	-	-	124
Assoc. Professors/ equiv.	132	-	-	132
Assistant Professors/ equiv.	108	-	8	116

APPOINTMENT/PROMOTION

Name of Post	Appointment	Promotion		Total
		CAS	PPS	
Statutory Officers	-	-	-	-
Professors/equivalent	-	7	-	7
Assoc. Professors/ equivalent	3	29	6	38
Assistant Professors/ equivalent	32	-	-	32

ACADEMIC

During the year under report, the enrolment and out-turn of students in different programmes of study was as under:-

Sr. No.	Name of the Programme	Enrolment	Out-turn
1.	B.Sc. (Agri.)	172	28
2.	B.V.Sc. & A.H.	196	35
3.	B.Sc. (Basic Science)	158	48
4.	B.Sc. (Home Science) (Hons)	36	7
5.	M.Sc. (Agri)	83	28
6.	M.Sc. (Home Science)	21	10
7.	M.V.Sc.	31	12
8.	M.Sc. (Basic Science)	29	11
9.	Ph.D. (Agri)	62	21
10.	Ph.D. (Home Science)	6	1
11.	Ph.D. (Veterinary Science)	6	3

The anti-ragging committees were constituted well before the start of the Academic Session 2005-06. These committees were authorized to exercise due vigilance to eradicate the inhuman evil of ragging in the areas/locations allotted to them.

The students had also been cautioned through notice/posters stating therein "ragging in any form in Educational Institutions has totally been banned by the Centre/State Govt. as per directive of Hon'ble Supreme Court. The student(s) found indulged in it is/are liable for punishment of fine, conviction, rustication/expulsion from the College/University."

No incident of ragging was occurred/reported during the year under report.

IMPORTANT DECISIONS OF THE BOARD OF MANAGEMENT

Following important decisions were taken by the Board of Management during the year under report (July, 2005 to June, 2006)

84th meeting (20.08.2005)

Item No. 6: The Board of Management approved the following ratio for promotion to the posts of Field Assistant and Laboratory Attendant for Category D Staff possessing academic qualifications of Matriculation & above, Middle and Literate(Others):

Matriculation and above	20%
Middle	20%
Literate (Others)	60%

Item No. 7: The Board of Management approved the deletion of the representative of the ICAR from the Selection Committee for the posts of Krishi Vigyan Kendras.

Item No. 9: The Board of Management approved the implementation of guidelines for the appointment and other terms and conditions of Research Associates/Senior Research Fellows/Junior Research Fellows on the analogy of ICAR.

Item No. 11(59)(12): On the recommendations of the Finance Committee, the Board of Management approved that while allowing reimbursement of medical expenses in future for treatment outside the State, it should be ensured that the codal formalities as laid down in Medical Attendance Rules/Govt. of H.P. instructions are also got fulfilled and the Medical Officer of the University Health Centre is advised to refer the patients for treatment outside the State strictly in accordance with the provision of Medical Attendance Rules.

Item No. 12: On the recommendations of the Academic Council, the Board of Management approved the amendment in Section 4(3), 15(1), (2) of the University Act, enabling the University to conduct Annual examination of Veterinary Pharmacist Training Course and awarding of Diploma/Certificate.

85th meeting (28.01.2006)

Item No. 4: The Board of Management approved to include a Scheduled Caste/Scheduled Tribe Officer on the Selection/Recruitment/Promotion Committees as members by amending statutes 3.11, 4.5, 5.8, 5.9 and 5.10 of CSKHPKV Statutes.

Item No. 9: The Board of Management approved the reservation for physically handicapped persons (deaf /orthopaedically handicapped) on the analogy of H.P.Govt. for non teaching posts as identified by Dr. R.C.Thakur (Director Research) Committee conveyed vide proceedings dated 27.10.2005. The Board of Management also approved 3 % reservations for physically handicapped persons (deaf /orthopaedically handicapped) in the teaching posts on the analogy of University Grants Commission. The Board of Management also approved the recommendations of the Dr. R. C. Thakur (Director Research) Committee that no suitable posts are available in the University for blind persons.

Item No. 18: The Board of Management approved the institution of Ph.D programme in the discipline of i) Biochemistry and ii) Microbiology, College of Basic Sciences.

Item No. 19: The Board of Management approved the institution of M.V.Sc. programme in the discipline of Veterinary Public Health, Dr. G.C.Negi College of Vety. & Animal Sciences.

Item No. 32: The Board of Management approved the implementation of revised pension scheme in the University on the analogy of H.P.Govt.

Item No. 33: The Board of Management approved the proposals submitted by Dr. Manoranjan Kalia, Dean, College of Home Science, CSKHPKV, Palampur i.e. a) Obtaining ISO 9001-2000 for the University and b) International Collaboration with the Kansas State University, Manhattan, Kansas, USA-signing of MOU thereof.

86th meeting (21.3.2006)

Item No. 10: The Board of Management approved the enhancement of fee. However, the Board of Management observed that the State Govt. may be requested to reimburse the amount of tuition fee exempted for girl students of BPL families as has been clarified in letter No. Agr-C(10)-2/2003 dated 25th February, 2006 of Secretary (Agriculture) to the Govt. of H.P.

Item No. 11: The Board of Management approved the grant of CAS Rules applicable to the Teachers/Scientists of the University to Assistant Librarian(s) and Deputy Librarians.

University Finance

The Government of Himachal Pradesh is the principal financing agency which meets 65-70 per cent of the total budget, both for plan and non-plan schemes of the University. The grants are received from the Department of Agriculture, Animal Husbandry and Fisheries of the State Govt. apart from other agencies sponsoring schemes/projects from time to time.

The Government of India, through ICAR, also provides grant and central assistance, quantum of which varies from year to year depending upon their assessment of our requirement for building, developmental activities and sanctioning of projects/schemes. About one third of the total grant of the University is met from the ICAR and other financing agencies. The grant-in-aid received from various agencies and also internal resources vis-a-vis expenditure incurred for the year 2005-06(un audited) are depicted in the table given below:

Head/ Department	**Opening Balance**	**Grant-in-aid (lac)**	**Domestic Income (lac)**	**Total (lac)**	**Expenditure (lac)**
A. STATE					
1. Agriculture	(-)76.49	2655.35	70.89	2649.75	2679.03
2. Animal Husbandry	(-)143.66	612.53	56.03	524.90	841.95
3. Fisheries	(-)0.53	41.27	-	40.74	32.89
Sub Total: A(State)	**(-)220.68**	**3309.15**	**126.92**	**3215.39**	**3553.87**
B. ICAR & Other					
1. ICAR Projects	90.77	444.64	4.14	539.55	444.24
2.Central Development Assistance/ Catch up grant	22.04	832.25	0.51	854.80	835.10
3. Adhoc Projects (ICAR)	75.80	204.11	0.59	280.50	138.00
4.Arrear of	(-)10.65	87.96	-	77.31	77.31

UGC scale					
5. Tea Board	(-)14.07	-	-	(-)14.07	-
6.Adhoc Projects (GOI)	59.70	225.91	-	285.61	175.45
7.ICAR (KVKs)	85.10	362.15	1.46	448.71	369.92
8. Other Misc.	408.24	275.02	1.41	684.67	242.59
Sub Total : B (ICAR)	**716.93**	**2432.04**	**8.11**	**3157.08**	**2282.61**
Grand Total A & B (State & ICAR)	**496.25**	**5741.19**	**135.03**	**6372.47**	**5836.48**

***Excluding securities & deposit works**

The grant-in-aid received from the State Govt. under Agriculture and Animal Husbandry (Plan/Non-Plan) and Fisheries (Plan) as well as various funding agencies, were utilized for carrying out teaching, research and extension education activities. The central assistance received from the ICAR was utilized for augmenting infrastructural physical facilities at the main campus and its Regional Research Stations. In addition to this, research activities were supplemented through ICAR schemes, adhoc projects, adhoc GOI and misc. projects. The expected receipt from various grant-in-aid agencies of the ICAR/GOI and other agencies during the year 2006-07 are envisaged as under:

Head/Department	**Sanctioned Grant-in-Aid (lac)**	**Anticipated Domestic Income (lac)**	**Total Receipt (lac)**
A. State			
1. Agriculture	2145.51 128.85 (additionality)	75.00	2349.36
2.Animal Husbandry	679.84	74.68	754.52
3. Fisheries	45.80	0.32	46.12
Sub Total :A	**3000.00**	**150.00**	**3150.00**

B. ICAR & Other			
1. ICAR Projects	1186.53	-	1186.53
2.Central dev. Assistance/ Catch up grant	1200.00	-	1200.00
3. Adhoc Projects (GOI/ICAR)	331.33	-	331.33
4.Self Financing Scheme	-	55.00	55.00
5. Others Projects	115.00	-	115.00
Sub Total : B (ICAR)	**2832.86**	**55.00**	**2887.86**
Grand Total (A&B) (State & ICAR)	**5832.86**	**205.00**	**6037.86**

The estimated total receipt shown under 'A' State is based on actual GIA sanctioned and anticipated domestic income. The anticipated expenditure during 2006-07 works out Rs. 3446.10 lac under state sector, which would be short by Rs. 296.10 lac. The State Govt. has been requested to provide additionality to this extent to run the activities smoothly.

Estate Organization

The Estate Organization is responsible for construction and maintenance of buildings, water supply and electrical installations in the University. During the year 2005-06, the Estate Organization carried out the following main works.

Construction of Working Women and Child Care Centre
The work has been completed during the year and up to expenditure for this work amounting to Rs. 62.76 lac only.

Construction of Residence for staff at KVK, Bara (Hamirpur)
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 13.97 lac only.

Construction of Trainees/Farmers Hostel at KVK, Una
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 21.01 lac only.

Construction of 6 Nos. Residences for staff at KVK, Una
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 22.20 lac only.

Construction of Dairy Demonstration Unit at KVK, Una
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 7.68 lac only.

Construction of Trainees/Farmers Hostel at KVK, Kangra
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 17.87 lac only.

Construction of 2 Nos. Demonstration Unit at KVK, Kangra
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 7.68 lac only.

Outside Works

Construction of Shopping Complex & Main Building for Bus Stand at Palampur
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 99.10 lac only.

Construction of building of Deputy Director, Animal Husbandry Department at Hamirpur
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 10.35 lac only.

Construction of Bio Control Lab. of Agriculture Department at Mandi
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 30.20 lac only.

Construction of Poultry Farm Building of Animal Husbandry Department at Palampur
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 9.45 lac only.

Construction of Farmers Information Centre-cum-Seed Store of Department of Agriculture at Paprola
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 7.20 lac only.

Completion of different jobs of Semen Processing Lab. of Animal Husbandry Department
The work has been completed during the year 2005-2006 and up to expenditure for this work amounting to Rs. 7.91 lac only.

Students' Welfare Organization

The Students' Welfare Organization exercise general control and supervision over the physical education programme and other co-curricular activities of the students, management of hostels and students welfare related activities for the holistic development of the personality of the students. During the period under report, following were the main activities: -

Sports and Co-Curricular Activities

- Inter-College Matches in Basket Ball (Men), Foot-Ball (Men), Volley-Ball (Men & Women), Table Tennis (Men & Women), Chess (Men & Women), Weight Lifting, Power Lifting and Best Physique (Men), Badminton (Men & Women) were conducted w.e.f. 7-29th September, 2005. University team of Table-Tennis selected after conducting inter-college matches and sent to represent the University in North-Zone Inter University Table-Tennis (Men & Women) Championship held at PAU, Ludhiana w.e.f. 28th November, 2005 to 1st December, 2005.
- A contingent of 31 students of constituent Colleges of University participated in North-Zone Inter University Youth Festival held at University of Jammu w.e.f. 30th November, 2005 to 4th December 2005. University team of Weight Lifting & Power Lifting participated in All India Inter University Weight Lifting & Power Lifting Tournaments held at Guru Nanak Dev University, Amritsar w.e.f. 21-23rd January, 2006.
- The University students also participated in 7th All India Inter Agricultural University Sports & Games Meet held at Maharana Partap University of Agriculture & Technology, Udaipur (Rajasthan) w.e.f. 23-27th February, 2006.
- The Annual Athletic Meet is the regular feature of the Organization. The 20th Annual Athletic Meet of the University was organized on May 18-19, 2006 in the University play ground in which about 300 athletes of constituent Colleges took part. The competitions in 25 Athletic events were conducted. Mr. Ajay Thakur of Dr. G.C.Negi College of Vety & Animal Sciences was declared as best athlete in men section whereas Ms Poonam Negi of College of Home Science was declared as best athlete in women section.

NCC Activities

During the year 2005-06, 133 students registered for NCC. Besides regular NCC parades, the following activities were undertaken:

- Two NCC cadets attended the National Integration Camp at Lapoke, Amritsar w.e.f. 16- 27th September, 2005.
- Ten NCC cadets attended the Army Attachment Camp at Jutogh w.e.f. 6th September to 17th September, 2005
- Parthenium Day was observed on 2nd September, 2005 in which all the NCC cadets and NSS volunteers of the constituent colleges participated. On the occasion lectures on Parthenium eradication were delivered. Soon after the deliberations a rally in the University campus displaying the posters, playcards to aware the people about the harmful effects of parthenium was conducted.
- 35 NCC cadets attended the annual training camp held at Dharamshala w.e.f. 20-31st October, 2005.
- Five NCC Cadets attended the National Integration Camp held at Warangal (AP) w.e.f. 22nd October to 4th November, 2005.
- Nineteen NCC cadets appeared for "B" certificate examination held at Dharmashala on 20th February, 2006 and twenty six cadets appeared for "C" certificate examination conducted at Sanjouli (Shimla) on 16th February, 2006.
- A project proposal on "Statement of Case for Raising of Remount & Veterinary (R&V) SQN NCC in the University was submitted to the Officer Commanding, 5 HP (I), Dharamshala.
- The piping ceremony of Prof. D.S.Rathore, Hon'ble Vice-Chancellor as Colonel Commandant NCC was organized on 5th May, 2006 in the University Auditorium. The Guard of Honour was presented to Prof. Rathore by the NCC cadets in the playground.

NSS Activities

- During the year under report 274 volunteers were registered under NSS. The NSS volunteers are regularly participating in social programmes such as literary programme, AIDS awareness programme, work, drug abuse, rehabilitation during natural calamities, environment protection and blood donation etc.
- The NSS volunteers also provided technical know how to the farming community in the field of Agriculture, Horticulture, Animal Husbandry,

Family Welfare and Nutrition etc. during NSS 10 days special camp held each year.

- The Vanmahotasava was observed by the NSS volunteers on 14th July, 2005.
- Orientation programme was organised by the Programme Officer for the NSS Volunteers of their respective units during which the NSS volunteers were acquainted with the aims and objectives of NSS.
- On 9th September, 2005 to mark the Literacy Day, a rally was taken from the University to the nearby villages to highlight the importance of literacy among the rural masses.
- One Day trekking trip for Jakhni Mata was organized for the NSS volunteers of College of Agriculture on 16th September, 2005.
- One day NSS camp was organised for the NSS volunteers of College of Basic Sciences at the adopted villages Badehar on 29th October, 2005. During the camp the NSS volunteers eradicated the lantana bushes and neela phulnu and cleaned the path.
- Quami Ekta Week was observed by the NSS volunteers from 19-25th November, 2005.
- 1st December, 2005 was observed as World AIDS Day by the NSS volunteers of various NSS Units of the University in the adopted villages. The masses were made aware about the AIDS and means of spread of this dreadful disease.
- On 3rd December, 2005, the International Day of Disabled persons was celebrated by the NSS volunteers to make aware about the problems being faced by the disable peoples and how we can help them in earning their livelihood to become self dependent.
- During the year four NSS special camps at Rajpur, Lohna (Palampur), Aima (Palampur) and Badehar, were organized for the NSS volunteers of College of Home Science, College of Agriculture, Dr. G.C.Negi College of Vety & Animal Sciences and College of Basic Sciences, respectively.

Students' Counselling and Placement Cell

The Students' Counselling and Placement Cell established in July, 2000 has been equipped with the latest means of communication and advertisements. Twenty computers have been provided with Internet facility and students are making best use of this facility for their study and placement in India and abroad. Campus interviews were conducted by MAPEX India Pvt. Ltd., Panchkula for the placement of Agricultural Graduates in their organization on 21st November, 2005 at Students' Counselling & Placement Cell. Thirty-five agricultural graduate/post graduates appeared for interview and fifteen candidates were selected.

An interaction Workshop on Establishment of Agri-clinics and Agri-Business was arranged under auspicious of National Bank for Agriculture and Rural Development for the Under-Graduates and Post-Graduates of constituent Colleges of this University on 16th February, 2006. The Institute of Applied Manpower Research (IAMR), New Delhi selected four students in a campus interview held in the first week of April 2006 in the Students' Counselling and Placement Cell.

University Health Centre

During the year under report, 13653 new patients and 3120 old patients were treated in the University Health Centre. The University Health Centre provided curative and preventive health care facilities to the students, staff and their dependents and also to the employees of IHBT (CSIR) Palampur. In addition, various investigations relevant to the patients and their follow up were done in the Health Centre Lab. The Health Centre has an Ambulance for transporting seriously ill patients to Dr. Rajendra Prasad Medical College and Hospital, Dharamshala, Indira Gandhi Medical College and Hospital, Shimla and PGI, Chandigarh.

Information Technology Centre

Information Technology Centre provided the following services during the year under report:

- Internet Browsing at Computer Centre to University Staff and Students not connected to LAN
- Scientific Computer Analysis of Research Data
- Computer related Technical Support to University offices/departments
- 91 new users were registered
- 380 users were served
- Computer training for Technical Staff – two batches
- Computer training for Ministerial Staff
- Software development & maintenance and data base support to Comptroller's office.

University Network Services

University Network Services (UNS) consist of three sections: (1) University Network maintenance, (2) Web site maintenance and (3) Library automation. University has broadband of 256 kbps bandwidth via leased line connectivity through BSNL, Dharamshala and 256 kbps DAMA VSAT connectivity through ERNET, New Delhi. Under University Network Services (UNS), the following facilities are being provided:

1. Upgraded and fast Local Area networking facility through Gigabit Switch and Server with latest specifications installed at UNS Control Room.

2. Maintenance and upgradation of university web site (http://hillagric.ernet.in) through Apache Web Server in the Red Hat Linux environment. Educating and providing Web space to the different departments/offices for uploading their web contents in the University web site.

3. Email services to the UNS subscribers through Email POP server in the Red Hat Linux environment through ERNET with backup facility.

4. Hardware and Software Firewall facility in order to provide direct internet connectivity to UNS users and provide security from hackers.

5. Professional Support Service through M/s OST Electronic Ltd., Chandigarh (Distributor of M/s D-Link) via their Resident Engineer at university campus for providing LAN/WAN day to day network services like "Server Management, Operating System Management, Data base Administration, Backup and Restore Activity, User account management, Management of POP server, Monitoring of Email traffic, Mail Storage and delivery management, Immediate rectification of Email/Internet/Connectivity problems in university network user level, Administration of RAS and IPDSLAM server, Administration of Firewall for security purpose, Administration of leased line equipments and ERNET DAMA VSAT equipments and connectivity".

6. Assistance in programming, processing and display of Entrance Examination result of College of Veterinary and Animal Sciences on the

university web site through ASP programming and database searching techniques.

7. Remote Access Server (RAS) facility for Dial-up, ADSL and LAN extender connectivity through existing EPABX lines. UNS is also maintaining service to the distantly located units/departments through LAN Extenders and ADSL broadband using existing EPABX cable.
8. CD Reference Search facility through CD Cache Server (LAN BIT) provided to all UNS users in the university campus.

9. University Library computerization activity through LIBSYS Application software installed Library Information Server.

10. Internet connectivity provided to university offices like Information Technology Centre and Bio-Technology Centre for Internet based trainings.

University Local Area Network is connecting computers at all four colleges, Library building, Directorate of Extension Education, Administrative Block, seven hostels, Department of Fisheries, Seed Production Unit, Department of Horticulture, Department of Tea Husbandry &Technology, Students Counselling and Placement Cell and students hostel by using Star Network Topology and different types of network equipments and cables (Fibre optic, UTP and EPABX copper). Currently there are above 225 subscribers for Internet and Library Services through UNS. Another feat in the upgradation of LAN facilities includes the systematization of LAN equipment for better manageability by providing a proper housing for them.

In *Library Automation and Networking*, two servers (CD-Net Tulsient Server for providing Reference Search Service through University LAN and Library Information Server through LIBSYS Library Application Software) and 15 workstation nodes of computers connecting all sections of the Library for facilitating various library related jobs and services. Library Automated Service takes care of following aspects:

1. Supervision of Library Information Server/CD-Net functionality and their maintenance.

2. Library Data base management.

3. Attending routine Hardware/Software related problems and getting the problems overcome.

4. CD-caching of Reference related CDs.

5. Periodical checking and backup of data in the Library Information Server.

6. Development and updating of Library home page (http://210.212.45.102)

7. OPAC services in Library Information Server.

8. Coordinating the queries (Internal as well as External) related to Library Network and services.

Project Services Division

The Project Services Division monitored and facilitated the technical and financial settlement of World Bank funded NATP sub-projects with the concerned Funding Agencies. At CSKHPKV, during the currency of NATP, research, extension and infrastructure built-up at the University Headquarter and its research stations was supported with a funding of Rs.1534.38 lac. The break-up under individual mode/system is given in Table 1.

Table 1. Details of mode / system wise support under NATP at CSKHPKV

S.No.	Mode / System	No. of Projects	Budget (Rs. in Lakh)
1.	Production System Research	32	782.09
2.	Mission Mode	11	180.42
3.	Innovations in Technology Dissemination	4	181.96
4.	Competitive Grant Programme	10	178.63
5.	Organization and Management	4	201.28
6.	Indigenous Technology Knowledge	10	10.00
	Total	**71**	**1534.38**

A consolidated compilation of results of NATP was published as "NATP in the Service of Mountain Farmers – The Impact of NATP".

The overall budget utilization and technical activities of different projects have been rated highly satisfactory by the NATP-PIU.

Besides, continuation of the NATP-Nodal Office, during the year the Project Services Division, looked after the activities of (i) Nodal Office for National Information System on Agricultural Education in India on Network (NISAGENET)- An ICAR Cess Fund project, under which the survey schedules to prepare different databases were got completed from different units/departments of the University. Project Services Division was also entrusted with the responsibility of financial administration of the University Network Services besides the technical activities which were being looked after by the UNS since 2003 and administration of Information Technology Centre. Project Services Division remained actively involved in preparing the projects to be submitted under National Fund and different component of NAIP to the ICAR.

University Library

The library caters to the needs of the students, teachers, extension specialists and the staff of the main Campus of the University as well as the scientific staff stationed at the Research Stations, Sub Stations and KVKs of the University. The library system constitutes of the following libraries:

1. University Library at Palampur.
2. Regional Research Station Library, Dhaulakuan (Sirmaur)
3. Regional Research Station Library, Bajaura (Kullu)
4. Regional Research Station Library, Kukumseri (Lahaul & Spiti)

Besides, Research Sub-Stations and KVKs have their own small workable collection of books. The Library is designated as FAO Depository Library and all the FAO publications are received free of cost.

Building

The library has its own building with a seating capacity of 200 readers at a time, besides 26 research cubicles to accommodate senior research staff. It has a carpet area of 4093 m^2 and capacity to accommodate around 1.6 lac publications.

The Regional Research Station Library, Dhaulakuan (Sirmaur) and the Regional Research Station Library, Bajaura (Kullu) are run by the professionally qualified staff and accommodated in separate rooms at the respective Research Stations. The library at Bajaura is being computerized and the OPAC and CDROM services are being made available to the staff there. The working space at both these Stations is sufficient.

Budget

The expenditure of the University Library at Palampur during 2005-06 was as under:

1.	Salary	Rs.	79,04,836.00
2.	Books/Indian Journals	Rs.	6,90,476.00
3.	Miscellaneous	Rs.	3,89,205.00
	Total	**Rs.**	**89,84,517.00**

Library Automation Status

The University Library is the on-line library and its resources can be assessed from any part of the world at http://hillagric.ernet.in or http://202.41.109.100. The library is connected with the LAN and WAN with 256 KBPs dedicated leased line of the BSNL. The Library offers the facility for Web based On-line Public Access Catalogue (OPAC), Literature Search, On-line Journals and the other library facilities are available on the Desktop of the library user at a time, convenient to them on the LAN. However on request, the Stations clients of the library and other ICAR and SAU readers can approach the library for the services by post or by e-mail. The on-line library is not only saving the time of its readers but of the staff as well.

The following Data Bases are available in the library:

1. AGRICOLA (1970 to Date)
2. AGRIS (1975 to date)
3. CAB Abstracts (1910 to Date)
4. FSTA (1969 to Date)
5. MEDLINE (1950 to Date)
6. J-Gate (On line Access plus CD-ROM)
7. Indian Science Abstracts
8. Forestry Database (FRI, Dehradun)
9. NUCSSI
10. FAOSTAT (World –wide statistical information) (1961-2000)

Besides the above, the library has prepared its own Data Bases for:

1. Theses Holdings (Theses)
2. Back volumes of the journals in the library (Journals)
3. Books available in the library (Books)
4. FAO publications (Books)

Teaching

The University library imparts teaching at postgraduate level and offered the 1+0 credit hour course entitled, “Literature and Technical Writing” to the postgraduate students of the University during the year under report.

On-line Journal portals

The library is subscribing to on-line journals through the following On-line Journal Publishers/portals

1.	CABI Primary e-Journals
2.	Journals @OVID
3.	J-Gate On-line Journal Portal

Electronic Resources Centre

This section is the nerve of the on-line library services and most widely used for CD-ROM Searching, On-Line Journal Access, On-line Public Access Catalogue (OPAC), Accessing the Internet, etc. The Library System Administrator and Joint Library System Administrator are helping in providing the on-line services, offered through this centre.

Acquisition and Technical Section

The Acquisition Section acquires the publications for use of the readers. The books are purchased on the recommendations of the teachers, staff and the other readers. The technical section is responsible for the processing of the books for being placed in the different sections of the library for the use of its readers.

Books are classified according to the Dewey Decimal Classification. The cataloguing of the books is done according to the Anglo-American Cataloguing Rules and the Subject Headings are assigned from the Library of Congress Subject Heading List.

After the complete processing of the books, the new books are displayed in the "New Arrivals Section" and are retained for some days for bringing it to the notice of the readers before transferring them to the shelves in the library.

The position of the publications added in the university library during 2005-06 is as under.

Books	769
Periodicals	567
Theses	170
Total	**1506**

The following is the position of books collection (documents) in the library for the period 2005-06:

University Library	73523
RRS Library, Dhaulakuan	4206
RRS Library, Bajuara	2504
Research Sub Stations	3067
Total	**83300**

Periodical Section

The current journals and the back volumes are the most important reading material for teaching as well as research. The scientists as well as PG students are always in dire need for looking into the latest reading material from this section. The journals and the serial publications are acquired through regular subscription, standing order, exchange and even 'gratis'.

The Regional Research Station libraries also subscribe to some approved journals to meet the requirement of the scientists at the research stations located at the respective places. Even the Sub-stations are subscribing to some Indian journals useful for their research work. The University library at Palampur sends the desired material on Inter-Library Loan or by photo-copying of the required material to the scientists.

The current journals are displayed on the display racks and the back volumes are placed on the open shelves of the racks.

The position of the back volumes available in the University Library is as under: -

1.	University Library, Palampur	26842
2.	Regional Library, Bajaura	1059
3.	Regional Library, Dhaulakuan	1745
	Total	29646

Gifts and Exchange

The library has established exchange relations with various national, international organizations and institutions for the receipt of publications in

exchange with the publications of this University. The publications from such sources are received as ‘gratis’ also.

The following table gives a glance of the publications received on ‘gratis’ during the year 2005-2006:

Books	121
Periodicals	217
Miscellaneous	177
Total	**515**

Documentation and Reprographic Section

The Documentation & Reprographic Services are being provided for the benefit of the readers. A nominal charge of @50 paise per exposure is charged from the students and the staff for taking photocopies of the library material. During the year 2005-06, the library earned Rs. 25,017/- only.

Inter - Library Loan

Inter library loan facilities are made available to the Regional Research Station libraries and the Sub-Station libraries. Mostly, the latest journals are sent on Inter-library loan besides the books. The scientists of IVRI Regional Centre, Palampur and IHBT, Palampur also take advantage of the library through ‘Inter-library loan’. Requests from NISCAIR, New Delhi and INFLIBNET, Ahmedabad etc. have also been met by sending photocopies of the articles at national level.

Book Bank Scheme

The students are entitled to draw up to 3 books at a time for full semester by depositing nominal rental charges with minimum of Rs. 5 and maximum of Rs. 10 for a book depending on its price. The rental income is utilised for the purchase of new titles or new editions of the prescribed text books. During the year under report, 281 students were benefited from this scheme and Rs.4,505/- were collected as rental charges from them.

Bindery Section

The library has its own Bindery with modern binding equipments where trained and qualified staff and spacious accommodation for keeping the machinery and other material, is available. During the year under report, 1968

publications were bound which includes 982 journals and 986 books, besides the miscellaneous items.

Special Collection

The FAO Depository Library has completed 23 years of its existence. The library is regularly receiving FAO publications directly from Rome. Besides books, serial publications are also being received. FAO publications are very popular with scientists/teachers and postgraduate students and serial publications are useful for detailed statistical data. The total publications in this collection up to the end of June 2006 were 3121.

Himachal Collection

A separate collection of books on Himachal and other hilly areas under the heading "Himachal Section" has been established in the library. Publications relating to the cultural and developmental activities of the hill area are procured to enrich the collection. The Himachal Kala-Sanskriti and Bhasha Academy, Shimla also donates the publications on Himachal Pradesh and books written by Himachali authors from time to time.

Theses Section

Theses Section is the nerve of the library. This section is particularly helpful to the postgraduate students. Copies of the theses of M.Sc., M.V.Sc and Ph.D. students of this University and Dr. Y.S. Parmar University of Horticulture & Forestry, Solan are placed in this Section. Apart from the printed copy of the theses, it is also mandatory for the students to submit the soft copy of the theses at the time of theses submission, which is stored in the library.

A total of 170 theses were added to the library during the period under report. Total numbers of theses up to the end of June 2006, were 3223.

Circulation Section

This section remains open on all working days from 10.00 AM to 4.00 PM. The section is automated, using Bar codes and Hand Held Bar Code Scanners.

Membership, Visitors & Circulation

Membership

Sr. No.	Category	Palampur	Dhaulakuan	Bajaura
1.	Teachers	218	29	50
2.	Non-teachers	79	-	-
3.	P.G. Students	141	-	-
4.	U.G. students	404	-	-
	Total	**842**	**29**	**50**

Readers/Visitors & Books Circulation

Library	Visitors	Books issued	Books returned	Books Consulted	Total Circulation
Palampur	36502	10221	9794	230908	250923
Dhaulakuan	1289	147	165	4507	4819
Bajaura	596	162	167	2433	2762
Total	**38387**	**10530**	**10126**	**237848**	**258504**

Resident Instructions

College of Agriculture

The College of Agriculture, established in 1966, is a major constituent college of the University. The college has twelve departments, viz., Agricultural Economics, Agricultural Engineering, Agronomy, Agro-forestry & Environment, Extension Education, Entomology, Horticulture, Plant Breeding & Genetics, Plant Pathology, Soil Science, Vegetable Science & Floriculture and Tea Husbandry & Technology besides Advanced Centre for Hill Bioresources and Biotechnology, Forage Production & Grassland Management Centre, Centre for Human Resource Development and Seed Production Unit.

The college has total teaching faculty strength of 57 out of which 28, 20 and 9 are Professors, Associate Professors and Assistant Professors, respectively.

During the academic year 2005-06, 46 students were admitted to B.Sc. (Agri.) 4 years degree programme. In all 172 students got registered in different years of programmes. During the period under report, 28 students (23 boys and 5 girls) completed their B.Sc. (Agri.) degree.

The financial assistance to the students of B.Sc. (Agri.) programme is provided in the shape of scholarships/ stipends/ fellowships from different agencies to the tune of Rs. 1,26,000/-

College of Agriculture conducted North and South India Educational Tour to acquaint the students with the latest agricultural technology by way of visiting different prestigious Agricultural Universities, Research Institutes/places of interest relating to their studies.

The various departments of College of Agriculture taught 63 courses to the undergraduate students. In addition to these courses, 7 courses of Basic Sciences, one course of Home Science, one course of Vety & Animal Sciences, NSS and NCC (Non-creditable courses) of Students' Welfare Organization were also taught to B.Sc. (Agri.) students. Based upon the third Deans' Committee Reports of the ICAR and Deans' Committee Meeting, Rural Agricultural Work Experience course of 21 credit hours is being offered for full semester in the 7th semester of 4-year degree programme of the college. In addition, 25 per cent course contents on Hill and Mountain Agriculture have been included in the

course catalogue. In the fourth Dean's Committee Report of ICAR held in January, 2006, provision for multidisciplinary elective courses is also being made mandatory.

Dr. G.C.Negi College of Veterinary and Animal Sciences

The college was established in July, 1986 to meet the academic, research and extension needs in the field of Veterinary and Animal Sciences of the State. The college has 18 departments in addition to a Livestock Farm and Veterinary Clinic.

The college has a total faculty strength of 53 out of which 13 are Professors, 24 Associate Professors and 16 Assistant Professors.

During the period under report, 37 students were admitted in B.V.Sc & A.H. programme and 35 students completed their degree requirement. The total enrolment during the year in UG programme was 196. During this year, 4 students qualified the ICAR-JRF examination conducted by ICAR, New Delhi with stipend whereas 14 students qualified the same without stipend to secure seats in postgraduate programme in different veterinary institutes of the country.

College of Basic Sciences

The College of Basic Sciences, established in 1991, has six departments, namely, Botany & Zoology, Chemistry & Biochemistry, Languages, Microbiology, Plant Physiology and Statistics, Mathematics & Physics. The college offers compulsory courses to different undergraduate programmes and minor and supporting courses to M.Sc. and Ph.D. programmes of the constituent colleges of the University.

The college has a total teaching faculty strength of 28, comprising 12 Professors, 4 Associate Professors and 12 Assistant Professors.

During the year 2005-06, 49 students were admitted in undergraduate programme and 48 students completed their degrees in undergraduate programme. The College Merit Scholarship @ Rs. 250/- P.M. was awarded to 15 undergraduate students. Amar Shaheed Capt. Saurabh Kalia scholarship was

awarded to 3 students. The budgetary provision of teaching schemes of the college was Rs. 2.06 crores.

College of Home Science

The College of Home Science, established in 1991, has 5 departments i.e. Food Science and Nutrition, Family Resource Management, Human Development, Textiles & Apparel Designing and Home Science Extension Education. The College has 4 years under-graduate degree programme leading to B.Sc. Hons. degree in Home Science and postgraduate programmes leading to M.Sc. degrees in the disciplines of Food Science and Nutrition, Family Resource Management, Human Development and Ph.D programme in the discipline of Food Science and Nutrition.

The college has 19 staff members in the teaching faculty with a Dean, 7 Professors, 5 Associate Professors and 6 Assistant Professors. During the year, 15 students were admitted to the undergraduate degree programme and 7 students completed requirements for the award of B.Sc (Home Science) (Hons) degree.

The college offered 77 undergraduate and 62 postgraduate courses including one course offered to the undergraduate students of College of Agriculture by the Department of Food Science and Nutrition.

College merit scholarship (Rs.250/-PM) was awarded to 5 B.Sc students. 3 undergraduate students of the college qualified the ICAR Junior Research Fellowship (JRF) Examination.

Postgraduate Studies

The office of the Dean, Postgraduate Studies was established in September, 1996 with the sole motive of bringing uniformity in the postgraduate programmes of all the constituent colleges and quality improvement in postgraduate research & education.

At present, the University has M.Sc. programme in 16 disciplines, M.V.Sc. programme in 11 disciplines and Ph.D programme in 14 disciplines. The College of Agriculture is imparting M.Sc. in 10 and Ph.D. in 7 disciplines, the College of Veterinary and Animal Sciences is imparting M.V.Sc. in 11

disciplines and Ph.D. in 6 disciplines, the College of Basic Sciences is imparting M.Sc. in 3 disciplines and the College of Home Science is imparting M.Sc. in 3 disciplines and Ph.D. in 1 discipline.

During the academic year 2005-06, the enrolment in Master's and Doctoral Programme was as under:-

College	**M.Sc./M.V.Sc.**	**Ph.D.**	**Total**
College of Agriculture	83	62	145
College of Vety and Animal Sciences	31	6	37
College of Home Science	21	6	27
College of Basic Sciences	29	-	29
Total	**164**	**74**	**238**

During the period under report, 86 students received Master's and Doctoral degrees. The college-cum-discipline wise out-turn break up is as under:-

	No. of students	
College of Agriculture	**M.Sc.**	**Ph.D.**
Agricultural Biotechnology	8	-
Agronomy	3	2
Entomology	3	4
Extension Education	1	-
Plant Breeding & Genetics	2	2
Plant Pathology	2	2
Soil Science	3	5
Vegetable Science	6	6
College of Home Science		
Food Science & Nutrition	6	1
Human Development	2	-
Family Resource Management	2	-

College of Basic Sciences

Chemistry & Biochemistry	5	-
Microbiology	5	-
Plant Physiology	1	-

College of Vety & Animal Sciences

Animal Nutrition	1	-
Animal Reproduction & Gyn.	2	-
Vety Pathology	2	-
Vety Pharmacology	2	-
Vety Surgery & Radiology	1	3
Vety Physiology	1	-
Vety Clinical Medicine	1	-
Vety Microbiology	2	-

Scholarship/Stipend Assistance

A sum of Rs. 7,57,304/- was disbursed to the M.Sc./M.V.Sc. and Ph.D. students of the University as scholarship and stipend for pursuing their studies.

Self Financing Scheme

The self-financing scheme was started in the academic year 2000-01. The students are being admitted at M.Sc./M.V.Sc. and Ph.D. level under self financing scheme irrespective of the domicile.

Research Achievements

I Agriculture

A) Crop Improvement

Rice

- Varundhan (Kunjan-4), a japonica variety has been identified for release in high altitude areas (above 1000 m) of the state particularly in Kullu Valley & parts of Mandi and Shimla districts where people prefer short grain low amylose sticky rice. Varundhan is a semi-dwarf, early maturing (140-145 days) and cold tolerant variety having field tolerance to blast. It gave an average yield of 3200 kg/ha in station trials conducted from 2002 to 2005. It is proposed as a replacement for old varieties Norin-18 & Naggar Dhan which have now become susceptible to blast.

- Under irrigated conditions, rice genotype HPR-2502 gave the highest yield of 7240 kg/ha, followed by HPR-2308 (7150 kg/ha), HPR-2321 (6730 kg/ha), HPR-2352 (6470 kg/ha) and HPR-2322 (6340 kg/ha).

- Fifteen new early maturing rice hybrids were evaluated at RWRC, Malan. Hybrid RPH-2 gave the highest yield of 7580 kg/ha, followed by AG-8 and UPRH-2216 with yields of 7210 & 6710 kg/ha, respectively and out yielded the local check HPR-2143 significantly by more than 35 per cent. Only RPH-2 was free from leaf & neck blast but was very late in flowering.

- Progenies of cross HPU-741/IR 18482-P3-2-3-4-1-1-1 performed well under rainfed conditions in station as well as in coordinated trials. HPR-2529 (3540 kg/ha) & HPR-2530 (3750 kg/ha) also performed well both under irrigated as well as rainfed conditions.

- In upland paddy, out of 11 lines received from Directorate of Rice, Hyderabad, lines 2503 (1125 kg/ha), 2505 (1060 kg/ha), and 2511 (913 kg/ha) performed better in respect of disease and yield at Sundernagar.

Wheat and Barley

- HPW- 211, a new wheat variety recorded highest grain yield under station

trial (4890 kg/ha) at Dhaulakuan and on farm trials (3660 kg/ha). This variety manifested resistance against yellow and brown rust, loose smut, Karnal bunt and moderately resistant to powdery mildew.

- HPW-249, another high yielding disease resistant wheat cultivar is being evaluated as a final year entry in the coordinated programme. It gave a zonal mean grain yield of 2600 kg/ha and 4920 kg/ha under timely sown rainfed and irrigated conditions, respectively.

- A new wheat variety, HPW-251 for early sown rainfed conditions gave mean grain yield of 3130 kg/ha and exhibited resistance to yellow and brown rusts. Similarly under timely sown rainfed and irrigated conditions, the wheat strains HPW-266 and HPW-267 showed high grain yield potential with resistance to rusts.

- Winter wheat genotypes viz.; Seri Pangi, Bocon and Amargas were observed to be significantly superior and early (15 days) than the check, Saptdhara.

- Barley entries BHS-366 (3465 kg/ha) and HS-265 (3261 kg/ha) recorded significantly higher forage yields compared to BHS-169 and HBL-276 (each 2466 kg/ha) at Bajaura.

- At Kukumseri, barley genotypes HBL-280 (2174 kg/ha) and HBL-402 (2129 kg/ha) were found significantly superior compared to Dolma (1494 kg/ha) and HBL-276 (1268 kg/ha).

- In barley (dual purpose), highest grain yield was observed for entry BHS-365 (2578 kg/ha) followed by HBL-415 (2407 kg/ha) and HBL-410 (2314 kg/ha) at Kangra.

- Cultivar BHS-371 (1781 kg/ha) followed by BHS-369 and VLB-98 (1721 kg/ha) were found higher yielders at Berthin.

Maize

- The five top ranking maize hybrids viz.; S-105 (7900 kg/ha), POLO (7560 kg/ha), 9572-A (7530 kg/ha), PG -2475 (7470 kg/ha) and JKMH-1512 (7310 kg/ha) were identified for cultivation based upon multi locations

testing and recommended to the Department of Agriculture.

- DKLM-9, DKLM-73 and DKLM-91 of maize were found immune to Erwinia stalk rot. Inbred line DKI-9772 was highly resistant and consistent in its reaction.

- On the basis of performance in the coordinated trials, in specialty corn types HQPM-1 and FQH-4567; Quality Protein Maize (QPM), and Win Orange-a sweet corn variety, were identified for Zone-1 of the State. Composite KLM-7 (early maturing) and KLM-14 (medium maturing), were promoted to initial evaluation trials, on the basis of their performance in the zonal trials over multi locations.

- Medium maturing composite L-173 and early maturing composite L-201 which showed 13.5 and 10.0 per cent superiority over check Navjot and Kiran, respectively, in initial evaluation trials at Bajaura were promoted for final stage testing in coordinated trial.

Pulses

- Amongst bold seeded desi chickpea genotypes HPG-148 and HPG-126 stabilized higher plant stand and were also high yielder giving at par yield of 1510 and 1424 kg/ha, respectively, compared to 1465 kg/ha of the check variety HPG-17.

- Based upon 7 years testing, chickpea variety FG-897 with mean yield of 1850 kg/ha significantly out yielded the check Himachal Chana-2 by 12.7 per cent.

- In desi gram, lines viz.; 88-2 (1840 kg/ha) and ICCV-95503 (1780 kg/ha) and in Kabuli type chickpea, ICCV-95603 (1126 kg/ha) and CSU-8927 (1119 kg/ha) were found superior.

- In an advanced varietal trial at Berthin, blackgram cultivars viz.; HPBU-131 and HPBU-183 gave significantly higher yield of 794 kg/ha compared to the check varieties UG-218 (575 kg/ha) and Pant U-19 (615 kg/ha).

- Mash genotypes KU-59, KU-102, KU-154, KU-4-223, KU-5-553

significantly surpassed the check UG-218 at Dhaulakuan and were resistant to anthracnose and MYMV.

- Four summer moong genotypes viz.; SML-589, RMG-492, RMG-732 and SML-668 gave significantly higher yield as compared to check Pusa Baisakhi at Dhaulakuan. SML-668 is proposed for zone-I, having an average yield of 1270 kg/ha as compared to Pusa Baisakhi (940 kg/ha) and SML-134 (950 kg/ha). It matures in about 75-85 days and is resistant to Cercospora leaf spot and yellow bean mosaic virus.

- A tall pre-released genotype of pea, KTP-4 gave significantly higher dry grain yield (903 kg/ha) followed by dwarf VL-7 (764 kg/ha) at Berthin. KTP-4 also recorded lowest powdery mildew incidence (score of 4.0) followed by Alaska (5.0).

- On the basis of the mean yield of 5 years, lentil genotype L-207 (1295 kg/ha) out yielded the check variety EC-1(1136 kg/ha) and gave about 14 per cent more yield at Dhaulakuan.

- Fifteen improved and promising lines of rajmash were evaluated at Sangla for biotic stresses and yield. SR 6-9 and SR 5-3 were found to be the most promising lines.

- At Dhaulakuan, CP-3, CP-9, CP-24 of cowpea cultivars out yielded the check variety C-475, however, C-475 and C-236A gave highest seed yield in mono cropping as well as in intercropping.

Oilseeds

- Himani (KL-214), a new variety of linseed has been identified for *Utera* system in zone-I (Haryana, Punjab, H.P. and J&K during AICRP Group meeting.

- Eleven promising entries of gobhi sarson including 2 local checks were evaluated at Kangra, Palampur, Bajaura, Dhaulakuan and Sundernagar. Based upon the average of five locations, the entry ONK-1 recorded the highest seed yield (1343 kg/ha) as compared to the best check Neelam (1258 kg/ha). The entry ONK-1 has also been promoted to AVT-II (Zone-I) under AICRP trial testing during *Rabi*, 2006-07.

- In gobhi sarson, Hybrid Hyola PAC-401 recorded the highest seed yield (1390 kg/ha) followed by ONK-1 (1343 kg/ha) as compared to the check Neelam (1258 kg/ha).

- Based upon the average of three years data recorded at Kangra, the entry OMK-3 of mustard appeared as top seed yielder (1201kg/ha) as against the checks RCC-4, RL-1359 and Varuna which recorded 885 kg/ha, 866 kg/ha and 726 kg/ha seed yield, respectively.

- In brown sarson, CLM-03-29 was the highest yielder (1260 kg/ha) followed by HPBS-1 (1242 kg/ha) with 40.2 per cent oil content as compared to local check KBS-3 (862 kg/ha & 39.6 % oil).

- The entry BCRS-17 of karan rai recorded highest seed yield (1733 kg/ha) in comparison to the best National check Kiran (1640 kg/ha), however, it remained statistically at par with the local check JTC-1(1654 kg/ha) at Kangra.

- Based upon performance over the years under pure crop of soybean at Palampur, strains P 9-2-2 gave the highest yield (1937 kg/ha) followed by P 6-1 (1760 kg/ha) compared to check variety Bragg (1723 kg/ha).

- At Kangra, the soybean entry P 3-2-1 was the top seed yielder (2266 kg/ha) followed by P 1-2 and P 62-3-1-1-1.

Under-utilized crops

- Release proposal of Sangla B-1 of buckwheat was submitted to Central Variety Release Committee.

- At Kukumseri, buckwheat lines Sangla-1 (2167 kg/ha), IC-20 (2083 kg/ha), EC-216629 (2000 kg/ha) significantly out yielded the check KBB-3 (833 kg/ha) and USDA-1 (750 kg/ha) in grain yield.

Forage crops

- In Napier-bajra hybrid, entry PNB-93 (29.29 t/ha) was found superior than the check variety NB-37 (22.65 t/ha).

- In Setaria clonal selections, S-17 (45.63 t/ha) has been found superior for green fodder yield as compared to the check S-92 (23.75 t/ha).

- Sorghum-Sudan grass private sector fodder hybrid PG-3055 was evaluated alongwith two checks at three different locations namely Palampur, Kangra and Sundernagar during *Kharif* season. Over different locations PG-3055 yielded the highest tonnage (22.86 t/ha) of green fodder in three cuttings.

- A berseem variety BL-180 and two varieties of oats namely JHO-99-1(single cut) and RO-19 (multi cut) were identified for cultivation in the Northern Hill Zone.

Vegetables

- Garden pea lines viz.; DARL-401, VRPMR-10 and VRPMR-9 gave pod yield at par with Palam Priya. CHPMR-II was resistant to powdery mildew while VRPMR-10, VRPMR-9, CHPMR-1, CHP-1, FC-II and CHP-II were moderately resistant. In mid season varietal trial, DGP-4 gave the highest yield (6.43 t/ha), which was at par with VL-3 (check) and PC- 531(6.07 t/ha). PC-531 recorded the highest shelling percentage and possessed green attractive long pods.

- In cabbage, sporophytic self-incompatibility (SSI) and cytoplasmic male sterility (CMS) are being investigated for their use in the development of hybrids. The hybrids Pushkar and Royal Challenger were found promising with respect to head yield and compactness of the heads.

- In tomato, bacterial wilt resistant genotype, Hawaii-7998 (25.2 t/ha) performed better than the checks, Palam Pride (15.0 t/ha) and BT-1 (15.3 t/ha) at Bajaura in the coordinated varietal trials.

- Evaluation of bell pepper lines for bacterial wilt resistance construed that lines EC-464107, EC-464108 and PBC 631 were found resistant to the disease and exhibited more than 90 percent plant survival in bacterial wilt sick plots. These lines are being used in hybridization program for breeding high yielding bacterial wilt resistant lines with bell-shaped fruits. Fifteen bacterial wilt resistant lines with acceptable horticultural traits

have been developed after 6 back crosses. These fixed lines are being tested for their stability and yield potential.

- In brinjal, two bacterial wilt resistant hybrids viz., DPBWRBH-1(round-oblong) and DPBWRBH-2(oblong) have been identified and will be evaluated in bacterial wilt prone pockets of the state during 2007. Like previous year, Arka Nidhi (resistant check) recorded the minimum incidence of bacterial wilt whereas Pusa Purple Long (susceptible check) recorded the highest incidence of the disease.

- In cucumber, cross combination EC-173934 x K. Paprola produced highest yield (50.2 t/ha).

- Chilli genotypes, JKC-101 and Anugrah have shown resistance against bacterial wilt.

- In okra, line IC-90269 gave the highest fruit yield followed by IC-32398 and IC-31850. However, line IC-169469 was found promising for shorter inter-nodal length.

- In onion, the highest bulb yield of 52.6 t/ha was obtained in DPO-1 whereas the recommended variety Patna Red gave bulb yield of 35.5 t/ha.

- In French bean, the genotypes MFB-4 (24.5 t/ha) and MFB-3 (23.6 t/ha) gave the highest pod yield.

- In common methi, the DPF-205 gave highest green yield (800 kg/ha) and seed yield (1600 kg/ha) whereas Pusa Kasuri gave highest fresh yield of 950 kg/ha and seed yield of 600 kg/ha. In common methi, all other genotypes except DPF-205 were highly susceptible to powdery mildew. At Akrot, methi cultivar Methi RK gave higher seed yield over other tested cultivars.

B) Crop Production

Cropping systems

- Under mid hill conditions of Himachal Pradesh, among rice based crop sequences, rice-radish-potato crop sequence gave the highest rice

equivalent yield and was found to be the most remunerative giving net returns of Rs. 74,448/ha/annum.

- Under low hill conditions of the State (Kangra and Una), rice-potato-potato followed by rice-wheat-frenchbean were found to be better crop sequences than existing rice-wheat sequence giving significantly higher paddy equivalent yields and resulted in net returns of Rs. 1,39,821 and 83,827/ha, respectively.

- Crop sequences maize-toria-wheat followed by maize-gobhi-sarson gave significantly higher maize equivalent yield over traditional maize-wheat cropping sequence in farmers' fields under low hill rainfed conditions.

- Following maize + soybean or maize + cowpea (green manuring) cropping sequence, not only increased the maize grain yield by 21 and 43 per cent but also had a residual effect on the succeeding gobhi sarson crop with yield advantage of 34 and 14 per cent, respectively over pure maize cropping system.

- Intercropping of wheat + linseed in row ratio of either 4:4 or 6:4 produced significantly higher linseed equivalent yield and net returns compared to intercropping of gram + linseed irrespective of row ratios or with linseed +lentil.

- The intercropping of two rows of urdbean in between two rows of lavender was found more remunerative as compared to sole lavender crop during first year of planting at Salooni.

- In Lahaul Valley, pea-pea sequence (Azad P 1-Arkel or Palam Priya - Arkel) was observed to be the most productive and remunerative crop sequence as compared to pea-buckwheat (Azad P 1-Local buckwheat) sequence. 30-40 per cent of sole crop yield of rajmash, frenchbean and pea could be harvested when intercropped in between the rows of potato.

- Tomato and capsicum were found to be highly remunerative new cash crops for Lahaul Valley situation of the State giving significantly higher potato tuber equivalent yield and resulting in Rs. 2, 97, 329 and Rs. 2, 97,112 net returns/ha, respectively.

- Among different crop sequences evaluated under Lahaul Valley conditions, pea-summer squash cropping sequence was found to be significantly highly productive and remunerative (net profit Rs. 1,83,946/ha) followed by pea + carrot cropping system.

- Among the cropping systems, the decrease in system productivity with organic production module was highest (62.2%) in maize (green)-radish-cauliflower-french bean sequence whereas it was lowest (23 %) in maize-french bean-garlic sequence.

Nutrient Management

- Vermicompost is a better option to FYM application as revealed by increased crop productivity and improved crop quality. Application of 100 % NPK +20 t vermicompost/ha resulted in highest biological yield (15.83 t/ha) of French bean as compared to 100 % NPK + 20 t FYM/ha (13.12 t/ha)

- In the event of FYM scarcity and soils being acidic in nature, use of recommended application rates of N, P and K along with lime (@ $1/10^{th}$ lime requirement in furrows to *kharif* crops except paddy) is a beneficial preposition under situations where availability of organics (FYM) is limited.

- Use of soil test crop response in yield targeting of wheat crop is better than the recommended state level dose. However, if this N is applied through LCC_3 (leaf colour chart value), the benefit: cost ratio could be increased by way of saving 52 kg N/ha.

- Conservation tillage along with seed soaking resulted in better crop stand, thereby increased the grain yield of wheat with significant improvement in deviation from targeted yield under rainfed conditions.

- System of Rice Intensification (SRI) yielded higher than conventionally transplanted rice (CTR). The 20 x 20 cm spacing produced higher grains than 30 cm spacing in SRI and CTR. Continuous flooding was better than intermittent flooding. Water use efficiency was higher in CTR than SRI irrespective of hill spacing and water management treatments.

- Dhaincha + 50% N + compost and sunhemp + 50% N+ compost were the best treatments in increasing the total biological, grain and straw yield in a rice-wheat cropping sequence at Dhaulakuan.

- Significantly highest rice equivalent yield (7034 kg/ha) was obtained when 50% NPK (through fertilizers) + 50% N (through FYM) was applied to rice and 100% NPK (through fertilizers) to wheat in rice-wheat sequence. This treatment also recorded highest sustainability index based upon last 15 years results.

- In farm yard manured plots (5 t FYM/ha), split application of nitrogen at 15 DAS (50% N) and 25% N each at maximum tillering and panicle initiation stages produced highest yield of upland rice (3800 kg/ha). Lower seed rate of 60-80 kg/ha resulted in grain yield at par with 100 kg/ha.

- In rice (Hybrid)-wheat cropping sequence, an application of 100 kg N+120 kg K_2O along with 40 kg S+5 kg borax and 20 kg $ZnSO_4$ gave significantly highest rice equivalent yield (7915 kg/ha).

- In zero tilled wheat levels, broadcasting of full NPK before first irrigation proved significantly superior over traditional method of placement of fertilizer (1/3rd N and full P & K as basal + 2/3rd N at 1st node).

- Studies on the influence of FYM and micronutrients on the productivity of seed potato under cold desert conditions of Himachal Pradesh revealed that all the fertility levels tested were significantly superior to farmers' practice in influencing plant height, shoots/hill, tubers/hill, seed tuber yield, net return and B:C ratio. Based upon yield and net return, 100 per cent NPK + FYM 20 t/ha + borax 10 kg/ha + $ZnSO_4$, $MnSO_4$ and $FeSO_4$ each at 2 kg/ha was recommended under Spiti valley conditions of the State.

- Application of 20 tonnes vermicompost/ha + 100% NPK + biofertilizer (seedling dip/seed inoculation) gave maximum yield in okra (4.8 t/ha), cauliflower (20.7 t/ha) and French bean (12.1 t/ha) which was at par with recommended practice.

- In sprouting broccoli, application of 20 tonnes of farmyard manure/ha in combination with recommended dose of NPK gave the highest yield for the consecutive second year. The effects of biofertilizers were non-significant. Genotypes Palam Samridhi and Fiesta (Hybrid) produced at par yield under different transplanting dates.

- At Akrot, higher seed yield (319 kg/ha) of broccoli was obtained with 180 kg nitrogen at 60 x 60 cm spacing.

- Knotting of leaves one month prior to harvesting and spray of maleic hydrazide at concentration of 2000 ppm two weeks prior to harvesting along with removal of leaves after curing (1 week) under shade resulted in minimum weight loss of garlic bulbs along with minimum incidence of rotting/drying/sprouting in storage.

- Higher bulb yield of onion was obtained by applying 100 kg phosphorus/ha over its lower doses at Akrot. Higher yield (20.4 t/ha) of onion bulbs was obtained in cultivar Patna Red followed by DP-1.

- Based upon two years data highest curd yield (71.9 t/ha) of cabbage was obtained with the application of 100 kg N, 80 kg P_20_5 and 30 kg K_20/ha at Kukumseri.

- Application of 100-50-75-40-5-1 kg N-P-K-S-Zn-B resulted in highest rhizome yield and lowest incidence of rhizome rot, *Phyllosticta* and *Rhizoctonia* leaf spot diseases in ginger at Dhaulakuan.

- In case of turmeric, 80 kg potassium with 90 kg nitrogen per hectare gave the highest rhizome yield (14.6 t/ha) followed by 60 kg potassium and 90 kg nitrogen per hectare (13.5 t/ha) at Akrot.

- Toria (var. Bhawani) responded upto 40 kg/ha sulphur irrespective of source in giving higher seed yield at Akrot.

- Amaranthus variety IC-35407 gave significantly highest grain yield (2030 kg/ha) at 40 kg N/ha. This variety also out yielded all other varieties under Lahaul Valley conditions.

- Inoculation of Setaria grass (*Kharif* planting) with *Azotobacter* and white clover with *Rhizobium* (Rabi sowing) resulted in significant improvement in the forage yield of this forage production system.

- Lantana infested wastelands can be put into productive use with the planting of improved grasses *viz.* Setaria, Napier –bajra hybrid and Kikuyu grass after chemical control of lantana i.e. cutting of bushes in September with application of glyphosate (1%) on regenerated growth in November.

- After lantana reclamation, *Setaria* produced highest green fodder yield (26.1 t/ha) alongwith more crude protein yield (386 kg/ha) followed by Napier bajra hybrid, Green panic and Kikuyu grass.

- Under Network project on Organic farming at Bajaura, it was observed that nutrient management system resulted in better yields of cauliflower and maize, whereas, higher marketable yield of frenchbean and cabbage was recorded with inorganic system during *Kharif* 2005. However, during *Rabi* 2005-06, all the crops, viz., radish, cauliflower and garlic recorded maximum marketable yield under integrated management practice followed by inorganic system.

- In another experiment, significant higher marketable yield of cauliflower was recorded in tomato-cauliflower-radish cropping system as compared to coriander in capsicum-coriander-spinach cropping sequence during *Kharif* 2005. Among the nutrient sources, significantly higher marketable yield was found in FYM (Rock phosphate enriched) + vermicompost (½ + ½), followed by 100 per cent FYM enriched with Rock phosphate. However, during *rabi* 2005-06, higher marketable yield was obtained in radish under tomato-cauliflower-radish cropping system compared to spinach.

C) Crop Protection

Diseases

- Rice, entries HPR-2317 and HPR-2322 were found resistant to leaf blast and HPR-2130 against neck blast. Bacterial blight incidence was found

increasing and line HPR-2505 was found resistant in wheat, HPW-236, HS-473, TL-2942, UP-2645, VL-875 and VL-32 were resistant to leaf and stripe rusts whereas in maize the entry JH-11031 was found to be free from all the major diseases. In rajmash, the entries Hans, KRC-22, Kentucky Wonder, Premier, Contender, KRC-4, SR-74, KR-295, KRC-16, KRC-7, KRC-11, KRC-13 and KRC-12 were found resistant to prevalent strains of bean common mosaic virus.

- In soybean entries SL-751, RKS-25, AMS-353, MACS-1038, JS99-72, SL-733, TS-58, NRC-72 and PS-1409 were found resistant to moderately resistant to brown spot and target spot diseases. Chickpea genotypes, HPG-17, 810800 and 333 were found to be resistant to wilt.

- Screening of 387 accessions of linseed against prevailing diseases like rust, wilt and bud blight under severe epiphytotic conditions at Kangra, revealed that entries Ayogi, BAU-9606, BAU-175-4, BAU-2K-14, Surbhi, LC-2021, LCK-9209, Polf-5, Polf-15 and Polf-19 were found highly resistant to rust.

- On line forecasting system of rice blast has been developed, which is available on website www.intech.res.in/ragavha/rbpred.

- The combination of Trifloxystrobin 25% +tebuconazole 50% -75WG at 37.5+ 75 g a.i./l and 50+100 g a.i./l was found best in controlling the rice blast, sheath blight and grain discolouration.

- Results of the experiments conducted for two years at Malan revealed that all the biopesticides tested were significantly effective in reducing the leaf blast severity and neck blast incidence in rice as compared to untreated check. Achook (0.5%) and Biotos (0.25%) were found to be the most effective biopesticides. The maximum mean yield was recorded by application of Achook (3441.5 kg/ha) followed by Biotos (3194.5 kg/ha) as compared to untreated check (2531.0 kg/ha).

- Two foliar sprays of Tilt (@ 0.1%) after 45 and 65 days of transplanting were found effective in containing brown leaf spot of paddy.

- One spray of *Trichoderma viride* @ 5 g/litre at Zadok stage (30-39) with another spray of Tilt @ 0.1% at growth stage (41-49) have given complete control of Karnal bunt of wheat.

- Wheat bran based formulation of bioagent was found most effective against *Rhizoctonia solani* and *Fusarium solani*, while seed treatment with bioagents (JMA-4 and JMA-11) and soil application of sodium alginate pellets were found effective in the management of wilt/root rot complex of pea.

- Seed treatment with bioagent (*T. harzianum*) + soil application with wheat bran based formulation + mulch (*Eupatorium*) and seed treatment with Spictaf (0.5 %) + soil application with wheat bran + mulch (*Eupatorium*) recorded significantly lower incidence of pea root rot - wilt complex.

- Seed dip-treatment with Panchgavya (for 1 hour) improved the germination of cauliflower (87 to 94 %). Seed treatment with carbendazim and soil drench with Panchgavya significantly controlled damping-off in cauliflower.

- Seed dip treatment with the fungicide Ridomil + Bavistin and Curzate + Bavistin was highly effective in the management of rhizome rot of ginger. Treatment with Nuvan 76 EC @2 ml /kg seed treatment and one spray of Nuvan @2ml/litre of water after one month of sowing in ginger proved superior over all other treatments.

- Three foliar sprays of fungicides Tilt or, Contaf @ 0.1% were highly effective in reducing leaf and pod infection of Alternaria leaf blight in mustard whereas Ridomil MZ 72 WP (0.25%) and Indofil M-45 (0.2%) were found effective for the control of white rust in mustard.

- Fungicides Indofil Z-78 (0.25%) and Bavistin were highly effective in reducing Cercospora leaf spot severity in sesame.

- A spray schedule of Ridomil MZ-Kavach- propineb was found effective in controlling late blight of potato.

- Seed treatment with carbendazim @ 2 g/kg seed and soil application of neem cake @ 400 kg/ha gave better control of collar/root rot (*Fusarium, Rhizoctonia, Sclerotium*) of cowpea.

- Seed treatment with thiram + carbendazim @ 2 g/kg seed followed by alternate sprays of Contaf and Karathane @ 0.05% each at 15 day interval gave better management of powdery mildew (*Erysiphe trifolii)* and collar rot (*Sclerotinia trifoliorum*) of white clover.

- For the management of root rot and stem rot diseases of berseem, seed treatment with thiram 0.25% + carbendazim 0.2% were found highly effective.

Insect-pests

- At Malan, amongst the tested insecticides, monocrotophos @ 500 g a.i./ha proved to be the most effective insecticide against stem borer, *Scirpophaga innotata* in rice with 2.26% white ears (WE) as compared to 7.12 percent WE in acetamiprid (0.4%) + chlorpyriphos (@ 510 g a.i./ha).

- Experiments conducted on the management of white grubs and cut worms revealed that chlorpyriphos (400 g a.i./ha), quinalphos (400 g a.i./ha) and Marker 10 G (2 kg a.i./ha) reduced white grub infestation by 87.8-92.7 per cent in potato. Similarly in maize, quinalphos (800 g a.i./ha) and chlorpyriphos (800 g a.i./ha) were found better in reducing damage of *Lepidiota stigma* by 54.2-57.2 per cent.

- Spinosad (0.0024%), nuvaluron (0.01%) and thiodicarb (0.005%) treatments proved effective against potato tuber moth in potato under field conditions and were superior to cypermethrin (0.015%) and *Chelonus blackburni* + cypermethrin (0.0075%) treatment.

- In chillies and cabbage, methyl parathion 2% DP @ 25 kg/ha, fenvalerate 0.4% DP @ 30 kg/ha and Marker 10 G @ 15 kg/ha gave complete protection to the seedlings from cut worms at Bajaura.

- The granulo virus isolated from *Pieris brassicae* larvae was evaluated alone and in combination with *Bacillus thuringiensis* and Econeem on

cole crops and found to be effective in suppressing the larval population of *P.brassicae*. The virus was found to be safer against major parasitoid *Cotesia glomeratus* both under field and laboratory conditions.

- At Bajaura, cabbage cv. `Varun' transplanted on 30$^{th}$ August and cauliflower cv. `Amazing' transplanted on 12th December did not need insecticidal sprays since on cabbage, incidence of *Plutella xylostella* and *Plusia orichalcea* was below economic threshold level. On cauliflower, incidence of *Pieris brassicae* was recorded in the second fortnight of April which was on the outer leaves and by this time the crop was near harvesting and thus there was no need to adopt any control measures.

- Endosulphan (0.05%), cypermethrin (0.0075%), lambdacyhalothrin (0.004%) and *Trichogrammatoidea bactrae* (25,000 adults/ha)+Econeem (@ 3 ml/l of water) proved effective against diamondback moth of cabbage. *Diadegma fenestralis* and *Cotesia plutellae* were recorded as major parasitoids of DBM. Econeem (@ 6 ml/l) proved to be safest biopesticide against *Cotesia plutellae* while imidacloprid (0.004%) was found to be safest pesticide to *Trichogramma chilonis*.

- In tomato (Hybrid `D- 4'), eight plant products/extracts were evaluated for the management of tomato fruit borer. Two sprays of leaf extract of `Karvi' (10%) and `Bhang' *Cannabis sativa*, (10%), at 35 and 45 days after transplanting gave maximum control of *Helicoverpa armigera* at Bajaura.

- Among eight synthetic chemical insecticides and plant products/extracts tested against leaf miner and `Dhora' beetle on pea cv. `Palam Priya', single spray of profenofos (0.05%) or cypermethrin (0.0075%), or imidacloprid (0.005%) gave higher net gain of Rs. 19.89, Rs. 18.59 and Rs. 12.94 per rupee invested, respectively.

- For the control of `Dhora' beetle on `mash' cv. UG- 218, two sprays of endosulfan @ 0.05% at 15 days interval starting spraying at the initiation of pod formation (40 days after seed germination) were found to be the most effective and economical treatment.

- Among various insecticides evaluated for the control of leaf weevil, *Strophosomoides kumaoensis* in rajmash at Sangla, methyl parathion dust @ 20 kg/ha + methyl parathion 0.025% resulted in maximum reduction in weevil count followed by methyl parathion dust + fenvalerate 0.01%.

- Servo Agro-T oil (@ 1.0 and 1.5 %) was found effective against tea mealy bug and tea purple mite at Palampur and Baijnath tea Estate. Calypso @ 30 g a.i./ha was found highly effective against tea mosquito bug (100% reduction in leaf punctures), tea aphids and mealy bug which was found statistically superior over monocrotophos (360 g a.i./ha) and Confidor (25 g a.i./ha).

- Foliar application of cypermethrin (0.0075%) or deltamethrin (0.0028%) in second week of May proved highly effective against caterpillar complex on kalazira at Sangla.

Weeds

- Drum seeding of rice in combination with cyhalofop-butyl 90 g/ha (20 DAS) resulted in higher grain yield by effective control of weeds over broadcast method in integration with butachlor 1.5 kg/ha.

- Herbicide cyhalofop-butyl @ 120 g/ha applied at 15 days followed by 2,4-D @1.0 kg/ha at 20 days after sowing controlled the total weed flora and resulted in significantly highest paddy yield in direct seeded upland rice. However, when these two herbicides were tank mixed, cyhalofop-butyl completely lost its herbicidal property.

- At Malan, herbicide bensulfuron methyl @ 0.05 kg/ha applied at 20-25 DAT was found as effective as recommended herbicide butachlor @ 1.5 kg/ha in rice.

- Continuous application of butachlor @1.5 kg/ha in transplanted rice and isoproturon @ 1.5 kg/ha in wheat for last 12 years did not leave their detectable residues in soil and did not affect the chemical properties of the soil.

- In maize- wheat sequence, zero tillage in maize and conventional tillage in wheat in combination with atrazine in maize and clodinofop (60 g/ha)

followed by 2,4-D (1.0 kg/ha) in wheat increased the grain yield of both the crops.

- Affinity (Carfentrazon + IPU) @ 2 kg/ha, tank mix application of IPU 1 kg+ 2,4-D 0.75 kg/ha and clodinofop @ 60 g/ha followed by 2,4-D (1.0 kg/ha) were equally effective to control broad-leaved weeds and increase grain yield of wheat.

- Sulfosulfuron (@ 30g/ha) a broad spectrum post-emergence herbicide, for controlling weeds in wheat controlled the mixed weed flora most effectively and increased the wheat yield significantly.

- In brinjal-pea cropping system, soil solarization in integration with pendimethalin 0.6 kg/ha + 1HW in brinjal and direct application of pendimethalin 0.6 kg/ha (Pre) + 1 HW in pea resulted in significantly higher fruit yield of both the crops by effective control of weeds.

- Integration of intercropping one row of soybean in between two rows of maize (1:1) with one hand weeding at 30 DAS or metolachlor 1.0 kg/ha (Pre) gave effective management of weeds in maize with additional yield of soybean.

- For controlling weeds in soybean, acetachlor 1.5 kg/ha (Pre) or haloxyfopmethyl 100 g or 125 g/ha or trifluralin 1.5 kg/ha (Pre) or quizalofop ethyl 75 g/ha (Post) were found equally effective.

- For obtaining higher yields in black gram, the crop should be planted either on raised bed or ridges and weeds should be managed with pendimethalin 0.75 kg followed by one hand weeding or pendimethalin 1.50 kg/ha (Pre.).

- Among different herbicides evaluated in linseed at Palampur, post emergence application of clodinofop 80 g/ha + 2,4-D 0.5 kg/ha remaining at par with clodinofop 80 g/ha resulted in significant reduction in weed dry weight and count and highest yield of linseed.

- Lantana was controlled effectively with the application of glyphosate (0.5 % solution) when sprayed at 30-35 days old regenerated bushes (25-30

cm tall). When spray was done at 60 days old bushes, it required 1.0 percent solution for its complete kill. Three months old regenerated bushes could not be controlled even at higher rates.

D) Mushrooms and Beekeeping

- Wet bubble disease (*Mycogone perniciosa*) which was prevalent in Kangra and Hamirpur districts caused maximum loss to white button mushroom.

- Spawn of *Agaricus bisporus* (white button), *Pleurotus sajor-caju* (dhingri), *P. ostreatus* (dhingri), and *Colocybe indica* (milky mushroom) worth Rs. 2,31,044/- (5776 kg) was produced during the year under report.

- *Varroa* mite in *Apis mellifera* caused a loss up to 20 per cent in Kangra district during the period under report. Infestation of *Varroa* mite increases during July-August. Formic acid (85 %) and oxalic acid (3%) were found effective against *Varroa* mite in *Apis mellifera*.

E) Seed Production and Seed Technology

- During *kharif* 2005, a total of 9.50 tonnes of breeder seed of cereals, pulses, oilseeds and vegetables was produced. Apart from this, 3.76 tonnes of foundation / truthfully labeled seed of different crops was also produced.

- During *Rabi* 2005-06, a total of 1114 kg nucleus seed (Stage I & II) of different recommended and released wheat varieties was produced. The University has also produced 28.62 tonnes of breeder seed and 33.58 tonnes of truthfully labeled seed of cereals, pulses, oilseeds and vegetables.

- Under Network on integrated development of Jatropha, harnessable variability for seed, days to maturity and plant types were recorded amongst various accessions collected from Kangra, Bilaspur, Hamirpur and Una districts of Himachal Pradesh. Protocol was developed for breaking the naturally existing dormancy in seeds of jatropha facilitating germination, using growth regulators, chemicals and mechanical means. During the period under report, 15,000 seedlings of jatropha were grown

in poly tubes which were later used to conduct various trials as per the scheduled programmes. Hydro-pit technique was developed for induction of roots in jatropha cuttings in the temperate climatic conditions of the State.

F) Advanced Centre of Hill Bioresource and Biotechnology

- Variation at the DNA level in the 96 sesame lines was studied using RAPD and ISSR markers. Based on cluster analysis by UPGMA, 96 genotypes were grouped into five distinct lineages. All the 12 genotypes from Himachal Pradesh were genetically similar and fell in the same group. Besides, 44 of these genotypes studied for isozymes exhibited variability for peroxidase and esterase isozymes. Five isoforms of peroxidase and four of esterase were identified.

- Sixty seven doubled haploids (DHs) of *Brassica juncea* were generated by culturing the anthers of the F_1s of 3 crosses, Varuna x Heera, Heera x Zem 1 and Domo x BJ 1058 involving a white rust resistant parent. Of the DHs generated, 5 were found to be resistant to white rust.

- To map a new rice blast resistance gene in Fukunishiki, 54 SSR markers belonging to the region spanning 36.2 to 95.2 cM on chromosome 2 were analyzed for linkage analysis using 40 DHs generated from cross HPU 741 x Fukunishiki. The gene was localized to a genetic interval of 42.1 to 62.2 cM on the short arm of chromosome 2.

- About 50 germplasm collections of *Aconitum heterophyllum*, *Picrorhiza kurrooa*, *Valeriana jatamansi* and *Colchicum luteum* have been made from high hills and dry-temperate zones of Himachal Pradesh. These collections have been established in a Net-house at Palampur and biochemical characterization of these accessions is in progress.

- Website of Bioinformatics Centre (http://www.hpbioinformatics.org) has been developed to incorporate different modules such as e-Kisan, himbiowealth and online library.

G) Agroforestry and Environment

- *Toona ciliata* is an important timber tree of Himachal Pradesh. Studies on the evaluation of its best germplasm for timber production under field conditions revealed that S2 and S6 seed sources emerged to be fast growing ones. However, subsequent evaluation of these seed sources at different intervals of plant growth will be continued for the selection of fast growing progenies.

- Under the tree improvement studies on *Albizia chinensis*, an important fodder tree existing in the tea based agroforestry systems, twenty five plus trees of *Albizia chinensis* based on certain phenotypic markers were selected from two seed zones as the tea plantation is mainly confined to these two seed zones. Out of the 25 seed sources selected, 22 were from the seed zone HP IV(c) having the maximum area under Tea Based Agroforestry system. These selected trees have been subjected to progeny testing to select fast growing superior progenies for the field testing programmes.

- Under an International Research Project on Medicinal, Aromatic and Dye plants, botanical information and ITK has been collected and documented for about 70 plants, collected from Churdhar valley (Sirmour), Parvati valley (Kullu) and Chhota and Bara Bhangal (Kangra). For germplasm preservation studies, germplasm of various MADPs was collected from different geographical locations of the state out of which germplasm (seeds/roots/whole plants) of 23 MADPs was submitted to NBPGR for which accession numbers have been received.

- Cultivation studies on Matricaria and Celery revealed that increase in FYM application levels from 10 to 30 t ha^{-1} resulted in consistent and significant increase in growth, yield attributes and total yield irrespective of broadcast and row methods of FYM application. The work on value addition is in progress and in addition to this, nursery calendar has been prepared for the cultivation of different MADPs.

H) Social Sciences

- The study on Micro Financing through Self-Help Groups (SHGs) revealed that there were 13,228 SHGs that had been linked to the banks up to

March 31, 2004 and these were provided loans to the tune of Rs 315.04 million. About 1,30, 000 families stood assisted under this programme in all the districts of the state. Average loan per SHG and per family was found to be Rs. 23,816 and Rs. 2,423, respectively. Micro financing outreach was higher in Mandi, Solan, Kullu and Kangra districts as compared to Chamba, Shimla and Kinnaur. This clearly calls for the strengthening of the National Bank for Agriculture and Rural Development (NABARD) led programme in the districts that are lagging behind. This study further revealed that state sponsored schemes such as Integrated Child Development Scheme (ICDS) were playing a very important role in spreading the SHG movement.

- Production and economics of strawberry cultivation in Himachal Pradesh revealed that total cost (Cost C_3) of strawberry cultivation on one bigha (0.08 ha) was estimated to be Rs. 18,312 out of which share of variable cost (cost A_1) was 35.9 per cent. Planting material accounted for about nearly two third of variable cost. However, this cost is incurred in first year only. Thereafter farmers get planting stock from their own fields. This crop is highly labour intensive and nearly half of Cost C_3 was labour cost only. Fruits and nursery planting material are two major outputs from strawberry cultivation. Average yield of strawberry in the study area was 616 kg/bigha (7.7 t/ha) where as potential yield is more than 800 kg/bigha (10 t/ha). Income generated from sale of strawberry fruits was Rs. 12,314 per bigha. Sale of nursery plants generated about Rs. 20,000 per bigha by selling about 50,000 plants. Therefore, total income of Rs. 32,314/bigha was being generated by the sampled farmers. Net income of Rs. 14,003 was obtained while family labour income and farm business income was around Rs. 25,000. With this much capital requirement, no other cropping alternative is more remunerative than strawberry, even if we ignore the return from the sale of nursery plants. So despite its inherent constraints like lower shelf-life & marketing bottlenecks, it yields substantial income to farmers.

- Effect of diversification and commercialization of agriculture on income and employment of labour in Kullu district of Himachal Pradesh indicated that the average farm size in district Kullu reduced from 0.80 hectare to 0.592 hectare over the period 1990-91 to 2002-03. The cereal dominated cropping pattern was totally replaced by vegetable based cropping pattern

especially in the valley areas. The cropping intensity also increased from 197 to 225 per cent. The annual labour requirement increased by about 49 per cent.The per farm annual income was found to increase more than three times.

- A declining trend was observed in both the area and production of barley in State over a period of 25 years (1975-76 to 1999-2000), however, productivity increased. The area and production declined at an annual compound rate of 1.98 and 1.44 per cent, respectively. The share of barley in total cereals declined from 5.34 to 3.17 per cent and 4.8 to 2.44 per cent in terms of area and production, respectively. Among the districts, Lahaul & Spiti recorded maximum reduction both in area and production whereas, Solan witnessed an increase of 10.53 per cent in area and as high as 169 per cent in production.

- A research study on entrepreneurial behaviour of farmers was conducted in a purposively selected Mandi district of Himachal Pradesh. The results revealed that a large majority of the pooled sample had medium to high level of entrepreneurial behaviour. However, entrepreneurial behaviour was found significantly higher amongst floriculturists than vegetable growers. Respondents with graduate and above level of education had significantly higher entrepreneurial behaviour than secondary, matric, primary, and illiterate respondents. Respondents belonging to less and low categories of experience in enterprise and information sources utilisation, respectively had significantly lower entrepreneurial behaviour than the other farmers. Entrepreneurial behaviour differed significantly among respondents belonging to different categories of land holding, total income, income from enterprise and scientific orientation.

- Lack of entrepreneurship development oriented training, lack of requisite support from concerned departments, high cost of planting material, lack of knowledge about scheme of various departments related to enterprise, tough competition from larger and well established units, untimely availability of labour, lack of financial institutions in rural area and lack of storage facilities were observed as the major constraints of vegetable growers and floriculturists.

I) Farm Implements and Machinery

- Manual paddy transplanter was found quite promising as it saves 2-3 times labour and 54-73 per cent cost as compared to traditional system.

- The power tiller operated wet land leveler was found suitable for leveling the puddle fields in only large sized plots. Power tiller technology was observed cost effective and drudgery reducing as compared to the traditional system in village Bayara adopted under Task Force on Mechanization and custom hiring.

- Nursery production in multi tier polyhouse was observed better as it takes 12-19 and 15-22 days to germination of the seeds of tomato, brinjal and capsicum in one and two tier system, respectively.

- The modified version of Blower type burner for community biogas plant with air blower replaced by micro fan was designed and evaluated. Slurry de-watering, drying and handling system for 85 m^3 capacity biogas plant was developed.

J) Horticulture

- A survey was conducted in eight districts of Himachal Pradesh and 40, 31, 14, 11, 10, 4, 4 and 2 numbers of trees (Accession Numbers) of pecan (*Carya illinoensis* L.) were selected on the basis of bearing aptitude i.e. high yielding trees and general health (free from insect-pest and diseases) from districts of Kangra, Mandi, Kullu, Chamba, Solan, Sirmour, Shimla and Bilaspur. All the trees were given accession numbers for their identity, address and further studies.

- The tender leaves of selected pecan strains have been collected during the month of April-May, 2006 and kept under deep freezer conditions (-80°C) for DNA isolation and other molecular studies.

- In the studies conducted to assess the causes of irregular bearing among different cultivars in pecans, it has been observed that on the basis of time of pollen shedding and stigma receptivity, ten cultivar combinations whose time and duration of pollen shedding and stigma receptivity synchronized can be inter-planted to get adequate pollination.

- Increasing pruning intensity resulted in better nut quality but reduced yields significantly, however, treatments where height to spread ratio was kept 1:1.25 and 1:1.15, the nut quality was good and yield was also statistically at par with the maximum yield obtained in control (no pruning). $ZnSO_4$ @ 0.5% is best spray treatment for vegetative and nut characters which resulted in maximum yield i.e. 2.46 kg/tree.

- Paclobutrazol treatments in pecan decreased the vegetative growth significantly with the increasing concentration. Consequently, nut quality was also lowered. Though paclobutrazol @ 2.5 g/tree and 5.0 g/tree reduced the vegetative growth but the nut yield in both treatments was statistically at par with the control.

- In the investigation carried out with 112 seedling trees of wild apricot growing in Shimla district to study the variation present in seed and kernel characters, it was observed that differences in seed characters, weight of kernel and stone:kernel ratio exist. Based on these observations, it was inferred that due to marked variations in the naturally occurring wild apricot population, there is a vast potential for its utilization in the tree breeding programme and many of the superior selections could find their way in large scale cultivation for utilization of their kernels in oil industry.

- Survey was conducted in different villages of Kinnaur district of Himachal Pradesh to find out the existing natural variability in wild apricot seedling trees and to identify superior genotypes with good fruit quality characteristics. The evaluated genotypes exhibited considerable variability with respect to various physical and biochemical characters recorded. The genotypes Km-07, Bt-13 and Ku-07 were found promising as they had higher fruit size, weight, pulp recovery, total soluble solids and total sugar contents. Genotype Bt-13 had highest total soluble solids (16.23%) and total sugars content (6.12%) followed by Ku-07 genotype, which had highest ascorbic acid content (12.29 mg/100 g fruit flesh) and reducing sugars content (3.42%)

K) Tea Husbandry and Technology

- Preliminary estimation of 14 hybrid genotypes planted at Planter' fields for adaptability analysis showed that hybrid genotypes 13.8 and 18.15

were better than all the hybrid genotypes including the two checks viz., Kangra Asha and Kangra Jwala with respect to quality parameters (%TF, %TR, total colour and % brightness).

- The treatment combination of nitrogen @ 90 kg/ha, FYM @ 20 t/ha and Azotobacter inoculation @ 10^8 cells/ml culture ($N_{90}F_{20}A_i$) gave significant highest yield (29 % over control). The application of ammonium sulphate @ 80 kg S/ha exhibited the highest increase of yield to the tune of 42 per cent over the control.

- In a study of effect of different nutrient combinations, the treatment $N_{350}P_{150}K_{175}S_{20}B_{1.5}Zn_0$ gave the 16 per cent higher yield over the control. Responses of zinc-sulphur interaction studies showed that zinc @ 10 kg/ha and S @ 60 kg/ha produced the highest yield (78 % increase over control).

- During the study of Effect of different particle sizes of sulphur, medium-fine sulphur gave the highest yield of 1689 kg. made tea/ha (KMTH) which is 79 per cent increase over control.

- Spacing of 90 x 30 cm with a plant population of 37037/ha gave the highest yield of 1041 kg made tea/ha (KMTH) (40% increase) over the lowest (150 x150 cm) population of 4444 /ha in early stages of plantation.

- The study of organics and chemical fertilizers recorded the highest yield of 1298 KMTH (25 % increase over control) with the application of tea skiffing litter @ 4 t/ha in combination with $N_{90}P_{45}K_{45}$ kg/ha.

- Low shade intensity following lopping of dense shade trees has proved appropriate to minimize blister blight attack and sun scorch injuries. P-312 was found tolerant to blister blight. Antracol 70 WP and RIL-009/CI 50 WP were found effective against blister blight of tea.

- The composting and vermicomposting are found to be most successful in tea gardens as there is a high availability of recyclable bioresources during whole of the year compared to other crops. Tea skiffing litter makes the best vermicompost with high N content.

II Veterinary and Animal Sciences

Animal Breeding

- The comprehensive description of the Rampur Bushaher breed of sheep based on the observation record on animals of different age group/sex under farmer's flocks has been carried out under the ICAR Network project. This breed is a medium sized animal with variable fleece colour (brown, black, white and admixture of different coloration), males invariably horned with thick, curved horns in different orientation, females are usually polled and the extremities of limbs and face are devoid of wool covering. The growth and body biometry of the animal has been recorded. The birth weight of the lamb averaged around 2.31 kg with wide range of 1.0 to 4.5 kg. The adult body weight was approx. 25-26 kg with range between 16 to 46.5 kg. Males are slightly heavier than females. The body length is 28.98 cms with chest girth of 32.89 cms. The production potential of the breed for reproductive and wool production and quality characteristics has been evaluated based on observations under farmer's flock conditions. The adult rams and ewes matured at the age of two years. The fleece weight was between 250-500 g per shearing and animals are sheared twice a year. The staple length of wool fiber ranged between 2.86 and 10.6 cms. The fiber diameter averaged 31.09 μ with range between 22μ-48μ. The high variability with the population suggests high scope for genetic improvement in wool production both as quantitatively as well as qualitatively. A genetic improvement programme based on selective breeding within the existing population can bring further improvement in wool traits.

Animal Nutrition

- The women beneficiaries were selected and trained for rearing of layer birds and were given all the equipments and other inputs and layout of layer sheds with locally available materials was carried out at their sites. Finally layer units were established and all the managemental operations were performed by the beneficiaries in a well co-operative manner. The data regarding biological performance of layers from one week to 18 weeks of age were collected. The average gain in weight was 1010.13 g with FCR of 5.55 and mortality of 1.56 per cent at different sites. Perusal of laying data for six months of lay showed that on an average 20.50 eggs were laid with average egg weight of 48.94 g, Average egg mass of

3236.81, feed consumed per dozen of eggs was 1931.00 g and on an average 68.34% per day egg production was recorded at different sites. However, no mortality due to any disease was observed at any site. Overall average profit of Rs. 4.66/ bird/ month was achieved during six month of lay at different sites. In general, 83 per cent women were interested in broiler rearing, however, only 3 per cent in layer rearing.

- Under AICRP research project on "Improvement of feed resources and nutrient utilization for raising animal production" it was found that the farmers of agroclimatic zone III were getting higher income (Rs.7200/annum) from livestock, as compared to zone I and II. The analysis of mineral status of feed and fodder, indicated that copper was below normal critical range, zinc was within normal range, where as iron concentration was higher than critical level in all feed & fodder samples of zone I, II & III. On the basis of results of mineral level in blood of animals, feed & fodder etc. the deficient elements have been identified in different zones. After supplementation of minerals for period of one month, the percentage of animals deficient in various macro and micro minerals was drastically reduced. In both the blocks (Baijnath and Panchrukhi) under study, 21.7% animals were deficient in Na^+, which was reduced to 1.7% after one month supplementation. Similarly Cu and Zn deficiency was observed in 50% and 53% of animals, which was reduced to 21.7% and 26.7 % respectively, post supplementation. A variable increase in milk yield, considerable decline in number of anoestrus animals as well as increased number of acyclic animals showing cyclicity were some other salient observations, after strategic mineral supplementation.

Animal Health

- Ciprofloxacin, Gentamycin & Enrofloxin had high sensitivity *in vitro* against microbes isolated from uterine discharges of endometritic cows. In addition to above antibiotics streptopencillin also demonstrated good inhibition zones in discharges collected from buffaloes. Ciprofloxacin & Gentamycin at therapeutic dose were effective for treatment of endometritis in cows and $PGF_2\alpha$ given alone during mid luteal phase was not effective in endometritic cows. Further uterine biopsy gave more conclusive information regarding endometritis than uterine discharge.

- Quick detection of chlamydiales and chlamydiaceae employing two PCR tests provided superb sensitivity as well as easy recognition to chlamydial infections as compared to labour intensive isolation procedures and indirect micro-immunofluorescence test.

- A field investigation of bacterial etiology of abortions among migratory sheep and goats in north-west hill states showed that chlamydial abortions are more likely to occur in goats than in sheep and that *Brucella* abortions occur more often in sheep.

- Studies revealed that poultry broilers are highly susceptible to Hydro pericardium Syndrome (HpS) followed by Japanese quail, whereas pigeons and ducklings are resistant to HpS infection.

- Studies on certain anaesthetic techniques in dogs with special reference to propofol was conducted on 31 clinically healthy adult mongrel dogs of either sex weighing 12 to 35 kg, to evaluate propofol alone or propofol-thiopental mixture in combination with detomidine/medetomidine for induction of surgical anaesthesia. The present study indicated that medetomidine propofol combination proved to be excellent for the induction of surgical anaesthesia in atropinized dogs. It produced anaesthesia of considerable duration with minimum cardio respiratory side effects and was least expensive.

- Studies on the efficacy of seabuckthorn (*Hippophae* sp.) oil in the healing of gastric ulcers in dogs were conducted on 32 healthy adult mongrel dogs. It was concluded that seabuckthorn seed oil has prophylactic efficacy against development of dexamethasone-induced GUE in dogs to a certain extent in the initial periods and it also has therapeutic efficacy in the healing of GUE in dogs as it helps in faster regeneration of damaged gastric mucosa.

Anatomical Studies

- Studies on "Effect of the Season on the Histology and Histochemistry of the Male Genital System & the Pineal Gland of the Gaddi Goat and Gaddi Sheep" revealed that the histochemical parameters were more or less similar in both the species of the animals i.e. Gaddi goat and Gaddi sheep. The reaction for protein was observed in the cytoplasm of the

pinealocytes in all the seasons but the intensity was more in summer than in other seasons. As per the micrometrical observations on all the organs of the male genital system, the epithelial height was maximum in autumn season and minimum in summer season indicating all the organs were more active in autumn. In the pineal gland, the density of pinealocytes was maximum in summer indicating the gland was more active in that season. The cellular density of pinealocytes was in reducing order in spring, winter and autumn, respectively. The cytoplasm of the pinealocytes showed strong reaction for protein which might be indicative of the enzyme (HIOMT) present in the gland.

Fisheries

- In view of ever increasing cost of feed ingredients for fish feed, it was envisaged to use the probiotic for enhancing the growth by using yeast powder as one of the feed ingredients.

- In Mahseer feed, the fish meal can be replaced upto 57 per cent safely by roasted soybean and feed conversion ratio is found almost in both the diets. It was further observed that sudden decrease in temperature from 21^0C to 16^0C during summer due to heavy rainfall also create a stress environment which is vulnerable for the fungal infection and fish stop feeding.

III. Basic Sciences

Microbiology

- Comparative evaluation of yeast isolates of alcoholic beverages of Lahaul and Spiti area of Himachal Pradesh was done. On the basis of various parameters, SL-III was found to be the most efficient indigenous strain which is to be used for making traditional inoculum.

- Essential oils of *Pelargonium gravelovens* and *Tagetes minuta* grown under climatic conditions of Himachal Pradesh were studied for their anti-microbial activity against various bacteria. The maximum yield of essential oils from these plants was observed at flower bud initiation stage.

- Studies on periodical microbial dynamics under direct soil-incorporation of green plant biomass of *Eupatorium* were conducted. Significant increase in bacterial, fungal, *actinomycetes* and *Azotobacter* populations was observed with increasing level of *Eupatorium.*

- Studies on plant growth promoting rhizobacteria associated with soybean crop under mid-hill conditions of the State were also carried out. Microbial population in the soybean rhizosphere was significantly higher than that in the non-rhizosphere except Azotobacter population which was higher in the non-rhizosphere soil. Among bacteria, *Bacillus* spp. and among fungi, *Aspergillus* and *Mucor* were predominant in rhizosphere soil.

- Biomethanation of vegetable waste collected from Palampur Sabzi Mandi was done under laboratory and field conditions. Supplementation of cattle dung upto 30% (w/w) with vegetable waste was found to be appropriate for biomethanation without the emergence of toxic components. The field studies depict that 30% supplemented vegetable waste yielded quantitatively and qualitatively better biogas as compared to biogas plant operated on pure cattle dung.

Chemistry and Biochemistry

- High protein determinate (VLF-106, SR-62, KRC-18 and AK-36) and indeterminate (AK-41, AK-82, HPR-20 and AK-36) genotypes of rajmash were adjudged superior for quality attributes.

- Antioxidant property of Kangra tea varied in the order: green tea shoots whose enzymatic activity had been stopped>green tea shoots whose enzymatic activity was not stopped>made black orthodox tea. The antioxidant property was directly proportional to the total polyphenols and condensed tannin contents of tea. Green tea shoots also exhibited high antibacterial activity compared to the aqueous extracts of the methanolic fractions from the black orthodox tea.

- Genotypes of horsegram viz., HPKC-7, HPKC-4 and IC-14350 grown in the State were adjudged superior over the local check variety HPK-4 for their seed protein content.

- Sesame genotypes MT-19-03, MT-20-03 and TKG-307 were superior in oil content over the local check (AVT-04R_1 1212). Sesame oil of these genotypes also constituted high essential fatty acid-linoleic acid content over the check.

- Treatment of mustard cv. Varuna with benzothiadiazole (BTH) induced changes in the qualitative profile of total soluble phenols and acid soluble extra cellular proteins which can be the useful markers of induced resistance.

- Aqueous leaf extract of neem (*Azadirachta indica* Juss.) provided the control of Alternaria leaf spot of sesame by increasing the levels of enzymes phenylalanine ammonia-lyase (PAL), peroxidase (PO) and content of phenolic compounds. Germination of *A. sesami* spores was not inhibited by neem extract indicating that, protection of sesame plants against *A. sesami* by neem extract might be due to stimulation of plants natural defense response.

- Aqueous leaf extracts of nineteen botanicals were tested for their potential to induce resistance in mustard (*cv.* Varuna) against *Albugo candida*. The disease intensity in plants treated with leaf extracts of *E. globuluse*, *A. americana* and *A. indica* was 15.0, 8.4 and 15.0 per cent, respectively as compared to control (75.0%).

- Biochemical constituents in advanced agronomic trials revealed that mustard variety Kranti gave the highest yield whereas the oil content was lowest. All the *B. napus* varieties were statistically at par with GSL-1 showing highest oil content. Oil yield was observed to increase with increasing N and S levels.

- Investigation of antifungal activity of Himalayan medicinal plants using planner chromatography (TLC) based bioautography has indicated that out of 12 plants tested five plant species showed antifungal activity. The best antifungal activity was shown by lipophilic leaf extract of *Thuja orientalis.*

- The leaf extracts of *Eucalyptus globuluse*, *Agave americana* and *Azadirachta indica* provided 80.0, 88.8 and 80.0 per cent control of white

rust disease in mustard through induced resistance.

Plant Physiology

- Foliar application of NAA (20,10 and 30 ppm) followed by 2,4-D (20, 10 and 30 ppm) and KNO_3 (200, 100 and 300 ppm) influenced plant height, number of leaves per plant, number of branches per plant, and number of flowers per plant which resulted into higher grain yield in soybean crop in the order.

- Growth regulator GA_3 at 100 and 200 ppm concentration resulted in higher germination of okra seeds as compared to other treatments.

Botany and Zoology

- A herbal garden has been established in the college with the introduction of 45 species of medicinal and aromatic plants. Nursery of 10 species was raised and seeds of the same were collected for future nursery raising. New exotic germplasm of 2 bamboo species was introduced.

- Preliminary studies on diallyl disulphide and allyl propyl disulphide-the two unsaturated oils found in garlic have shown their potential as anti-oxidants and free radical scavengers.

Centre for Geo-informatics Research and Training

- The biophysical attributes of the land such as elevation, climate, land use, soils etc. are used to cluster areas into homogeneous units, facilitating agricultural planning for the sustainable use of natural resources. This has resulted into redefining new agro-ecological zones.

- The Census indicators and trends were mapped in which more than one hundred indicators covering various aspects like demography, agriculture, education, economy and infrastructure have been mapped. This indicates a significant overall development in Himachal Pradesh in almost all sectors.

- A comprehensive geographically referenced database of Himachal Pradesh is built which will serve as a building block in the state GIS database development process and to demonstrate how GIS can be used in the assessment of natural resources and agricultural planning process.

- Quantitative and qualitative assessment of impact of climate change on mountain agriculture has been attempted through the analysis of historical climatic data and its impact on agricultural productivity/production systems and socio-economic surveillances. Snow cover area digitization on satellite imageries indicated 20-30 per cent of additional snow cover in the state during the study year. The water availability scenarios were calculated for each major river basin of the State.

- The topographic data from Survey of India and satellite imagery sets were used to calculate the 3-D surface area of Himachal Pradesh, considering the heights and slope of mountains.

- The critical vulnerable areas of pesticide pollution in Himachal Pradesh were identified. Environmental pollution data are taken into account to map vulnerable areas to pesticide contamination. A decision support system is being developed in collaboration with University of Cattolica, Piacenza, Italy for pesticide use in Himachal Pradesh for apples, vegetables and tea plantations.

- The analysis of the flood events has been carried out as a case study and a user friendly educational module has been developed for students that would educate students with remote sensing and its application in present day information scenario in relation to earth sciences.

- An interactive mountain specific and geo-referenced data base/ information of agriculture in two mountain districts (Kangra and Mandi) of Himachal Pradesh has been developed for creating the agriculture system information files for planning niche based agriculture development.

IV. Home Science

Food Science and Nutrition

- The studies on nutritional evaluation of seabuckthorn (*Hippophae* L.) and its utilization in the preparation of various food products are being carried out. The berries/ pulp of seabuckthorn fruit of different varieties were procured from the Lahaul and Spiti valleys of Himachal Pradesh. The

procured samples of the berries were subjected to various techniques for extraction juice/ pulp. The juice obtained after extraction was analyzed for its nutritional composition. An attempt was made to dehydrate the fruit pulp/juice for its further utilization in the preparation of various food products. Amongst the various methods used for the extraction of juice/ pulp the 'Refrigerated-Grinding' method/ technique yielded maximum recovery with minimum loss of nutrients. The products including clarified juices, squashes, syrups, RTS, jams, jelly, marmalade etc. were acceptable. The blending of seabuckthorn juice/ pulp with other fruits like apple, kiwi, guava and Rhododendron proved effective in improving the nutritional composition and acceptability of the products. Pulp/ juice of seabuckthorn was dried/ dehydrated using different methods and the 'Centrifuged-drying' method of drying retained maximum nutrients and quality of the pulp/juice. Further, the attempts are being made towards the utilization of seabuckthorn juice/ pulp in the preparation of bakery and confectionary products.

Family Resource Management

- Data on cutting and uprooting activity were collected, coded and analyzed in order to devise an uprooter. The health status of farm women involved in performing the cutting and uprooting activity was assessed. Both cutter and new uprooter have been prepared and data are being collected with the new tools.

- Consultancy is offered by Uttranchal Organic Commodity Board, Dehradun on drudgery reduction of women in Uttranchal and the work started in the state of Uttranchal in two different districts.

Human Development

- The studies on "Home based intervention for the socio emotional competencies in children of Palampur and Hisar" was completed in Himachal and Haryana state on about 2000 children (1000 males and 1000 females). Vineland adoptive behaviour Scale, was used to judge their socio emotional competencies. After administering the scale children with low socio-emotional competencies were selected (168 children each from both the states in the age group 2-6 years). These children with low socio-emotional competencies were given intervention on the six domains of adoptive behaviour such as receptive, expressive, written, personal,

domestic and community. The children were having moderately low to adequate levels of adaptation. After giving intervention the children were post tested after a gap of six months for their socio-emotional development. Significant improvements were observed in all the six domains of the study and they were placed higher in their adaptive behaviour i.e. moderately high level of adaptation.

Textiles and Apparel Designing

- The products developed using natural dye sources were stoles, mufflers and pattu / blankets. The concentrates were prepared in the laboratory for printing the natural textile materials with natural dyes. The concentrates have been prepared with different plant materials viz., Eupatorium, berberry, litchi, apricot and Bidens. These concentrates can be used for printing purposes just by mixing in the printing paste.

- Four new villages were selected through visits to various villages on the basis of their needs and receptiveness. The survey was conducted in five villages which included one old village and four new selected villages viz. Padhiarkhar, Averi, Saliana, Patti and Lachoon, respectively. After completion of the data collection, the training needs of the farm women were assessed and intervention programme has been initiated in all the five adopted villages simultaneously.

Home Science Extension Education

- Bench mark survey of five villages namely Averi, Lachoon, Saliana, Patti and Padhiarkhar of district Kangra was conducted and results revealed that village Averi has maximum area and population strength. Caste structure depicts number-wise dominance of schedule castes in all the villages except Lachoon, whereas none of the village had any of large or landless families. The trend of nuclear families was observed in village Lachoon, Padhiarkhar and Saliana but major occupation of the villagers belonging to all the five villages is farming. In all the villages the farm women did not participate in decisions related to repayment of loan.

Extension Activities

The Directorate of Extension Education shares the responsibility for planning, implementation and coordination of various types of extension education programmes. All possible efforts were made to transfer the latest know-how based on feedback from the farmers and findings evolved by undertaking need based research programmes. This responsibility, during the year 2005-06 was shared by the Directorate through co-ordination at its headquarter, eight Krishi Vigyan Kendras located at Dhaulakuan (Sirmaur), Bajaura (Kullu), Bara (Hamirpur), Rampur (Una), Sundernagar (Mandi) Chheb (Kangra), Kukumseri (L&S) and Berthin (Bilaspur). Besides, a close co-ordination was also maintained with different Research Stations and different departments of various Colleges of the University and State Departments of Agriculture, Animal Husbandry, Fisheries, Rural Development, various NGOs and other extension agencies concerned with upliftment of the farming community.

A brief resume of major achievements and work done during the year 2005-06 is given below:

1. Farm Advisory Service and Trainings

The main objectives of this scheme are to disseminate the latest technology to the farming community by holding farmers training programmes, laying out field demonstrations, arranging exhibitions, field days and Kisan Mela/Diwas etc. The various activities carried out under these schemes are given in Table - I.

Table 1: Farm Advisory Service activities undertaken during the year

Sr. No.	Activities	Number
1.	Training programmes (on campus and off-campus)	803
2.	Participation in training programmes organized by other development agencies	130
3.	Demonstrations on farmers' fields in agriculture and allied fields	5292
4.	On farm trials/Minikit trials	329
5.	Kisan Mela/ Kisan Gosthees/ Workshops	90
6.	Field days and other important days	74
7.	Exhibitions	7

8.	Visits of farmers' groups to main campus & outstations	99
9.	Extension literature (Pamphlets, Magazines, Manuals etc. published)	93
10.	News published in various news papers about extension activities	93
11.	Radio talks and telecasts	37
12.	Popular articles published in magazines, news papers, manuals etc.	27

2. Training Programmes

To cater the needs of farmers, farm women, field functionaries, unemployed youth and school dropouts for their effective contribution towards increasing production in the fields of agriculture, livestock and family welfare, as many as 803 training programmes were organised during 2005-06. In these training camps, about 33,771 farmers participated. Out of these trainings, 69 were held at the Directorate and 730 at various KVKs, throughout the State. Besides, scientists of the Directorate (including KVKs) acted as resource personnels for 130 training programmes organised by other development agencies where 12,196 farmers attended the programmes.

3. Agricultural Officers' Workshop

Two Agricultural Officers' Workshops were organized on Rabi crops and Vegetables (28th September, 2005) and on Kharif Crops (5th May, 2006) in which more than 500 Agricultural Officers/Scientists of the University and farmers interacted to finalize the package of practices for Rabi, Kharif Crops and Vegetables.

4. Farmer-Scientist Interaction Sessions

During the year, 21 farmer-scientist interaction sessions were organised at Mandi, Dhaulakuan and Kangra where 1339 farmers had interaction on different aspects of agriculture and allied fields with scientists of different disciplines. The problems on various aspects were listed and solutions to such problems were suggested.

5. Demonstrations on Various Aspects of Farming

During the year, 5280 demonstrations covering cereals, livestock, vegetables, oilseeds and pulses were laid out on farmers' fields.

5.1 Front-line Demonstrations on Oilseeds

During the year under report, 1009 demonstrations, covering an area of 148 hectares in different districts of H.P., were laid out by the Directorate along with different KVKs. These demonstrations comprised on sesamum, soybean, toria, gobhi sarson. The station-wise details is given in Table 2 & 4.

Table 2: Front line demonstrations on oilseeds

Sr. No.	Station/KVK	No. of demonstrations	Area (ha)
1.	Una	121	21.0
2.	Kangra	192	24.05
3.	Hamirpur	64	21.0
4.	Kullu	70	12.0
5.	Mandi	75	15.0
6.	Berthin	159	12.0
7.	Dhaulakuan	193	21.0
	Total	**1009**	**126.05**

5.2 Front line Demonstration on Pulses

During the year 2005-06, there were 808 demonstrations laid out by different KVKs and the Directorate covering an area of 25 hectares on the fields of farmers for judging the performance of new varieties in different areas of the State.

The area and number of demonstrations is given in Table 3 & 5.

Table 3: Front line demonstrations on pulse crops

Sr. No.	Station/KVK	No. of demonstration	Area (ha)
1.	Una	71	11.25
2.	Kangra	57	10.00
3.	Hamirpur	48	10.00
4.	Kullu	57	10.00
5.	Mandi	62	10.50
6.	Berthin	258	12.00
7.	Kukumseri	50	2.00
8.	Directorate	139	10.00
9.	Dhaulakuan	66	11.00
	Total	**808**	**86.75**

Table 4: Average yield (q/ha) of different oilseed crops under Front Line Demonstrations

Sr No	Crop	Variety	Centre	Av. Yield(q/ha)
1	Sesamum	LTK-4	Dhaulakuan	4.70
			Berthin	4.32
			Una	4.95
			Bara	5.98
			Mandi	6.01
			Kangra	4.62
		Pb Til No 1	Kangra	4.18
2	Toria	DK-1	Una	8.95
		Bhawani	Mandi	6.04
			Berthin	5.27
			Kangra	6.98
			Dhaulakuan	8.76
			Bara	6.50
3	Gobhi sarson	HPN (Sheetal)	Mandi	10.75
			Dhaulakuan	10.74
		HPN-3 (Neelam)	Berthin	6.14
			Una	10.45
			Kullu	10.34
			Kangra	9.10
4	Soybean	PK-472 (Shivalik)	Una	12.65
			Berthin	12.51
			Kangra	13.60
		Harit Soya	Bara	12.72
			Mandi	12.10
5	Linseed	Surbhi	Kangra	6.78
		Jeevan	Kangra	6.25
		Him Alsi	Kangra	7.15
		Janki	Mandi	8.10
6	Raya	RCC-I	Kangra	8.20
7.	Sunflower	MSKHN	Una	13.50

Table 5: Average yield (q/ha) of different pulse crops under Front Line Demonstrations

Sr No	Crop	Variety	Centre	Av yield (q/ha)
1	Mash	PDU-I	Kullu	7.04
		UG-218	Mandi	8.90
			Kullu	6.56
			Berthin	8.22
			Bara	6.95
			Una	9.15
		Pant U-19	Berthin	7.32
			Kullu	5.42
2	Gram	Himachal Channa-1	Berthin	4.97
			Una	9.75
		HPG-17	Berthin	5.77
			Mandi	7.85
			Bara	6.71
		Himachal Channa-2	Bara	6.20
			Berthin	5.40
			Dhaulakuan	9.12
3	Lentil	HPL-5 (Vipasha)	Berthin	4.60
			Una	7.85
			Mandi	8.05
			Bara	3.70
		Markanday	Dhaulakuan	8.22
			Berthin	4.04
4	Rajmash	Kanchan	Mandi	13.80
			Kullu	14.35
		Him-I	Kullu	12.92
5	Arhar	Sarita	Berthin	11.38
			Una	12.75
			Bara	8.75
6.	Mung	Suketi	Mandi	8.25
7	Pea	Palam Priya	Una	116.07

		DPP-68 (Kinnauri)	Mandi	135.0
8	Cowpea	C-475	Dhaulakuan	7.83

5.3 Miscellaneous Demonstrations

As many as 4417 various types of demonstrations on cereals, vegetables, napier-bajra, hybrid plantation for fodder, control of weeds, use of equipment in the farmers fields. Besides, separate demonstrations on vermi composting and utilization of mineral mixture were also undertaken.

6. On-Farm Trials/Minikit Trials

During the year 2005-06, the Directorate of Extension Education and different KVKs laid out nearly 542 on farm/minikit trials in different districts. Average yield of 44.25 q/ha in case of maize (Kanchan), 41.13 q/ha in case of wheat (HS-240), 540 q/ha in case of tomato (F-774), 350 q/ha in case of brinjal (Arka Keshav), 39.8 q/ha in case of paddy (RP-2421) were recorded the best among different varieties of the respective crops.

7. Command Area Development Projects

Nine Command Area Development Projects were undertaken by the scientists of the directorate. Under these projects, numbers of demonstrations were laid out at the farmer's field in different IPH Divisions such as Dalhousie, Padhar, Joginder Nagar, Chauntra, Indora, Jawali, Nurpur and Nalagarh. These projects were in operation in areas where kuhls and lift irrigation schemes of the IPH Department exist. These projects have shown significant increase in production due to improved agricultural technology in integration with judicious use of irrigation water leading to all around development of such areas.

8 Projects funded by the Govt. of India (ICAR & DBT)

The Directorate is also running important projects like "Dissemination of pulse production technology" sponsored by the Department of Biotechnology, Govt. of India, New Delhi. Such projects played an important role in increasing the crop yields at the farmer's field with the introduction of new improved technology (HYV, INM, IPM etc.). Under the project 292 demonstrations on pulses were laid out under DBT projects and 139 farmers were imparted training on agro-technique for pulse production and post harvesting technology.

9. Kisan Mela/Kisan Diwas/Field Day

During the year, 90 Kisan Melas/specific Diwas (World Food Day, Women in Agriculture, Environment Day) and Field Day/Kisan Gosthi were organised at different places through out the state which were attended by 32533 farmers.

10. Exhibitions

The Directorate and KVKs installed 7 exhibitions in different parts of the State in which 7375 farmers participated.

11. Visits of Farmers' Groups

Farmers have been showing keen interest in different activities of the University. There were 106 groups comprising 3252 farmers who visited main campus from different parts of the State as well as other States. Sixty groups of farmers also visited different KVKs during the year under report.

12. Publications

The Directorate is regularly publishing Parvatiya Khetibari (quarterly), an university mouth-piece of extension activities, for which 800 farmers are regular subscribers. Besides, University Newsletter (400 copies) and various priced publications such as Package of Practices for Rabi as well as Kharif Crops and Vegetable Crops, Fisheries were also published during the year. The Directorate also published free literature in Hindi in the form of pamphlets on various topics on agriculture, vegetable production, horticulture and home science for further distribution among farmers on different occasions through KVKs, Sub-Stations and Regional Research Centres of the University.

13. Training of Scientists for updating competency

During this year, 6 scientists from the Directorate and 27 from different KVKs acquired training on different aspects of advanced learning in different extension methodologies in different institutes.

Agricultural Technology Information Centre

During the year under report, the activities of the Agricultural Technology Information Centre were as under:-

Diagnostic Services

Sr.No.	Particulars	No. of Beneficiaries
1.	Soil Samples	50
2.	Plant Clinic Samples	103
3.	Animals	108
4.	Vermicompost	25
	Total	**286**

Advisory Services

Sr. No.	Particulars	No. of Beneficiaries
1.	No. of farmers visited the Centre	1858
2.	No. of farm women visited	945
3.	No. of soil sample tested	4
	Total	**2807**

Telehelpline

Sr. No.	Particulars	No. of Beneficiaries
1.	Field Crops	52
2.	Vegetable Crops	39
3.	Fruit Crops	19
4.	Mushroom Training	22
5.	Animal Husbandry	15
6.	Bee Keeping/Fisheries	1
7.	Miscellaneous	18
	Total	**166**

Total Income from all Sources

Sr. No.	Name of Crop/Item	Amount (Rs.)	Beneficiaries (Nos)
1.	Field Crops	18,776.00	1585
2.	Vegetable Crops	66,220.00	6581
3.	Animal Nutrition	77515.00	2659
4.	Processed Products	16244.00	435
5.	Priced Publications	2,04,806.00	8000
6.	Misc. Items	45,624.00	1417
	Total	**4,29,185.00**	**20677**

Awards and Honours

Awards

- Dr. S.P.Tyagi, Dr. S.K.Sharma and Dr. A.C.Varshney, Department of Vety. Surgery & Radiology bagged "Best Paper Award in the field of Ruminant Surgery, awarded by Indian Society for Veterinary Surgery (IVMS) in its 27th Annual Congress held at IVRI, Izatnagar w.e.f. 9-11th November, 2005 for presenting the paper entitled "Successful surgical management of patent urachus with urethral agencies in a female calf"

- Dr. Adarsh Kumar, Dr. S.P. Tyagi, Dr. S.K. Sharma, Dr. M.S. Kanwar & Dr. A.C. Varshney awarded " Special award" in the field of Veterinary Radiology awarded by Indian Society for Veterinary Surgery (IVMS) in its 27th Annual Congress held at IVRI, Izatnagar w.e.f. 9-11th November, 2005 for the Paper entitled "Computer assisted Interactive Radiology Courseware for undergraduate students"

- Dr. M.S. Kanwar, Department of Veterinary Surgery & Radiology received "Vijay Rattan Award 2005" for significant contribution to veterinary profession on 25th November, 2005 by India International Friendship Society, New Delhi.

- Dr. P.K. Mehta & Co-workers received "Second Best Paper Award", for their poster presentation in National Conference on "Biopesticides Emerging Trends 2005 (BET 2005)" held at IHBT, Palampur w.e.f. 11-13th November, 2005.

- Dr. M.M. Singh, Department of Vety. Gynaecology & Obstetrics received "Best Veterinarian Award" by Himachal Kesri on 14th January, 2006.

- Dr. Des Raj, Department of Veterinary Medicine, Ethics & Jurisprudence was awarded with D.C. Blood National Gold Medal 2005 by Indian Society for Veterinary Medicine (ISVM) comprising a certificate and Gold Medal for outstanding contribution in teaching, research & extension on 22nd February, 2006.

Honours

- Dr. G.L. Bansal, Department of Plant Physiology, nominated as member on the Research Advisory Committee (RAC) of National Research Centre for Weed Science, Jabalpur by ICAR for three years on 19th October, 2005.

- Dr. S.K.Sharma Department of Veterinary Surgery and Radiology elected as "Fellow of Indian Society for Veterinary Surgery" for significant contribution in the field of Veterinary Surgery & Radiology w.e.f. 9-11th November, 2005 by Indian Society for Vety. Surgery.

- Dr. C.P. Awasthi, Department of Chemistry & Biochemistry co-opted as member Executive Committee of Indian Maize Development Association, New Delhi for 2006-07.

- Dr. K.P. Singh, Department of Plant Physiology elected as Vice President of Indian Society for Plant Physiology, New Delhi for one year from 1st January, 2006.

- Dr. Nabi Hassan, Assistant Librarian, has been nominated as an expert member of the committee on computerization of Central Library H.P. University Shimla on 16th February 2006. He was also selected for Norman Borlaug International Agricultural Science and Technology Fellowship 2006 by Cornell University, USA.

- Dr. M.S. Kanwar, Department of Veterinary Surgery and Radiology elected as "Fellow of Indian Society for Veterinary Surgery" for significant contribution in the field of Veterinary Surgery & Radiology on 5th May 2006 by IVRI, Izatnagar. He was also elected as fellow of "National Academy of Veterinary Sciences" for significant contribution in the field of Veterinary Surgery on 5th May, 2006 by Indian Society for Veterinary Sciences.

- Dr. Mandeep Sharma, Department of Vety Microbiology admitted as "Fellow of National Academy of Veterinary Sciences (FNAVS) by Governing Council of the National Academy of Vety Science on 5th May, 2006 for his significant contribution for advancement of Veterinary Sciences.

- Dr. V.K. Gupta, Department of Veterinary Pathology got International Educational Project sponsored by C.L.Davis DVM Foundation, Gurnee, Illinois, USA and designated as Director of the Independent Study Centre by CL Davis Foundation on 11th May, 2006.

Visits Abroad

- Dr. Atul and Dr. Punam, Department of Agro forestry & Environment visited Brisbane (Australia) w.e.f. 8-13th August, 2005 to present a paper in the XXII IUFRO World Congress. Dr. Atul also chaired a session in the congress as Co-Chairman.

- Dr. A.K. Basandrai, HAREC, Dhaulakuan visited CLIMA, University of Western Australia, Crawley w.e.f. 16th August to 19th December, 2005 under Post Doctoral ATSE Crawford Training Fellowship.

- Dr. V.K. Sharma, Department of Animal Nutrition, Dr. A.C. Varshney, Dr. S.P. Tyagi, Department of Vety. Surgery & Radiology and Dr. Virender Singh, HAREC, Bajaura visited Beijing, China w.e.f. 26- 29th August, 2005 to attend 2nd International Sea buckthorn Associations Conference.

- Dr. Sanjeev Sandal, Department of Soil Science visited Italy w.e.f. 12-30th September, 2005 to attend College on Soil Physics at International Centre for Theoretical Physics, TRISTE.

- Dr. A.C.Varshney, Dr. S.K.Sharma, Department of Veterinary Surgery & Radiology, Dr. Mandeep Sharma, Department of Veterinary Microbiology, Dr. R.K.Asrani, Department of Vety. Pathology, Dr. K.B.Nagal, Department of Veterinary Epidemiology & Preventive Medicine, Dr. Shivani Katoch, Deptt. of Veterinary & Animal Husbandry Extension visited Lahore Pakistan w.e.f. 21-25th September, 2005 to attend 14th Asian Commonwealth Veterinary Associations Conference & also visited Lahore, Pakistan University of Agriculture, Faislabad, Pakistan a part of delegation led by the Hon,ble Vice-Chancellor, CSKHPKV, Palampur.

- Dr. Sangita Sood attended AMI training programme GM 3 in “Mediation and Negotiation Techniques for Conflict Management” w.e.f. 14-18th November, 2005 at Hua Hin, Thailand.

- Dr. Mandeep Sharma, Department of Vety Microbiology, visited International Workshop on VPH w.e.f. 22nd November to 14th December, 2005 organised by MASHAV- Ministry of Foreign Affairs SCINADCO, Govt. of Israel.

- Er. D.K. Vatsa, Department of Agril. Engineering visited Bangkok, Thailand w.e.f. 6-9th December, 2005 to present a paper on " Energy Analysis for Mechanized Hill Agriculture" organized by AAAE.

- Dr. H.K. Chaudhary, Department of Plant Breeding & Genetics visited the lab of Plant Molecular Genetics Osaka Kyoiku University, Japan w.e.f. 13th December, 2005 to 13th January, 2006 for the execution of a part of his research assignment in the sphere of molecular cytogenetics under an Int. Collaboration Project sanctioned by DST, New Delhi & JSPS, Japan under Indo Japan Cooperative Science Programme.

- Sh. Vaibhav Kalia, Centre for Geo Informatics Research & Training visited ICIMOD, Kathmandu, Nepal w.e.f. 1-15th March, 2006 to work on a collaborative Project "Development district wise surface area of Himachal Pradesh & to attend a workshop-cum-training on "Remote sensing Projects for Hindu Kush Himalayas" organised by United Nations/ European Space Agency at ICIMOD.

- Dr. R. M. Bhagat, Centre for Geo Informatic Research & Training visited ICIMOD Kathmandu, Nepal w.e.f. 5-11th March, 2006 to attend a workshop-cum-training on "Remote Sensing Projects for Hindu Kush Himalayas" organised by United Nations/ European Space Agency at ICIMOD.

- Dr. Manoranjan Kalia, Dean, College of Home Science, Dr. R.C.Katoch, Dr. B. Prasad, Dean, Postgraduate Studies, Dr. S.C.Sharma, Director of Research, Dr. Kahan Bassi, Director of Extension Education and Dr. J.R.Dhanze, Department of Fisheries visited Faislabad, Pakistan and participated in "International Seminar on Agriculture in 21st Century: Issues and Strategies" w.e.f. 14-17th March, 2006 at the University of Faislabad, Pakistan.

- Dr. Chitra Sood, Centre for Geo Informatics Research & Training visited University of Cattolica, Piacenza Italy w.e.f. 20th March, 2006 to 15th May, 2006 to work for the project "Development of a decision support system for the sustainable use of pesticides in Himachal Pradesh" under DST's Indo Italian Programme of cooperation in Science and Technology.

- Dr. Jai Dev, Department of Plant Breeding & Genetics visited Hebrew, w.e.f. 9th May, 2006 to 6th July, 2006 to attend International course on Biotechnology & Bioinformaticsc in Agril:Plant & Micro organism organized by the University of Jerusalim, faculty of Agriculture, & Food & Environment Sciences, Division for External Studies, REHOVOTC (Israel).

- Dr. M.S. Kanwar, Department of Veterinary Surgery & Radiology, Dr. R.S. Kistwaria, Vety. Clinic visited Saudi Arabia w.e.f. 9-11th May, 2006 to attend 2nd International Scientific conference on Camel held at Quassim University.

- Dr. Daisy Basandrai, HAREC, Dhaulakuan visited ICAR-ICARDA, Syria, under ICARDA collaboration Project w.e.f. 3-8th June, 2006 to attend scientists meeting to improve the productivity of Indian lentil.

Publications

Sr.No.	College/Department	Research	Extension	Others
A. College of Agriculture				
1.	Plant Breeding & Genetics	20	5	
2.	Agronomy	57	19	25
3.	Soil Science	29	24	9
4.	Entomology	23	15	5
5.	Plant Pathology	20	2	1
6.	Agricultural Economics	33	12	-
7.	Agricultural Engineering	10	7	-
8.	Agroforestry & Environment	11	9	-
9.	Tea Husbandry & Technology	6	1	2
10.	Extension Education	3	-	-
11.	Veg. Science & Floriculture	18	7	3
12.	Horticulture	5	5	-
13.	Advanced Centre for Hill Bioresources & Biotechnology	10	-	2
14.	Fodder Production and Grassland Management Centre	9	6	2
B. Dr. G.C.Negi College of Vety & Animal Sciences				
1.	Vety Anatomy & Histology	13	-	1
2.	Animal Nutrition	5	6	-
3.	Animal Breeding, Genetics & Biostat.	15	-	-
4.	Vety Microbiology	10	2	-
5.	Vety Pathology	6	-	1
6.	Vety Pharmacology & Toxicology	11	2	-
7.	Vety Clinical Medicine, Ethics and Jurisprudence	6	-	-
8.	Vety Surgery & Radiology	6	-	-
9.	Animal Reproduction, Gyn. & Obst.	5	-	-
10.	Fisheries	2	1	-
11.	Vety & Animal Husbandry	1	3	1

	Extension			
12.	Vety Parasitology	2	-	2
13.	Livestock Products & Technology	2	-	2
14.	Vety Epidemiology & Preventive Medicine	2	-	-
15.	Vety Physiology	5	-	-
16	Livestock Production Mgt.	5	2	2
17.	Vety Biochemistry	2	-	1
C. College of Home Science				
1.	Food Science & Nutrition	16	7	8
2.	Family Resource Management	5	-	1
3.	Human Development	9	1	1
4.	Textiles & Apparel Designing	5	1	-
5.	Home Science Extension Education	3	1	-
D. College of Basic Sciences				
1.	Microbiology	3	-	-
2	Chemistry & Biochemistry	3	2	6
3.	Plant Physiology	4	2	-
4.	Botany & Zoology	2	-	-
5.	Stat. Math. & Physics	3	-	-
6.	Centre for Geo-Informatics Research & Training	5	-	10
E. Directorate of Extension Education		-	3	13
F. Outstations				
1.	Hill Agril. Research & Extn. Centre, Dhaulakuan	43	30	13
2.	Hill Agril. Research & Extn. Centre, Bajaura	24	9	8
3.	Highland Agril. Research & Extn. Centre, Kukumseri	6	1	4
4.	Shivalik Agril. Research & Extn. Centre, Kangra	15	5	-

5.	RSS, Lari	4	2	-
6.	Mountain Agril. Research & Extn. Centre, Sangla	7	-	1
7.	BRS, Nagrota Bagwan	3	-	3
8.	Rice & Wheat Research Station, Malan	20	7	2
9.	RSS, Akrot	1	8	-
10.	KVK, Una	3	8	-
11.	KVK, Hamirpur at Bara	-	31	-
12.	KVK, Kangra	-	-	5
13.	KVK, Dhaulakuan	6	8	11
14.	KVK, Bajaura	10	23	4
15.	KVK Mandi at Sundernagar	8	18	-
16.	KVK, Berthin	4	1	-

Books Published:

- "vkS"k/kh; ikS/kksa dh [ksrh] laj{k.k o fodkl" by Punam, Vijay Rana & Atul published by Centre for Human Resources Development, CSKHPKV, Palampur (ISBN 81 8207 010 4).

- "Organic Farming" by Atul, Punam & D.S Rathore published by Centre for Human Resources Development, CSKHPKV, Palampur (ISBN 81 8207 010 4).

- "Seabuckthorn- A Multipurpose Wonder Plant Vol.-II Biochemistry & Pharmacology" by Virendra Singh, Editor-in-Chief, published by Daya Publishing House, New Delhi. (ISBN 81 8207 010 4)

- "Indian Erysiphaceae" by Y.S. Paul & V.K. Thakur published by Scientific Publishers, Jodhpur.

- "eDdk fgekpy izns'k dh eq[; Qly" by A.Singh, R.Garg and H.L. Thakur published by HAREC, Dhaulakuan.

- "fgekpy izns'k esa xsgWw dh mUur [ksrh" by S.L. Gartan and H.L. Thakur published by HAREC, Dhaulakuan.

- “Recent Trend in Utilization of Plant Biodiversity in Animal Health Care” by C. Varshneya, R.S. Telang & M.S. Dardi published by CSKHPKV, Palampur.

- “igkM+h {ksrzksa esa nq/kk: i'kq ikyu” by K.K. Chadha published by Krishi Vigyan Kendra, Dhaulakuan.

- “vf/kd vk; ds fy;s l;kt mxk,a” by A.R.Khan, S.N.Chander and B.K.Sharma published by Krishi Vigyan Kendra, Dhaulakuan.

- “igkM+h {ksrz esa eNyh ikyu ,d ojnku” by Rani Dhanze and J.R.Dhanze published by Directorate of Extension Education, CSKHPKV, Palampur.

- “Objective Floriculture & Land Scaping (3rd addition)” by Desh Raj published by Kalyani Publishers, Ludhiana.

- “Floriculture in Hills” by Desh Raj published by Agrotech Publishing Academy, Udaipur (Rajasthan).

- “Studies on the Adaptational Aspects of Migratory Sheep/Goat of Himachal Pradesh by K.B. Sharma and R. Kumar published by CSKHPKV, Palampur.

- “Chegu: a Pashmina Goat of Himalayas” by R.A.K Agarwal, Y.P. Thakur, N.K. Verma, S.P. Dixit, D. Kumar, R.Sharma and S.P.S. Ahalawat published by National Bureau of Animal Genetics Resources, Karnal.

- “Post Harvest Technology of Vegetables” by Manoranjan Kalia published by Agrotech Publishing Academy, Udaipur (Rajasthan).

- “Proceedings of International Workshop on Protocols & Methodologies in Allelopathy” by G.L.Bansal and S.P.Sharma published by Azad Hind Printing Press, New Delhi.

- “Package of Practices (Vegetable Crops)” by Directorate of Extension

Education, CSKHPKV, Palampur.

- "A Compendium for Effective English" by Rajan Katoch published by Kalyani Publishers, New Delhi.
- "Post-harvest Management and Value Addition" by A.K.Goel, Rajinder Kumar and S.S.Mann published by Daya Publishing House, New Delhi.
- "Pecan a Promising Fruit for Mid Hills" by Badyal and S.K.Upadhyaya published by Department of Horticulture, CSKHPKV, Palampur.
- "Equine Husbandry in the Mountains" by S.K. Chauhan published by Mittal Publication, New Delhi.

Distinguished Visitors

- Sh. V.S. Kokje, H.E. the Governor of Himachal Pradesh and Chancellor of CSKHPKV, Palampur visited the University on 10th January, 2006.

- Sh. Virbhadra Singh, Hon'ble Chief Minister visited the Krishi Vigyan Kendra, Kangra on 12th January, 2006 to inaugurate Lab-cum-office and Farmers Hostel Buildings.

- Hon'ble Minister of Agriculture of Arunachal Pradesh visited Dr. G. C Negi College of Veterinary & Animal Sciences on 16th July, 2005.

- Sh. Ram Lal Thakur, Hon'ble Forest Minister, Himachal Pradesh, visited KVK, Berthin (Bilaspur) on 29th September, 2005, to inaugurate Kisan Mela.

- Maj. General Daljeet Singh, New Delhi visited the Department of Agroforestry & Environment to discuss about the medicinal and aromatic plants on 11th October, 2005.

- Dr. V.L. Chopra, Ex-Director General, ICAR & Member, Planning Commission, Govt. of India visited the College of Basic Sciences on 10th November, 2005.

- Dr. Tilak Dhiman, Consultant American Soybean Association, Uttah State University, USA delivered a lecture entitled "Recent Advances in Dairy Production" on 26th December, 2005.

- Five Member Pakistani delegation including the Vice-Chancellor of the University of Agriculture, Faislabad visited the University library on 10th January, 2006.

- Dr. (Ms) Mary Andrew from Iowa State University visited the College of Home Science on 23rd February, 2006.

- Prof. Yasuhiko Mukai, a Japanese Scientist & world-renowned authority in the sphere of Molecular Cytogenetics visited Department of Plant Breeding & Genetics for period of one-month w.e.f. 15th February, 2006 to 15th March, 2006 and shared his technical know-how in the sphere of molecular cytogenetics and doubled haploidy breeding in the International Collaborative Project under Indo Japan Co-operative Science Programme sponsored by DST, GOT & JSPS, Japan

- Dr. (Mrs.) Manju Sharma, Secretary, Department of Biotechnology, Govt. of India, New Delhi visited the Centre for Geo Informatics Research and Training and Museum along with scientists of IHBT on 12th May, 2006 appreciated the facilities created in CGRT and research work being carried out therein.

- Major General R.K.Karwal, AVSM, SM, VSM, ADG(B), HQ DG NCC, New Delhi visited the University alongwith his staff in connection with strengthening the NCC activities on 17-18th May, 2006.

- Smt. Hitesh Kumar Lodhi, Ex Minister (U.P.Govt.) and Member of the ICAR Governing Body visited the University on 19-20th June, 2006.

- Sh. Rikhi Ram Kaundal, Ex- Minister H.P. visited KVK, Berthin on 26th June, 2006 to know about the management of weeds in the grasslands.

- ISO 9001-2000 Certification Team visited the University to work out the modalities regarding grant of ISO to the University.