ANNUAL REPORT

2011-12

CENTRAL AGRICULURAL UNIVERSITY

COLLEGE OF HORTICULTURE AND FORESTRY

PASIGHAT, ARUNACHAL PRADESH

CONTENT

Chapter-1

COLLEGE PROFILE

1.2.1.4 College of Horticulture & Forestry, Pasighat, Arunachal Pradesh

The College of Horticulture & Forestry, a constituent College of the Central Agricultural University, Imphal, Manipur, was established on March 7th 2001 at Pasighat, Arunachal Pradesh on the bank of beautiful river Siang. The mandates of College are – (i) to impart education in different branches of Horticulture and Forestry and allied Sciences, (ii) to carry out research for promotion of Horticulture and Forestry and (iii) to undertake different extension programmes that help in the transfer of technologies generated to the end-users. Since inception, the College has witnessed a sea change in its activities. The College has enabled to develop infrastructure facilities such as New Academic Block, Transit Hostel, Guest House, Girls Hostel, Common Utility Block, V.C. Camp Office, Health centre, Staff Residences and Auditorium *etc*. The College has well equipped state of art Laboratories and interactive class rooms, Video conferencing hall, Conference hall, Library, Computer lab, students' activity centre, *etc.*

The campus is spread over in an area of 58 hectares which includes research farm, instructional cum demonstration farm, KVK farm, and experimental farms with water harvesting tank *etc*. The College has achieved incredible progress in teaching, research and extension activities since its inception. At present, the College has 11 departments to support academic, research and extension activities. The academic programmes includes undergraduate degree in Horticulture (B.Sc. Hort.) and Forestry (B.Sc. Forestry) and post-graduate degree in Horticulture (M.Sc. Horticulture in Fruit Science and M.Sc. Horticulture in Vegetable Science).The curriculum and syllabi of all degree programmes are updated, and implemented as per the ICAR - IVth Deans' Committee recommendations.

The College gives due consideration for overall development of the students through their participation in extra-curricular activities *viz.* games and sports, literary activities, cultural programmes, arranging special lectures, regional and national educational tours besides their normal academic activities. The College is fully committed to impart the best quality education in the areas under its jurisdiction which is well reflected through the outstanding performance of students in the ICAR-JRF and ICFRE examinations, securing admission in the advanced institutes across the country and abroad. The students of this college have also been selected for employment in various public and private sector organisations. The teaching, research and extension activities in the College are executed by proficient, energetic and well qualified faculty.

During the year 2011-12, the College handled 7 All India Coordinated Research Projects and 3 All India Network Projects sanctioned by ICAR, 8 externally funded research projects sanctioned by different national bodies like DST, DBT, C-DAC, Ministry of Communication Technology, NABARD and Technology Mission *etc*. and Intramural Research Projects funded by the University.

The College also run one Krishi Vigyan Kendra (Farm Science Centre) to facilitate the transmission of up to date technologies in field of Agriculture, Horticulture and allied disciplines to the farming community and other stakeholders of East Siang district of Arunachal Pradesh.

Chapter-2

ACADEMIC AND STUDENTS WELFARE

2.1 Academic Activities of the College

2.1.1 Teaching

The details of state wise seats allocated to different UG and PG programmes during 2011-12 are given below:

Table 1: Students ALLOCATION during 2011-12 from different states of North-Eastern region

Sl. No.	Degree Programmes	States								
		Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura	ICAR/VCI	Total
4.	B.Sc. (Horti)	07	07	06	06	02	06	07	07	48
	B.Sc. (Forestry)	04	05	03	04	-	04	03	04	27

2.1.1.1 Intake capacity and Number of students Admitted in 2011-12

The intake capacity, number of students admitted and number of students passed out from the for UG and PG programmes for the academic session 2011-12 is as given below:

Sl. No.	Name of the College	Name of the course	Intake capacity (2011-12)	No. of students admitted/ Passed out during 2011-12	
				Admitted	Passed out
4.	College of Horticulture & Forestry, Pasighat, Arunachal Pradesh	B.Sc.(Horticulture)	48	39	24
		B.Sc.(Forestry)	27	14	10
		M.Sc.(Horticulture)	08	04	05

2.1.1.2 Male: Female Ratio

Numbers of male and female students studying in different degree programmes are shown below.

Sl. No.	College	Total students	Male students		Female students		Male: Female Ratio
			No.	%	No.	%	
4.	College of Horticulture & Forestry, Pasighat	UG 192	103	53.6	89	46.4	1.16:1
		PG 10	01	10.0	09	90.0	0.11:1

2.1.1.3 Category wise Student Strength

The details of category wise break-up of student population in various UG & PG programmes are given below:

Sl.No	College wise Degree Programmes	Students Strength				Total
		Gen	SC	ST	OBC	
4.	College of Horticulture & Forestry, Pasighat					
	B.Sc. (Horticulture)	17	08	89	18	133
	B.Sc. (Forestry)	06	02	36	15	59
	M.Sc.(Horticulture)	01	-	07	02	10

2.1.1.4.1 First Rank Holders under UG Programme during the year, 2011-2012

Sl.No.	College	Degree offered	Name of student	OGPA
4.	College of Horticulture & Forestry, Pasighat	B.Sc.(Horticulture)	Ms. Henuka Rai	8.62
		B.Sc.(Forestry)	Ms. Pempa Lamu Bhutia	8.39

2.1.1.4.2 First Rank Holders under PG Programme during the year, 2011-2012

Sl.No.	College	Department	Name of student	OGPA
4.	College of Horticulture & Forestry, Pasighat	Fruit Science	Mr. Archan Rabha	8.06
		Vegetable Science	Mr. Teibormiki Challam	8.21

2.1.1.5 National Talent Scholarship of ICAR and University Grant Merit Scholarship

The college wise list of no. of students who received National Talent Scholarship/Fellowship of ICAR, New Delhi and University Grant Merit Scholarship during 2011-2012 is as given below:

Sl. No.	Name of the college and course offered	Year	NTS	UGMS
4.	College of Horticulture & Forestry, Pasighat			
	B.Sc. Forestry	1st year	2	1

		2nd year	3	1
		3rd year	0	1
		4th year	1	1
	B.Sc. Horticulture	1st year	3	1
		2nd year	5	1
		3rd year	1	1
		4th year	1	1

2.1.2 Students Strength in 2010-11

A) Under Graduate Programmes

Sl. No.	Name of college	Degree	Year wise students strength						Passed Out in 2011
			1st	2nd	3rd	4th	5th	Total	
4.	College of Horticulture & Forestry, Pasighat	B.Sc.(Horticulture)	39	39	40	15	-	133	24
		B.Sc. (Forestry)	14	20	10	15	-	59	10

B) Post Graduate Programmes

Sl. No.	College & Departments	Intake Capacity	Students Strength		Total	Students Passed Out in 2011
			M.Sc. Prev.	M.Sc. Final		
4	College of Horticulture & Forestry, Pasighat					
	Fruit Science	04	02	02	04	02
	Vegetable Science	04	02	04	06	03
	Sub Total	**08**	**04**	**06**	**10**	**05**

2.2 Library Services

The college library is equipped with all state-of-the-art facilities viz. internet facilities with CERA, CAB abstracts, periodicals, journals, books, news papers, magazines, bulletins and reprographic amenities. The library is having 10898 numbers of books, 50 national and international journals, 5 daily newspapers and weekly employment news. Daily 30-40 students and equal number of staffs visit the library, while sitting arrangement of only 20 persons at a time is available in this unit. At present, space, furniture and more number of computer systems with access to different scientific journals are urgently required by the college library to facilitate the support to increasing number of students and staff.

2.3 Computer Facilities

The college is equipped with well-furnished Computer Laboratory consisting of more

than 20 Computers. These computers are connected to internet through 2 mbps Leased Line connection with Wi-Fi facility and also the internet connection is provided to all departments. All the CHF members and students are accessing the internet for carrying out their academic and research activities.

2.4 Students' Welfare & Extra Curricular Activities

2.4.1 College Week

The college celebrated 11th College Week during 10 – 15th October, 2011 in which students actively participated in different activities like sports and games, cultural and literary events. In sports and games, 15 events viz. 100 m, 200 m and 400 m, 4X100 m relay race, discuss through, javelin through, shot-put through, long jump, high jump, cricket, football and volleyball while indoor events viz. table tennis, chess and arm wrestling were held. Students enthusiastically competed in various cultural events viz. solo song, group song, solo dance, group dance, skit, etc. They also contested in various literary activities like *rangoli*, debate, painting, flower arrangement, quiz and essay writing.

2.4.2 National Service Scheme (NSS) and Other Social Activities

- Cleaning in the Football ground and in the Plantation near the girls' hostel,
- Preparation of Volleyball ground for the Girls and cl
- eaning of plantation near the girls' hostel.
- Students participated in the AIDS awareness campaign organised by the State AIDS Awareness Society, Department of Health & Family Welfare Arunachal Pradesh.
- Road cleaning drive was organised by the NSS students.
- World health day was observed by the NSS student by preparing charts on the most dangerous diseases of the world.
- Hostel cleaning was done by the NSS student under the clean campus drive.
- Training on the First aid was organised for NSS students.
- Training on Disaster Management during earth quake and flash flood was given to the NSS students

2.4.3 Medals and Awards to Students

Every year, the College of Horticulture & Forestry, CAU, Pasighat appreciates its student who secures the first rank in his/her class concerned with a certificate of appreciation along with a token prize on the day of celebration of College Foundation Day. Keeping in view, sixteen (16) students have been identified based on their academic performance and two (02) has been identified as the Best Outgoing Students based on overall performance in academic, hostel discipline, extracurricular activities and Rural Horticulture Work Experience (RHWE)/ Forestry

Work Experience (FEW) performance on the occasion of the 11th College Foundation day. Yearwise name of the students are given below:

I. **B. Sc (Horticulture)**

1. List of students scoring highest GPA in academic year 2010-11

Year	Admn. No.	Name of student	GPA	Rank
IV Year	03H-2007	Ms. Henuka Rai	8.65	I
III Year	10H-2008	Ms. Dipti Ranjan	8.87	I
II year	01H-2009	Mr. N. Rabichandra Meitei	8.55	I
I year	10H-2010	Ms. L. Asha Kiran Devi	8.74	I
I Year 1st Sem.	22H-2011	Mr. Gevang Tamut	8.28	I

2. Student securing highest OGPA (VII th batch)

Year	Admn. No.	Name of student	OGPA	Rank
IV Year	03H-2007	Ms. Henuka Rai	8.62	I

3. Best outgoing student (VII th batch)

Year	Admn. No.	Name of student	Score	Rank
IV Year	03H-2007	Ms. Henuka Rai	93.00	I

II. B. Sc. (Forestry)

1. List of students scoring highest GPA in academic year 2010-11

Year	Admn. No.	Name of student	GPA	Rank
IV Year	01F-2007	Ms. Pempa Lamu Bhutia	8.97	I
III Year	10F-2008	Ms. Rising Panmei	8.64	I
II Year	05F-2009	Mr. Napolean Rongmei	8.53	I
I Year	08F-2010	Mr. Luwang Bishwanath	8.78	I
I Year 1st Sem	02F-2011	Ms. Miranda Kongbrailatpam	8.52	I

2. Student secured highest OGPA (Ist batch)

Year	Admn. No.	Name of student	OGPA	Rank
IV Year	01F-2007	Ms. Pempa Lamu Bhutia	8.39	I

3. Best outgoing student (Ist batch)

Year	Admn. No.	Name of student	Score	Rank
IV Year	01F-2007	Ms. Pempa Lamu Bhutia	94.00	I

III. M. Sc (Horticulture)

1. List of students scoring highest GPA in academic year 2010-11

Year	Admn. No.	Name of student	GPA	Rank
I Year 1st Semester (Fruit Science)	02H(M)-2011	Ms. Lalrinchhani	9.22	I
I Year 1st Semester (Vegetable Science)	03H(M)-2011	Mr. Venkata Ramana Muddarsu	8.06	I
I Year (Fruit Science)	01H(M)-2010	Ms. Rebecca Eko	8.50	I
I Year (Vegetable Science)	04H(M)-2010	Ms. Tasso Yatung	8.25	I

2.4.4 Students Training, Counselling and Placement Activities

The passed out students of college have shown excellent performance at national level competitive examinations for JRF as well as in admissions in national/premier institutes of higher learning. The performance of the students in year 2011-2012 is shown below:

Sl. No.	College	Performance in JRF Examination					Students Admitted to National Institutes/DUs
		Students appeared	Students qualified		Students secured JRF		
		No.	No.	%	No.	%	
4.	College of Horticulture & Forestry, Pasighat						
	B.Sc. Horti	23	21	91.30	05	21.74	01
	B.Sc. Forestry	08	08	100.00	02	25.00	05

2.5 Hostel facilities

The strength of boarders and facilities available in hostels are shown below:

Sl. No	College	Hostel	Strength	Facilities Available
4.	College of Horticulture & Forestry, Pasighat	Boys	104	Modular Kitchen, Uninterrupted electric supply with generator backup, advanced facilities like recreation room equipped with LCD TV, Newspapers, Hostel Library, Magazine along with indoor and outdoor

Sl. No	College	Hostel	Strength	Facilities Available
				games facilities like TT, Carrom board, Chess, Badminton, Gym, Volleyball, etc.
		Girls	97	Uninterrupted electric supply with generator backup, advanced facilities like recreation room equipped with LCD TV, Newspaper, Library, Magazine along with indoor and outdoor games facilities like TT, Carrom board, Chess, Badminton, Gym, Volleyball, etc.

2.6 Medical Facilities

Sl. No.	College	Name of Medical Officer	Day and time of Visit
1	College of Horticulture and Forestry	Dr. L. Moyong	Mon- Wednes-Friday 3.30pm- 4.30pm

Chapter-3

RESEARCH AND DEVELOPMENT

3.1 All India Coordinated Research Projects

3.1.1 AICRP on Potato

(a) Crop Improvement

Experiment 1

On farm trial with early maturing hybrids

Objective

Evaluation of early maturing hybrids for tuber yield at 60 and 75 days after planting

Results

One early maturing hybrid AICRP EM3 was evaluated along with three check varieties viz., AICRP C-4, AICRP C-14 and AICRP C-17 at 60 and 75 days crop duration in Randomized Block Design with three replications during *rabi* season 2011-12. Out of these four, AICRP C-17 gave maximum tuber yield of 28.75 t/ha and 31.75 t/ha at both 60 and 75 days crop duration, respectively. However, hybrid AICRP –EM3 was second highest yielder with 27.75 t/ha. and 29.75 t/ha. at both 60 and 75 days crop duration, respectively.

Experiment 2

Trial with old early maturing hybrids

Objective

To identify the best old early maturing hybrid for tuber yield at 60 and 75 days crop duration

Results

Hybrid AICRP EM1 was evaluated along with three check varieties viz. AICRP C-4, AICRP C-14 and AICRP C-17 for 60 and 75 days crop duration in R.B.D. with six replications during *rabi* season 2011-12. For marketable tuber yield at 60 days AICRP EM1 yielded maximum tuber yield of 32.64 t/ha while at 75 days crop duration, AICRP C-14 yielded maximum marketable tuber yield (39.28 t/ha).

Experiment 3

Trial with old medium maturing hybrids

Objective

To identify the best old medium maturing hybrid for tuber yield at 75 and 90 days crop duration

Results

One hybrid AICRP MM-12 with three checks viz. AICRP C-4, AICRP C-13 and AICRP C-18 were evaluated for 75 and 90 days crop duration in R.B.D. with six replications during *rabi* season 2011-12. At 75 days crop duration, maximum marketable tuber yield was recorded in AICRP C-18 (38.99 t/ha) however at 90 days crop duration AICRP C-4 resulted maximum marketable tuber yield of 40.62 t/ha.

(b) Crop Production

Experiment 1

Organic fertilizer based potato production

Objective

To examine effect of different organic treatments on tuber yield

Results

Experiment was carried out by using different organic treatment viz., T_1(Crop residue incorporation), T_2(Crop residue incorporation of French bean and Cowpea + microbial culture to decompose crop residues), T_3(Crop residue incorporation + biofertilizer (Azotobacter and Phosphobacteria) + microbial culture), T_4(Crop residue incorporation + biofertilizer (Azotobacter and Phosphobacteria) + Vermicompost @ 5t/ha + microbial culture), T_5(T_3 + FYM@ 20 t/ha + microbial culture), T_6(FYM on N basis as per the recommended dose) and T_7(recommended dose package of practices) replicating four times in R.B.D. to find out their effect on tuber yield /ha in variety Kufri Jyoti. T_7 showed the maximum tuber yield of 26.10 t/ha followed by T_4 and T_6 (10.90 t/ha).

Experiment 2

Development of agro techniques for potato cultivars

Objective

To identify the suitable agro techniques for potato variety Kufri Surya

Results

Experiment was carried out by using different nitrogen levels viz., T1 (0:120:100 kg/ha NPK), T 2(75:120:100 kg/ha NPK), T 3(150:120:100 kg/ha NPK), T 4(225: 120:100 kg/ha NPK) and T5 (300: 120:100 kg/ha NPK) replicating four times in R.B.D. to find out their effect on tuber yield /ha in variety Kufri Surya. T_3 showed the maximum tuber yield of 31.11 t/ha followed by T_4 (26.62 t/ha).

Experiment 3

Effect of calcium on improving post harvest qualities of potatoes (Source of Calcium: Ca So_4)

Objective

To examine the effect of calcium on potato skin damage at harvest and under room storage

Results

The experiment was carried out by using seven treatments viz., T_1(No application of calcium), T_2(Application of 40 kg Ca/ha at the time of planting), T_3(Application of 20 kg Ca/ha at the time of planting and 20 kg/ha at the time of earthing up), T_4(Application of 80 kg Ca/ha at the time of planting), T_5(Application of 40 kg Ca/ha at the time of planting and 40 kg/ha at the time of earthing up), T_6(Application of 120 kg Ca/ha at the time of planting) and T_7(Application of 60 kg Ca/ha at the time of planting and 60 kg/ha at the time of earthing up) on post harvest qualities of potato tuber in variety K. Pushkar in R.B.D. with four replications. Least skin damaged tuber (0.15 t/ha) was recorded in treatment T_3 at harvest.

Experiment 4

Studies on the shift of planting dates in view of the rising temperature and correlation of yield with temperature

Objective

To examine the effect of date of planting on tuber yield at different planting interval

Results

Four varieties viz., K Pushkar, K. Pukhraj, K. Ashoka and K. Chandramukhi were planted at five different planting dates viz., 11th October, 26th October, 17th November, 3nd December and 18th December 2011-12 in R.B.D. with four replications. The highest tuber yield recorded at 26th October 2011 date of planting in variety K. Pukhraj with 39.58 t/ha followed variety K. Chandramukhi (38.33 t/ha) at the same date of planting. On the basis of three years experiment second fortnight of October may be considered as best planting time for getting higher yield of variety K. Pukhraj.

(c) Crop Protection

Experiment 1

Monitoring of late blight and A_2 mating type of *P. infestans* in standing crop and tubers at harvest and after cold storage

Objective

To see the date of the first appearance of late blight at three different planting dates (D_1- 20/10/2011, D_2 - 05/11/2011 and D_3- 21/11/2011) in susceptible variety K. Ashoka

Results

Late blight appears after 59 days of first date of planting i.e. 20/10/2011, 51 days after second date of planting i.e. 05/11/2011and 38 days after third date of planting 21/11/2011. Disease intensity was highest (22.25 %) in third date of planting. However, highest disease incidence was recorded (28.58 %) at the third date of planting.

Experiment 2

Surveillance of important potato pests in the region

Objective

Surveillance of important potato pests in pest capture plots

Results

Five varieties viz., K. Pushkar, K. Surya, K. Pukhraj, K. Ashoka and K. Jyoti were planted in pest capture plots for surveillance of important foliage and soil pest. Maximum percent incidence of late blight (21.50 %), aphid and thrips (25 %), severe mosaic (21.00 %), mild mosaic (4.0 %) and leaf roll (3.5 %) observed in variety K. Jyoti and percent intensity of late blight (12 %), aphid and thrips (14.00 %), white fly (7.0 %), severe mosaic (8.00 %), mild mosaic (3.25 %) and leaf roll (2.15 %) was observed in variety K. Jyoti in standing crop. However, maximum incidence (32.00%) of common scab noted in variety K. Pushkar at harvest.

Experiment 3

Monitoring of aphids, *Myzus persicae* and *Aphis gossypii* in unsprayed potato crop

Objective

To examine the first appearance of aphids, M*yzus persicae* and A*phis gossypii* and their peak population

Results

Experiment was carried in 400 m^2 area of variety K. Jyoti (unsprayed) for monitoring of aphid population. Population of M*yzus persicae* was highest (173/ 100 compound leaf) during 3rd week of January. However peak population of *Aphis gossypii* (40/ 100 compound leaf) was recorded in 4th week of February.

3.1.2. AICRP on Vegetable Crops

(a) Crop Improvement

Experiment 1

Tomato (Determinate) AVT-II

Objective

To identify the promising genotype (s) for fruit yield

Results

Eight genotypes of tomato received from IIVR, Varanasi were evaluated in RBD with three replications along with check variety H-86 at Pasighat, Arunachal Pradesh during *Rabi* 2011-12. Among the genotypes evaluated genotype 09/TODVAR-2 gave highest fruit yield with 53.69 t/ha followed by genotype 09/TODVAR-8(53.23 t/ha) and 09/TODVAR-1(41.69 t/ha). First two genotypes were significantly superior over the check variety H-86 (39.52 t/ha) at 5 % level.

Experiment 2

Tomato hybrid (Det.) IET

Objective

To identify the promising hybrid (s) for fruit yield

Results

Six hybrids of tomato received from IIVR, Varanasi were evaluated in RBD with three replications along with two check variety DVRT-2(OPC) and BSS-488(C) at Pasighat, Arunachal Pradesh during *rabi* 2011-12 Maximum fruit yield recorded in hybrid 11/TODHYB-3(71.70 t/ha) followed by hybrid 11/TODHYB-6 (66.03 t/ha) and 11/TODHYB-2 (59.43 t/ha) which was significantly superior over the check variety BSS-488 (39.30 t/ha) at 5 % level.

Experiment 3

Tomato (Det.) IET

Objective

To identify the promising genotype (s) for fruit yield

Results

Five genotypes of tomato received from IIVR, Varanasi were evaluated in RBD with three replications along with check variety H-86 at Pasighat, Arunachal Pradesh during *rabi* 2011-12 Maximum fruit yield recorded in 11/TODVAR-4 (52.90 t/ha) followed by 11/TODVAR-1(49.76 t/ha) and 11/TODVAR-3 (38.53 t/ha). First two genotypes were significantly superior over the check variety H-86 (34.46 t/ha) at 5 % level.

Experiment 4

Tomato Indeterminate - IET

Objective

To identify the promising genotype (s) for fruit yield

Results

Five genotypes of tomato received from IIVR, Varanasi were evaluated in RBD with three replications along with check variety Arka Vikas at Pasighat, Arunachal Pradesh during *rabi* 2011-12 Maximum fruit yield recorded in 11/TOINDVAR-5(68.63 t/ha) followed by 11/TOINDVAR-2 (64.95 t/ha) and 11/TOINDVR-3 (56.54 t/ha). All these three genotypes were significantly superior over the check variety Arka Vikas (45.36 t/ha) at 5 % level.

Experiment 5

Tomato hybrid determinate – AVT-I

Objective

To identify the promising hybrid (s) for fruit yield

Results

Nine promising hybrids of tomato received from IIVR, Varanasi were evaluated in RBD with three replications along with check variety DVRT-2 at Pasighat, Arunachal Pradesh during *rabi* 2011-12 Maximum fruit yield recorded in 10/TODHYB-1(62.19 t/ha) followed by 10/TODHYB-1 (58.85 t/ha) and 10/TODHYB-8 (58.39 t/ha). All these three genotypes were significantly superior over the check variety DVRT-2 (25.70 t/ha) at 5 % level.

Experiment 6

Cabbage hybrid – AVT-I

Objective

To identify the promising hybrid (s) for yield

Results

Six hybrids of cabbage received from IIVR, Varanasi were evaluated in RBD with three replications along with two checks Kranti and Quisto at Pasighat, Arunachal Pradesh during *rabi* 2011-12. Maximum head yield was recorded in Cabbage Hybrid-1(48.84 t/ha) followed by Cabbage Hybrid- 6(47.73 t/ha) and Cabbage Hybrid-5(44.6t/ha). None of evaluated hybrids shown significant superiority over both check i.e. Kranti (41.63 t/ha) and Quisto (44.10 t/ha).

Experiment 7

Evaluation of Ridge gourd (IET)

Objective

To identify the promising genotypes for yield and related traits

Results

Ten entries of Ridge gourd were received from IIVR, Varanasi, U.P. All entries were evaluated during kharif 2011. Minimum days for 50% emergence were taken by 2011/RIGVAR- 3, 2011/RIGVAR- 4, 2011/RIGVAR- 5 and 2011/RIGVAR- 6 (7.0). Maximum vine length was observed in 2011/RIGVAR- 9(269.4 cm) while maximum number of primary branches was recorded in 2011/RIGVAR- 7(3.9) while minimum days to 50% female flower opening was recorded in 2011/RIGVAR- 2, 2011/RIGVAR- 4 (39.3). However, minimum days to first harvest was recorded in 2011/RIGVAR- 4 (46.0). Maximum fruit yield was recorded in 2011/RIGVAR- 4(162.6 q/ha) followed by 2011/RIGVAR- 5 (156.8q/ha) and 2011/RIGVAR- 6 (153.4 q/ha) and were significantly superior over check and other entries.

Experiment 8

Evaluation of Sponge gourd (IET)

Objective

To identify the promising genotypes for yield and related traits

Results

Nine entries of Sponge gourd were received from IIVR, Varanasi, U. P. All entries were evaluated during kharif 2011. Minimum days for 50% emergence were taken by 2011/SPGVAR-8 and Pusa Chikni (8.5) while minimum days to 50% female flower opening was recorded in2011/SPGVAR-1(42.0).However, minimum days to first harvest was recorded 2011/SPGVAR-8 (50.0) Maximum fruit yield was recorded in 2011/ SPGVAR-7 (161.6 q/ha) followed by 2011/ SPGVAR-3 (148.7q/ha) and no entry shown significant superiority over the Pusa Chikni (check).

3.1.3 AICRP on Spices

(a) Crop Improvement

Experiment 1

Genotype X Environment interaction on quality of ginger

Objective

To identify the best variety(s) of ginger for yield and quality parameters for the region

Results

Growth, yield and quality parameters were studied among the nine varieties of ginger in RBD with three replications during 2011-12 at Pasighat, Arunachal Pradesh. The mean data on growth and yield pamameters showed that variety Nadia recorded maximum plant height (54.03cm.); Surabhi pruduced maximum number of tillers per plant (12.80) and leaf length (23.64cm) while variety V3S1-8 had maximum leaf breath (2.73cm). However variety Surabhi was recorded as highest yielder (7.26 kg/3m^2 and 24.17 t/ha) of fresh rhizome followed by Nadia (6.98 3m^2 and 23.25 t/ha) and Varada (6.50 kg/3m^2 and 21.64 t/ha) while lowest yield was recorded in variety Rejatha (5.50 kg/3m^2 and 18.32 t/ha). The mean values on quality parameters revealed that variety Suruchi had maximum dry recovery (22.53%); Nadia gave highest crude fibre (5.50 %); V3S1-8 produced highest oleoresins (9.47 %) and variety Surabhi produced maximum essential oil (6.18 %) content. On the basis of three years yield performance variety Surabhi may be promoted for commercial cultivation among the ginger growers of the region.

Experiment 2

Collection, characterization, evaluation and conservation of turmeric germplasm

Objective

To identify the best genotype for yield and quality parameters

Results

Thirty eight (35 old + 3 new) diverse genotypes of turmeric were collected from entire NE region and evaluated in Randomized Block Design with three replications

along with check variety Megha Turmeric-1 during 2011-12 at the centre. The genotypes CHFT-8 (30.41 t/ha), CHFT-32 (29.42 t/ha), CHFT-12 (29.60 t/ha) gave significantly higher fresh rhizome yield as compare to check variety Megha Turmeric-1 (25.80 t/ha). while check variety Megha Turmeric-1 had highest curcumin content (7.40%) followed by CHFT-17 (6.87%) and CHFT-24(6.41%). These genotypes would be further evaluated in replicated yield trial in future.

Experiment 3

Coordinated Varietal Trial of Turmeric

Objective

To identify the best genotype for yield and quality parameters

Results

Six genotypes of turmeric namely RH-9/90, RH-13/90, RH-80, RH-50, TCP-129 and TCP-70 were received from different coodinating centres and evaluated in Randomized Block Design with three replications along with Local Check Megha Turmeric-1 during 2011-12 at Pasighat, Arunachal Pradedh. The mean values of growth and yield parameters of seven genotypes showed that genotype TCP-70 recorded maximum plant height (110.30cm) followed by TCP-129 (94.57cm) and RH-50 (92.67cm) while lowest plant height was recorded in Megha Turmeric-1(81.07cm). Genotype RH-80 produced maximum number of tillers per plant (4.47) followed by RH-13/90 (4.27) and RH-50(4.20) where as least number of tillers was recorded in TCP-70 and TCP-129 (3.53). Number of leaves per tiller was observed highest in RH-13/90 (6.20) followed by RH-80 (5.87) where as lowest number of leaves per tiller was recorded in RH-9/90 and TCP-129 (5.73). Only genotype RH-9/90 (9.73 kg/3m^2 and 32.41 t/ha) gave significantly higher yield as compared with local check variety Megha Turmeric-1(7.73 kg/3m^2 and 25.75 t/ha). In terms of quality parameters, the genotype RH-50 recorded the highest dry recovery (21.63%) content and genotype RH-80 produced maximum oleoresins content (10.53%) while Megha Turmeric-1 given maximum curcumin (7.40%) and essential oil (6.47%)content.

3.1.4 AICRP on Mushroom

Objective 1: Collection, identification and conservation of wild edible mushrooms from local market.

Results

Wild mushroom species were surveyed and collected during rainy season in jungle, deep forest and decayed wooden trees. Eighteen edible species include six *Pleurotus* spp, four shiitake, six jews ear and two milky mushrooms were collected. All the edible mushrooms are collected from edible fruit trees. The entire edible species are attempted to culture in the laboratory. Only three sp viz., CHF2012_9, 13 and 14 are able

to grow on PDA media. The entire three sp were deposited to DMR, culture bank. Ethnic knowledge is also explored during the identification of spp. Cooking and eating of pork with mushroom is created some health problem. Mushroom from Cesar tree is edible.

Objective 2: Evaluation of high yielding varieties/strains of Oyster Mushroom (*Pleurotus* spp)

Results

Totally six strains are evaluated in this region viz., PL11-01 to PL1106The average yield was very high in strain PL11-02 (550g) followed by PL11-03 (427g).strain PL11-05 and PL11-06 have taken less days compare to other strains. Highest pileus radius was observed in PL11-03 followed by PL11-02.

3.1.5 AICRP on Biological Control

Objective 1: Bio-efficacy of EPNs against Citrus trunk borer, *Anoplophora versteegi*.

Results

Seven strains (collections) of entomopathogenic nematodes (EPNs) *viz*. NBAII-01, NBAII-04, CAU-1, CAU-2 and CAU-3, CAUH-1 and CAUH-2 were evaluated against third instar larvae of Citrus trunk borer, *Anoplophora versteegi* under the laboratory condition. The EPNs were prepared in two different concentrations i.e. at 50 and 20 ijs/ ml. The larvae were placed in petri plates lined with blotting paper. Each treatments were replicated five times with five larvae in each replica. Five ml of the EPN solutions were pour in each plate. The mortality per cent was recorded upto 96 hrs after treatment. At 50 ijs, 84 to 92 per cent mortality take place in 48 hrs after treatment and all the collections gave 100 per cent mortality at 72 hrs after treatments. However, in the lower concentration (20ijs/ml) mortality was negligible in 48 hrs. At 72 hrs, mortality ranged from 72 to 88 per cent and at 96 hrs all the grubs died. Larvae killed by the *Heterorhabditis* showed chocolate brown colour. No mortality was recorded in the untreated control upto 96 hrs.

Objective 2: Evaluation of IPM for upland rice pest and diseases.

Results

The experiment was carried out at three locations of East Siang District of Arunachal Pradesh, viz. Sille, Pasighat and Mebo. In each location three treatments viz. IPM practice, farmer's practice and untreated control were maintained and each treatment was replicated three times. The local high yielding rice cultivar 'Itanagar' was used for the experiment. The IPM practice includes- seed treatment with Pseudomonas florescence (Su-mona, Pest Control India Limited, Mumbai) @ 5gm/ kg of seed; installation of yellow stem borer trap from 40 days after transplanting (DAT) @ 15 traps / ha; spraying of entomopathogenic nematode (EPN) (CAU-1) at 40,50, 60 and 70 DAT and installation of fermented snail trap from 85 DAT @ 20 traps/ ha area. Farmer's

Practice includes seed treatment with carbendazim @ 2gm/ kg of seed, spraying of 0.05% profenophos/ monocrotophos at 40, 55, 70 and 85DAT. The stem borers (*Chilo suppressalis*, *Scirpophaga incertulas* and *Sesamia inferens*) infestation was recorded at 45, 55, 65, 75 and 85 DAT as per cent dead heart(DH)/ white ear head (WEH) from randomly selected 10 hills per plot. The gundhi bug (*Leptocorisa oratorius*) was recorded as per cent damage grain from 10 randomly selected panicles/ plot at 95 and 105 DAT. At Sille, IPM practice was on par with the untreated control in stem borer infestation in the early crop stage; however, after four rounds of EPN spray, at 85 DAT, % WEH (2.44) was significantly lower than the untreated control (5.14). At Pasighat and Mebo, significantly lower incidence of stem borers in the IPM practice than the untreated control was observed from 65 DAT (except at 75 DAT at Mebo). Farmers practice using chemical pesticides recorded lesser infestation of stem borer than the IPM practice. The population of *S. incertulas* capture in the trap was very low. The gundhi bug infestation in the IPM practice and farmer's practice was comparable all the three locations. Average per cent infested grains in IPM practice were 0.81, 0.76 and 0.94 at Sille, Pasighat and Mebo, respectively. The grain yield of IPM practice was on par with the farmer's practice in all the three locations.

Objective 3: Evaluation of entomopathogenic fungi against Citrus trunk borer, *Anoplophora versteegi.*

Results

Entomopathogenic fungi *viz. Metarrhizium anisopliae* (Metagreen, Green Harvest Bio-tech Pvt. Ltd. , Mumbai) , *Beauveria bassiana* (Beauvegreen, Green Harvest Bio-tech Pvt. Ltd. , Mumbai) and *M. anisopliae* (local strain) were evaluated for their efficacy against adult citrus trunk borer, *Anoplophora versteegi* under the laboratory condition. The fungi were applied topically and also treated with the leaves. The spray solutions of metagreen and beauvegreen were prepared at 10ml/lit of water and that of *M. anisopliae* (local strain) at $2X10^8$ cfu/ml. The adult mortality was recorded upto 10 days after treatment. Each treatment were replicated 10 times with one adult in each replica. None of the treatment could produce high mortality. The highest mortality of 20 per cent was recorded at 5^{th} day after treatment in *M. anisopliae* (local strain). No fungal growth was observed on the beetles.

Objective 4: Evaluation of microbial pesticides against diamond back moth, *Plutella xylostella*.

Results

An experiment was conducted to study the bio-efficacy of entomopathogenic microbes against Plutella xylostella in cabbage during Rabi, 2011-12. Two fungal species *viz. Metarrhizium anisopliae* (Metagreen, Green Harvest Bio-tech Pvt. Ltd. , Mumbai) and *Beauveria bassiana* (Beauvegreen, Green Harvest Bio-tech Pvt. Ltd. , Mumbai); two entomopathogenic nematods(EPNs) *viz. Steinernema* sp. (CAU-1) and *Heterorhabditis*

sp. (CAUH-1) and a *Bacillus thuringiensis* strain received from NBAII, Bangalore (Bt-NBAII) were evaluated. The experiment was laid out in RBD. Cabbage variety ' rareball' was used for the experiment and transplanted at 50X50cm spacing. Two rounds of spray ware made (at 35 and 45 DAT). Observations were recorded on 3rd and 7th day after each treatment. Among the microbes, Bt-NBAII sprayed at 5ml/lit. of water was observed as the most effective treatment with average *P. xylostella* population of 0.33 and 0.20 larvae/leaf in 1st and 2nd spray, respectively and it was comparable with 0.05 per cent profenophos. The two EPNs showed no significant difference between them in terms of efficacy, however, they were inferior to the Bt-NBAII in the second spray. *M. anisopliae* and *B. bassiana* were observed as the least effective treatment with average *P. xylostella* population of of 0.41 and 0.54 larvae/ leaf after 1st spray and 0.68 and 0.71 larvae/ leaf after 2nd spray, respectively.

Objective 5: Demonstration of biocontrol-based IPM for insect pests and diseases of potato.

Results

The demonstration programme of biocontrol-based IPM in potato was carried out at three locations of East Siang district of Arunachal Pradesh. Potato variety "Pukharj" was used. The crops were planted at 15 Nov., 4th Nov and 10th Nov in the IPM practice, Farmer's practice and untreated control plot at Jampani. At Oyan, the crop was planted on 5th Nov., 31st October and 5th November in the IPM practice, Farmer's practice and untreated control plot and at Sille the crop was planted on 19th, 20th and 20th October in the IPM practice, Farmer's practice and untreated control plot, respectively. The crop was harvested at 90 days after planting. The IPM practice include- dipping of potato tuber in 2% *Pseudomonas florescence* solution (SU-Mona, Pest Control India Ltd., Mumbai, Maharastra) before planting, spraying of 3% neem oil (Multineem, Multiplex Agricare Pvt. Ltd., Tumkur, Karnataka) at 20, 30, 40 and 50 DAP. Farmer's practice includes tuber treatment with Abic M-45(Mancozeb 75%WPSyngenta, Mumbai, Maharastra) @ 3gm/li of water and spraying of redomil (Metalaxyl 8% + Mancozeb 64%, Syngenta, Mumbai, Maharastra)/ Matco (Metalaxyl 8% + Mancozeb 64%, Indofil Chemicals Company, Mumbai, Maharastra)@ 2gm /lit at 20, 30 40 , 50 and 60 DAP. In all the three locations, three treatments were maintained. The bacterial wilt (*Rolstonia solanecearum*) infestation was recorded by randomly selecting 20 plants and counting the total number of wilted plants from 5 different areas of each treatment considering as five replications. The blight infestation was recorded as average of five plants/ plot from 5 randomly selected leaves of each plant from three different areas of each treatment. The data on disease infection was recorded using 0-9 disease rating scale.

In all the three locations the incidence of bacterial wilt was lower in the IPM and Farmer's practice fields than the untreated control. However, at 50 DAP, no significant difference was observed between the three treatments at Jampani and between farmer's

practice (4.00%) and control (10.00%) at Sille. Farmer's practice and IPM practice were on par in all the locations. Farmer's practice field recorded significantly lower incidence of late blight than the other two treatments in all the three locations at both 50 and 60 DAP. Highest incidence of the disease (70.07 per cent leaf area damage) was observed in untreated control (Sille) at 60 DAT. IPM practice recorded 20.60, 15.87 and 44.67 per cent leaf area damage at 60 DAP at Jampani, Oyan and Sille and were significantly lower than the untreated control in their respective locations. Among the locations, higher incidence of the disease was recorded at Sille and it may be due to late planting of the crop. In all the locations, higher tuber yield was recorded in Farmer's practice field and it was followed by IPM practice.

3.1.6 AICRP on Palms

Objective 1: Evaluation of new cross combination in oil palm

Results

The data on growth of the plants with respect to plant height and stem girth in all the cross combinations was at par over a period of one year. Difference in number of leaves produced was observed. Maximum number of leaves (18.87) was produced by the cross combination NRCOP-21 and the leaf production was least (13.95) in NRCOP-25.

Objective 2: Development of an integrated water and nutrient management model for oil palm cultivation in North –East Region**.**

Treatments

T_1: Irrigation management through drip system

T_2: T_1+50% NPK as organic manure + 50% as chemical fertilizer

T_3: T_1+ 100% NPK as chemical fertilizers

T_4: T_1+ 100% NPK as organic manure

T_5: Rain fed **+** 100% NPK as organic manure

One hundred and fifty, 'Tenera' plants planted in 4 replications in the month of August, 2008 at the college farm are being used as experimental material for conducting this trial.

i. Imposition of treatment

The recommended dose of nutrients (1200:600:1200 g per plant per year) was applied as per the treatment details in the summer, pre-monsoon and post monsoon in the year 2011. Chemical fertilizers were applied in three split doses in T_2 and T_3 treatments in summer, pre- monsoon and post monsoon months. The organic manure treatment in T_2, T_4 and T_5 treatments were applied in two split doses.

ii. Recording of Morphological Parameters

Morphological parameters such as plant height, girth and number of leaves was recorded in March 2012. The data reveals that the plants in T_5 showed maximum increase in growth with respect to plant height (33.07 %) and collar girth (34.36 %) over a period of

one year. Increase in plant height (30.42 %) and collar girth (29.20%) was least in T_1 and T_2 respectively.

Objective 4: Demonstration on oil palm production potential in North East Region (Agr. 13)

Results

The 29 oil palm seedlings planted in the year 2006 is being taken up as the material for this "maximization plot and all the recommended crop management practices are being adopted to harvest maximum yield. The average plant height coller girth and number of leaves per plant recorded in month of March 2012 is 4.82 m, 2.72 m and 29.76 leaves per palm respectively. Since April, 2010 to March, 2012 flowering in all the palms have been observed. The average number of male and female flower per palm is 3.62 and 1.31 respectively. The sex ratio (Female: Male) per palm is **1:2.8**. The average number of EFB per plant is 6.45 and this is due to lack of pollination.

3.2 All India Network Projects

3.2.1 AINP on Agricultural Ornithology

Objective 1: Documentation of Birds of North Eastern Region in different climatic regions.

Result

Checklists of birds for two states viz. Arunachal Pradesh and Manipur has been prepared. The check list of Arunachal Pradesh included six hundred ninty different bird species along with colour photograph . A list of one hundred and forty five bird species found in Manipur is also prepared along with the color photographs.

Objective 2: Documentation of birds in Agricultural Landscape of North Eastern Region.

Results

Survey was conducted in different agricultural landscapes of Arunachal Pradesh and Manipur. Munias were found to be a major depredatory bird in rice both in the valley and foothill of the two states. They attack the rice grains in the milky stage. In isolated fields, they completely damage the crops. Doves and sparrows cause minor damage in the nursery of rice. Common moorhen, purple moorhen, lesser whistling duck, water cock and common teal causes minor damages in deep water rice in Manipur. House sparrows also cause damages in the stores of rice. Parakeets cause heavy damages of maize crop in the plain areas of Arunachal Pradesh. Predatory birds like wagtails and common myna are commonly found in the freshly plough fields. Wagtails were also found visiting vegetable fields. Cattle egrets were found in the rice fields. Drongo were observed in the rice and vegetable fields.

Objective 3: Community structure of birds and their diversity in relation to crop stages in different agro-climatic zones based on major cropping systems. (Report for the year 2010-11 and 2011-12)

Results

Paddy crop: To determine the community structure, species diversity, species richness and density of birds in paddy crop field the data were recorded. The paddy growing area near Pasighat was selected. The birds were surveyed with variable distance according to line transect method. The transect of 500 m length is selected on two sites in paddy growing region near Pasighat. The observation made on encounter of bird species, number of birds and details of microhabitat were noted. Transect were repeated at 15 days interval starting from 50 % fields were sown. A total 1629 birds were recorded from paddy ecosystem during the year 2010 where as 1590 birds were observed during 2011. Among the predatory birds maximum relative abundance (12.40 %) was recorded by common myna followed by cattle egret (12.34 %) during the year 2010. During the year 2011, the maximum relative abundance of predatory birds was recorded by cattle egret (21.51 %) followed by common myna (15.53 %).

Among granivorous birds the maximum relative abundance (14.61 %) was recorded by house sparrow during the year 2010 where as during the year 2011, the maximum relative abundance was recorded by spotted munia (10.31 %). Common pariah kite and black kite were observed during the harvesting stage of the crop.

Objective 4: Identification of potential roosting sites of depredatory birds and their impact on agricultural crops.

Results

Based on the information by the local people, some of the area were surveyed and the estimated bird numbers was made. The area covered in Pasighat town and surrounding area near the town.

The cropping pattern was mapped in relation to the depradatory birds. The main crop in the observation area were rice and vegetables in kitchen gardening. The main birds present in the vicinity of the observed area were house sparrow, pigeon, myna, cattle egret, crow, red wented bulbul, wagtails and parakeet etc. he damage was confined to the specific pockets near the roosting area of the depredatory birds. The roosting site was classified into 3 different categories viz., small, medium and large based on the number of bird roots on the site. Generally, mixed roots were encountered on the big tree like banyan and peepal. The roots were found near the human habitations and market area. The old residential quarter was the excellent roosting site for pigeon. The distance between roosting site and feeding site was a few kilometers and few meters.

The depredatory birds caused the damage near roosting site and also away from the roosting site. In the rice crop the damage varies from 1 to 3.4 per cent in various crop stage. In maize pigeon and spotted dove caused the damage in sowing stage which is varies from 1 to 4.5 per cent whereas in cob forming stage the damage varies from 25.2

to 30.8 per cent in both the year 2010 and 2011. In coriander and spinach the house sparrow caused the damage which is varies from 1.6 to 7.4 per cent in sowing and emerging stages.

Objective 5: Documentation of existing ethnic/traditional knowledge methods in control of birds in different crops.

Results

Surveys were conducted to find out the existing ethnic/traditional knowledge methods for control of birds in Manipur and Arunachal Pradesh. The following methods are commonly practice by the farmers-

1. Bird watch tower.
2. Installation of reflective ribbons
3. Hanging polyethylene bags or colour papers
4. Hanging of containers made of tin in poles
5. Scare crows
6. Hunting of birds by using nets, guns, catapults, etc.
7. Poison baiting using monocrotophos or sphamidon.
8. Hanging of roasted birds.

Objective 6: Management of parakeets in maize

Results

The experiment was carried out during *kharif*, 2010-11 and 2011-12 at four different locations of Jampani, East Siang District, Arunachal Pradesh. In each location, five different treatments i.e. i) Use of reflective ribbon, ii) Wrapping of cobs with maize leaves, iii) Use of reflective ribbon + wrapping of cobs with maize leaves, iv) Spray of neem based formulation @ 3 ml/lit and v) Untreated control were maintained. Among the different treatments, no parakeet damage was recorded in the plots where reflective ribbons were used. In the plots with only wrapping of the cobs with leaves, the average damage was 14.00 percent damage cobs, however, it was significantly lower than the untreated control (56.50 per cent damage cobs) in the year 2010-11. In the year 2011-12 only wrapping of the cobs recorded 9.25 cob damage which was significantly lower than the use of neem formulation and untreated control. No significant difference was observed in the damage per cent between spray of neem formulation and untreated control in both the years 2010-11 and 2011-12. No any damage was recorded in treatment use of reflective ribbon and wrapping of the cobs + use of reflective ribbon during both the years 2010-11 and 2011-12. Moreover, maximum yield 38.78 and 38.31 qt/ ha. were recorded in the treatment use of reflective ribbon alone and use of reflective + wrapping of the cobs with maize leaves, respectively in the year 2010-11. The similar type of results was also found in the year 2011-12 where maximum yield was recorded in use of reflective ribbon alone and use of reflective + wrapping of the cobs with maize leaves (41.12 and 41.68, respectively). The untreated control gave significantly lower

yield (24.88 and 30.25) than all the treatment except spraying of neem based formulation (26.19 and 31.57) during both the years 2010-11 and 2011-12, respectively.

Objective 7: Evaluation of beneficial birds in suppression of insect pests in different crops

Results

The experiment was carried out during *rabi*, 2010-11 and 2011-12 at experimental farm, College of Horticulture and Forestry, Pasighat, East Siang District, Arunachal Pradesh. The following treatments were used for management of DBM (diamond back moth) in cabbage crop i. e. (1) Spraying of neem formulation at 15 days interval, (2) Spraying of profenophos at 15 days interval, (3) Spraying of neem formulation at 15 days interval + predatory birds, (4) Spraying of profenophos at 15 days interval + predatory birds, (6)Predatory birds alone and (7) Untreated control. The DBM population was recorded from the five leaves in each plot. The observation was recorded from 30, 40, 50 and 60 days after transplantation. Among above predatory birds grey wagtail is the common visitor in cabbage crop in morning hours as well as afternoon which were entered in the field by walking from the margins. During 2010-11 all the treatments were at par at 30 days after transplanting (DAT) but after 40, 50 and 60 DAT all the treatments were significantly better than the untreated control. The lowest DBM population was recorded in treatment 2 and 4 which were significantly better than the treatment predatory birds alone. The same results were also found in the year 2011-12 where all the treatments provide significantly better control as compared to untreated control. The treatment 4 (spraying of profenophos at 15 days interval + predatory birds) gave good control of diamond back moth at 30, 40, 50 and 60 days after transplanting. The treatment 1, 2, 3 and 4 were at par but these were significantly better than the predatory birds alone where as the treatments predatory birds alone gave significantly good control as compared to untreated control.

3.2.2 AINP on Rodent control

Objective 1: Monitoring of rodent abundance and damage in selected agro-climatic zones of the region.

Results

Different places of East Siang and West Siang districts of Arunachal Pradesh was monitored frequently and observations on trap index, damage per cent and number of rodent species found were collected. In both the districts the maximum damage was observed in pine apple (12.56-18.52 %) followed by rice crop (5.30 – 5.81 %) and maize (1.21 – 1.66 %).

Objective 2: Development of integrated rodent management modules for different cropping systems.

Results

In Arunachal Pradesh various techniques of rodent control are used by different tribes. These techniques includes in physical methods using locally available material for the control of rodent in fields. Now a days the farmers incorporated the iron or steel wire in its traditional equipments. The use of rodenticides in Arunachal Pradesh is less due to lack of awareness and unavailability of bait formulations in remote areas. The indigenous kill type traps such as *etku, odde* etc. are bulky in nature. In *uju* and *gorha* traps, the pre assessment and arrangement of rodent passage about 15 days prior to installation is required. Once a rodent is trapped in a passage with *uju* and *gorha* traps, the same passage is avoided by the other rodent when trapped rodent is left for a long time. Despite this, these rodent traps are much popular in Arunachal Pradesh.

The rodent meat is considered as a precious dish among all the tribal of Arunachal Pardesh for which the use of rodenticide is not preferred. Keeping in view the food habit of tribals, AINPRC Pasighat centre suggest to farmers to use the non pesticidal techniques for rodent control in case of medium to low infestation of rodents. The following techniques are suggested by AINP Pasighat center to the farmers:

1) *Etku*: Equipments are to be placed on passage of rodent in border of the field, along irrigation channels and bunds.
2) *Odde*: Equipments are to be installed in rodent shelter area near the field.
3) *Uju*: This trap is to be installed on a bridge made up of bamboo stick over irrigation channel and water streams from where the rodents are entered in the field.
4) *Gorha*: This apparatus are installed in passage with in the field and in front of burrows.

Objective 3: Development of rodent management technologies under storage conditions.

Results

To evaluate the damage caused by the rodents in storage condition in the region; a survey was conducted in different stores and shops in Pasighat market to estimate the amount of damage in different storage commodities. From the study it was found that 0.25 per cent damage was caused by rodent in cloth items in the different stores and godown of Pasighat. Out of total species cought in cloth stores, 80 per cent population comprised from *Mus musculus* and 20 per cent population comprised by *Rattus rattus*. In electric stores, the rodents cut the plastic coating of wires, plastic items and packaging materials. In these stores, rodents caused 0.60 per cent damage out of which 66.67 per cent damage was caused by *Mus musculus* and 33.33 per cent damage was caused by *Rattus rattus.* The *Mus musculus* caused maximum damage (2.10 %) in packed food materials (biscuit, nuddles, wappers, namkin etc.). In potato different samples were taken from different godowns in which rodents caused 1.30 per cent damage. Among the rice,

dal (pulses), maize grain and wheat flour, highest nibbled packets were recorded in wheat flour (2.60 %). In case of rice, pulses and maize, an average 1.56, 1.14 and 0.90 per cent food grains were spilled around the bags by the nibbling of rodents, respectively. *R. rattus* comprised the maximum population in food grain stores. A total, 55, 30 and 15 per cent rodent population was comprised by the *M. musculus*, *R. rattus* and *Bandicota bengalensis*, respectively, in the region.

Objective 4: Collection of rodent species and development of rodent museum

Results

During the survey and population estimation of rodent in the region, different rodent species were collected in the laboratory and these are preserved for identification and as samples. A total eight samples have been sent to Zoological Survey of India, Kolkatta for identification. The identified samples are as follows:

a) *Hylopetes alboniger* (Hodgson)- 1 sample
b) *Bandicota bengalensis* (Gray)- 1 sample
c) *Mus cookiinagarum* (Thomas)- 1 sample
d) *Rattua rattus* (Linnaeus)- 5 samples

3.2.3 AINP on Outreach of technologies for temperate fruit crops

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

Results

The twelve varieties of apple *viz*.Oregon Spur, Red Chief, Red Fuji, Silver Spur, Royal Delicious, Red Delicious, Lal Ambri, Mollis Delicious, Gala Mast, Vesta Bella, Maayan and Golden Delicious were planted in Shergoan, West Kameng District of Arunachal Pradesh. The vegetative growth of the plants were recorded. Highest plant growth was recorded in Royal Delicious while lowest girth was recorded in Oregon Spur followed by Gala Mast. Plant girth ranges from 4-6 cm while spread of plant ranges from 30-40 cm in E-W and N-S direction.

Objective 2: Multi-location testing of elite apricot genotypes under medium density

Results

Four varieties: of apricot viz. CITH-1, CITH-2, CITH-3 and Harcot were planted in Shergoan, West Kameng District of Arunachal Pradesh. The vegetative growths of the plants were recorded. Plant height ranges from 1.3m to 1.9m while girth attained 5-6 cm. Spread of the plants ranges from 50-70cm.

Objective 3: Survey and mapping of major pest and diseases of temperate fruit.

Results

Survey of insect pests and diseases of available temperate fruit crops *viz*. apple, peach, pear, plum and kiwi fruits has been done and are in progress.

3.3 Externally funded Project

3.3.1 Plant growth promoting *Rhizobacteria* for the management of major seed borne diseases and enhancement of seed quality of vegetables and planting materials for north eastern region of India

Objective 1: Field survey and collection of seed, soil and diseased materials for the screening of important seed-borne pathogens.

Results

Rhizosphere soils were collected from root zone of 40 different places and bacterial strains were isolated. A set of cultures were sent to IARI and University of Mysore for collaborative works. Assessment of diseases intensity in target crops indicated the *Alternaria* leaf spot (5-15%) and bacterial wilts (1%) in tomato. In chilli, *Cercospora* leaf spot (1%), *Colletotrichum* leaf spot (up to 15%), die back (5-10%), bacterial leaf spot (30%) and fruit rot (10%) were observed. In citrus, bacterial canker ranging from 5-15% was recorded.

Objective 2: Screening, isolation and maintenance of seed borne pathogens and PGPR strains

Results

Seeds of tomato, chilli, cabbage, and cauliflower are collected from the market, vendors and farmers. Seed-borne pathogens viz., *Alternaria brasicicola, Rhizoctonia solani* and *Alternaria alternata* were isolated by following different methods of isolation such as blotter method, paper roll towel method and Agar plate method. Seeds collected from different sources were directly planted on pot to check the seed borne pathogens. Overall results depicted the incidence of *Rhizoctonia solani, Pythium sp and Fusarium sp* with disease index ranging from 4.4 to 8.3 PDI in cabbage. In case of cauliflower, the PDI recorded was 20.2 with *Rhizoctonia solani, Pythium sp and Fusarium sp.* In tomato, it was 8.57 PDI and in chilli, there was no incidence of diseases under pot culture. Bio-priming with selective strains supplied by IARI were evaluated to assess the seed germination and seed borne infection in the nursery. PGPR isolate CHF-2011 32a have shown 28 per cent increase over control in germination followed by CHF-2011 43. Isolate CHF 2011 32a have shown 28.00 percent increase over control in germination followed by CHF 2011 43.

3.3.2 Mini Mission- I

- Yield and quality of 70 Khasi mandarin orchards from Pasighat –Along belt were surveyed and the orchards were subjected to pest and disease screening. Out of 70 orchards 42 orchards were selected for bud sticks production.
- Ayeng village has been adopted and training in utilization of horticultural implements was given.
- **Establishment of diagnostic laboratory**

  A diagnostic lab was facilitated with new instruments like thermo cycler, liquid nitrogen container and refrigerator (-20^{O}C) during the year 2011-12 in addition to already existing facilities like atomic absorption spectrophotometer, flame photometer, UV-VIS spectrophotometer and electrical muffle furnace. Virus indexing techniques using ELISA for tristeza virus was standardized and all the mother plants designate were indexed for the presence of virus. In addition, procedures for identifying casual organism of greening, exocortis and tattered leaf virus through RT-PCR techniques are in progress.
- **Establishment of poly house, net house and potting house**

  One insects proof poly house, one insects proof net house and one potting house are being established in the year 2011-12 to augment the certification facility for the budded citrus plants.

3.3.3 Touch Screen Kiosk for Farm Technology Transfer among Tribal Farmers [e-Agrikiosk Project]

- The touch screen Kiosk machine has been installed and working in the Berung, Sika Tode Bamin, Ngorlung and Miklung village of East Siang District of Arunachal Pradesh for transferring the farm technologies among the tribal farmers.
- The Kiosk machine is very much interactive user friendly covering the different 28 subjects/ topics related to Agriculture/Horticulture and allied disciplines. The farmers of neighbouring villages are also using the machine and getting the knowledge on different aspects. The translation of all the topics in local dialect (Adi) is in progress.

3.4 Internally Funded Projects

3.4.1 Intra mural project on "Assessing tree composition, structure and regeneration status in Reserve Forests of East Siang District of Arunachal Pradesh".

Results

Under this project, tree composition and regeneration status in three of the six forest reserves have been assessed. Locally Important species such Terminalia myriocarpa, Pheobe cooperiana, Morus laviegata, Canarium strictum and those with low population sizes such as Dysoxylum binectiferum, Oroxyllum indicum have been identified and mass propagation initiated.

3.4.2 Intra mural project on "Collection, Documentation and Chemical - Molecular Profiling of important *Piper* Germplasm from East Siang District".

Result

Under this project six piper species have been collected from the forest area of East Siang District and maintained in the college farm for further evaluation.

3.5 Quality Seed Production

During the year 2011-12, the following quantity of quality seeds were produced by the College:

3.5.1 Horticultural Crops

A. Vegetable & Spices

i. Potato
- **(a)** Variety Kufri Pukhraj-300kg
- **(b)** Variety Kufri Ashoka-300kg
- **(c)** Variety Kufri Jyoti-300kg
- **(d)** Variety Kufri Puskar-200kg

ii. Turmeric
- **(a)** Megha Turmeric-1-50kg
- **(b)** Pant Pitabh- 40kg

iii. Tomato
- **(a)** Variety-H-86- 3kg

B. Fruit Science

i. Banana
- **(a)** Variety- Robusta-1000 nos. of suckers
- **(b)** Variety- Grand Naine-3000 nos. of suckers

ii. Pineapple
- **(a)** Variety-Kew-10000 nos. of Sucker, crown and slips

iii. Khasi Mandarin
- **(a) Budded Plant**-5000 nos. of plants

C. Floriculture & Medicinal & Aromatic Plants

a. Flower

i. China Aster

(a) Variety-Kamini-100g

ii. Tuberose

(a) Variety-Suvasini-8000 Bulbs

(b) Variety-Prajwal-2000Bulbs

(c) Variety-Arka Nirantra-500 Bulbs

iii. Nasturtium

(a) Variety Local-2.0kg

iv. Marigold

(a) Variety- Pusa Basanti Gainda-1.0kg

(b) Variety- Pusa Narangi Gainda-1.0kg

b. Medicinal & Aromatic Plants

i. Kalmegh, Stevia, Musli- 1000 seedlings

ii. Albinia, Chandramula, Haldi, Giloe- 200kg propagules

3.5.2 Forestry

A. Agroforestry & Silviculture

i. *Melia composita*- 200 seedlings
ii. *Acacia mangium*- 500 seedlings
iii. *Alstonia schalaris*- 2000 seedlings
iv. *Jacrondra mimosifelia*- 200 seedlings
v. *Delonix regia*- 500 seedlings
vi. *Terminalia myriocarpa*- 200 seedlings
vii. *Terminalia chebula*- 500 seedlings
viii. *Tectona grandis*- 200 seedlings
ix. *Acacia auriculiformis*- 1000 seedlings
x. *Santalum album*- 100 seedlings
xi. *Azadiratica indica* - 100 seedlings
xii. *Mesua ferrea*- 200 seedlings
xiii. *Duabanga grandiflora*- 200 seedlings

Chapter-4

EXTENSION EDUCATION ACTIVITIES

4.1 Training Programmes/Workshops

Training programmes/ Workshops conducted by the College of Horticulture & Forestry, Pasighat for the extension functionaries are listed below in Table:

Sl. No.	Title of the programme	Date & Duration	Place	No. of Beneficiaries
1.	Capacity building of Extension Functionaries in Agroforestry	12-13th March, 2012 (02 days)	College of Horticulture & Forestry, Pasighat	25
2.	Capacity building of Extension Functionaries on Advances in Production Technology of Fruit Crops	13-19th March, 2012 (07 days)	College of Horticulture & Forestry, Pasighat	20
3.	Organic farming and soil testing – tools for sustainable agriculture	27th Feb.- 3rd March, 2012 (06 days)	College of Horticulture & Forestry, Pasighat	20
4.	Forest seed and Nursery Technology	13th to 19th February, 2012 (07 days)	College of Horticulture & Forestry, Pasighat	10
5.	Commodity future market for extension functionaries of Manipur state	09-10th August, 2011 (02 days)	COA, CAU, Imphal	36

The College conducted 11 (eleven) on-campus and 08(eight) off campus training programmes during 2011-12 to meet the need of farmers in order to increase farm production and supplement the income in the field of Horticulture and Forestry. The details are given below:

4.1. A. On-campus Programmes

Sl. No.	Title of the training	Date & Duration	No. of Participants	Facilitators
1.	Advances in agro techniques of vegetable crops	15-17/3/12, 19/3/12 and 26-29/3/12 (8 days)	25	CHF, CAU, Pasighat
2.	Advances in agro techniques of potato production	15-17/3/12, 19/3/12 and 26-29/3/12 (8 days)	25	CHF, CAU, Pasighat
3.	Improved production technology of banana	27-29th March, 2012 (3 days)	25	CHF, CAU, Pasighat
4.	Value addition of some important horticultural crops of East Siang district	21-28th February, 2012 (8 days)	20	CHF, CAU, Pasighat
5.	Protected Cultivation of Commercial Flowers	5-12th March, 2012 (8 days)	25	CHF, CAU, Pasighat
6.	Hands on Training on Basic Techniques in Molecular Biology	07- 14th September 2011 (8 days)	15	CHF, CAU, Pasighat
7.	Basic Laboratory Procedures in Biotechnology	28- 30th November, 2011 (3 days)	45	CHF, CAU, Pasighat
8.	Biochemical & Biotechnological Techniques	15- 17th March, 2012 (3 days)	25	CHF, CAU, Pasighat
9.	Spawn production training	16-17th March 2012 (2 days)	13	CHF, CAU, Pasighat
10.	Integrated Nutrient Management	26th December, 2011 (1 day)	56	CHF, CAU, Pasighat
11.	Nutritional Disorders and their Management	24th December, 2011 (1 day)	62	CHF, CAU, Pasighat

4.1. B. Off-campus Programmes

Sl. No.	Title of the training	Date & Place	No. of Participants	Facilitators
1.	Operation/ Repair/ Maintenance of Plant Protection Equipments, Centrifugal Pumps and Power tillers	28th February 2012 Sika Tode, East Siang, AP	30	CHF, CAU, Pasighat
2.	Awareness campaign on *Loranthus* eradication	20th February, 2012 Renging, East Siang, AP	300	CHF, CAU, Pasighat
3.	Oyster mushroom cultivation	(1 day) 23-2-12 (1 day)28-2-12 (1 day) 1-3-12 (1 day) 3-3-12 Berung, East Siang, AP	158	CHF, CAU, Pasighat
4.	IDM On citrus diseases	(1 day)12-3-12 (1 day) 13-3-12 Renging, East Siang, AP	101	CHF, CAU, Pasighat
5.	Soil Sampling Techniques	(1 day) 17th December, 2011 Berung, East Siang, AP	58	CHF, CAU, Pasighat
6.	Soil Fertility Evaluation	(1 day) 19th December, 2011 Berung, East Siang, AP	64	CHF, CAU, Pasighat
7.	Soil Test Based Fertilizer Recommendation	(1 day) 22nd December, 2011 Berung, East Siang, AP	54	CHF, CAU, Pasighat
8.	Site Specific Nutrient Management	(1 day) 25th December, 2011 Berung, East Siang, AP	56	CHF, CAU, Pasighat

4.2 Major Extension Activities of KVK East Siang, CHF, Pasighat

4.2. A. On-campus Training

Sl. No.	Name of KVK	No. of trainings organized	No. of beneficiaries	Level of Beneficiaries							
				Farmers		Rural Youth		Extension Functionaries		Categories	
				M	F	M	F	M	F	SC/ST	OBC
1.	KVK, East Siang	12	281	21	86	58	91	17	08	275	06

4.2. B. Off-campus Training

Sl. No.	Name of KVK	No. of trainings organized	No. of beneficiar-ies	Level of Beneficiaries							
				Farmers		Rural Youth		Extension Functionaries		Categories	
				M	F	M	F	M	F	SC/ST	OBC
1.	KVK, East Siang	26	643	345	227	35	36	-	-	643	-

4.3 Front Line Demonstration Organized, KVK, East Siang, CHF, Pasighat

Sl. No.	Technology demonstrated	Area (ha)	No. of beneficiaries	Increase in yield/Income(%)	B-C ratio
1.	Performance of maize variety DKC 9081 in East Siang District	02	10	10.42	3.86
2.	Popularization of Rice variety CAU-R1 in East Siang District	05	27	3.6	1.81
3.	IPM in Rice	05	05	2.75	1.79
4.	Performance of sesame var. AST -1	01	01	5.79	2.19
5.	Intercropping of Mustard as trap crop, IPM	01	01	20.66	4.6
6.	Performance of Toria var. TS-46	05	12	14.71	3.23
7.	Composite fish farming system {Six species of fish culture	3.2	16	116.66	2.4

Sl. No.	Technology demonstrated	Area (ha)	No. of beneficiaries	Increase in yield/Income(%)	B-C ratio
	in ponds (2 Rohu : 2 Catla : 1.5 Mrigal : 2 Silver Carp: 1 Grass Carp : 1.5 Common Carp)}				
8.	Integrated Rice cum fish culture: Three species of IMC (Rohu, Catla and Mrigal) and two species exotic carps (Silver carp and Common carp)	2.0	75	20.46	2.19
9.	Promotion of proper intake of balanced diet through Nutritional Gardening	0.05	05	16.02	4.30
10.	Preparation of Chips and Flour	-	125	30.00	1.6

4.4 Agricultural Fairs organized/ participated by the College & KVK, Pasighat

Sl. No.	Fair organized	Date & Duration	Place	Theme of the Fair/Conference
1.	4th CAU Agri. Fair organized by DEE, CAU, Imphal	18-20th April, 2011 (3 days)	CAU, Imphal, Manipur	
2.	5th CAU Agri. Fair organized by DEE, CAU, Imphal	19-21st January, 2012 (3 days)	College of Fisheries, CAU Agartala, Tripura	
3.	North East Agri. organized by Fair 2012, AAU, Jorhat	10-13th February, 2012 (4 days)	College of Veterinary Science, AAU, Khanapara, Guwahati	
4.	5th Arunachal Citrus Show organized by College of Horticulture & Forestry, Pasighat	10th February 2012 (1 day)	College of Horticulture & Forestry, Pasighat	To create platform for interaction of growers, Scientist and other stake holders
5.	Global conference on Women in Agriculture	13-15th March, 2012 (3 days)	IARI Mela Ground, New Delhi.	Innovation Market Place cum Exhibition

4.5. Extension demonstration of new technologies, College of Horticulture & Forestry, Pasighat

a. Demonstration on early-mid maturing Potato varieties

b. Demonstration on performance of Banana varieties

c. Demonstration on biocontrol based IPM for pest complex of Tomato and Cabbage

4.6 On Farm-Trials Conducted

Seven OFT were conducted by College of Horticulture & Forestry, Pasighat and Krishi Vigyan Kendra East Siang, Arunachal Pradesh during the year.

Sl. No.	Title of OFT	Identified Problem	Technologies Selected for assessment/ refinement	Performance of the technologies selected for assessment /refinement	Recommendation for micro level situation
1.	Biological control of Ginger Rhizome Rot disease using Bio-organic (GF-1)	Rhizome rot disease	Rhizome treatment with Bio-organic (GF-1) @ 25 ml/liter water and drenching at 45, 90 DAS	9.5 % infected tillers. Yield: 220 qtl/ ha	Bio-organic (GF-1) @ 25 ml/liter water and drenching at 45, 90 DASreduced disease incidence in ginger, however, bioagent should be made easily available.
2.	Management of Rice case worm	Rice Caseworm	Management of rice case worm:- 1. Alternate wetting & drying of rice fields 2. Dislodging and dragging kerosinised rope over crop 3. Spray of Endosulfan @ 0.05%	7.4 % leaf damaged/ hill 69.16% reduction in leaf damage/ hill	Dragging of kerosinised rope gives better result in deep water rice fields.
3.	Rejuvenation of declined orchard	Decline in fruit quality and quantity	Rejuvenation of 30 years old citrus orchard, Detoping at 1,2,3,4 m height, fertilization, plant protection	30 years old citrus tree are under trial, 2 % mortality (In plants infested with trunk borer) Flowering avoided in 1st year, Plants flowering in Feb.-	Calendar based technology needs to be promoted on large scale.

Sl. No.	Title of OFT	Identified Problem	Technologies Selected for assessment/ refinement	Performance of the technologies selected for assessment /refinement	Recommendation for micro level situation
			on calendar basis	March 2012	
4.	IPM module for management of brinjal fruit and shoot borer	Brinjal Fruit and Shoot Borer	Management of brinjal fruit and shoot borer employing Lucinoid trap @ 1 trap/ 10 m distance; Neem based pesticides @ 5.0 ml/l water	Pest incidence: 6.8%, Moth trapped/trap/week: 61; Yield: 112 q/ha	Lucinoid trap @ 1 trap/ 10 m distance; Neem based pesticides @ 5.0 ml/l watergave higher yield and less pest incidence, the technology needs to be promoted on large scale.
5.	Feeding carps with balance diet	Low fish growth and non availability of quality fish feed in the District	Use of Susma as a fish feed with Azolla culture as a fish food organism. Susma is a balanced diet formulated and manufactured by FRC, AAU	Feed consumed (300 kg) Av. body wt. at sampling (90 gm) Feed conversion Ratio (1: 2.5)	Feeding by bag and tray method is economical and efficient.
6.	Integrated disease management of rhizome rot of ginger	Rhizome rot of ginger	CAU Green gold	Ginger crop was selected	The highest projected yield (31.6 t/ha) was observed in treatment of Soil application of BCA mixed with FYM (20g/kg of FYM) 7 days before sowing and watering regularly followed by seed treatment with BCA 2g/l water for 30 minutes + soil application of BCA (29.93 t/ha).

Sl. No.	Title of OFT	Identified Problem	Technologies Selected for assessment/ refinement	Performance of the technologies selected for assessment /refinement	Recommendation for micro level situation
7.	Management of Fusarial and bacterial wilt by soil application of Trichoderma	Fusarial and bacterial wilt of brinjal	CAU Green gold	Brinjal crop was selected	Trichoderma treaded plots were shown less disease incidence and high yield

4.7 Providing Diagnostic Services to Farmers

A multi-disciplinary team of scientists of Krishi Vigyan Kendra East Siang and College of Horticulture & Forestry, Pasighat, A.P. under took 80 diagnostic visits benefitting 230 farmers in different villages of East Siang district of Arunachal Pradesh. The team of Scientists diagnosed the farming system related problems/constraints and suggested suitable remedial measures.

4.8 Distribution of Seeds/Chicks/Equipment etc.

Major group/class	Crop	Variety	Quantity (qt)	Provided to No. of Farmers
Cereals	Rice	CAU R-1	3.0	40
	Maize	DKC 9081	2.0	20
Oilseeds	Toria	TS-46	0.20	10
Pulses	Pea	SwarnaMukti	0.10	10
Vegetables	Okra	ArkaAnamika	0.05	10
	Pumpkin	NDPKH-1	0.01	-
Spices	Turmeric	Megha Turmeric-1 (Lakadang)	5.0	10
Fish Fingerlings	-	-	15000	20

4.9 Organization of Farmer's Visit/Rallies

Sl. No.	No. of farmers	Visit to	Purpose
1.	30	Instructional farm of College of Horticulture & Forestry & KVK East Siang on 12th January 2012 sponsored by ATMA East Siang.	Farmers were exposed to different new technologies, diagnosis of field related problems and suggestion of suitable remedies

Sl. No.	No. of farmers	Visit to	Purpose
2.	12	CAU AGRI FAIR 2012 during 19th to 21st January 2012 at College of Fisheries, CAU Agartala, Lembucherra, Tripura.	Farmers were exposed to different new technologies
3.	29	Instructional farm of College of Horticulture and Forestry on dated 23rd February 2012.	Farmers were exposed to different new technologies, diagnosis of field related problems and suggestion of suitable remedies
4.	15	Exposure visit of Siang Women Floriculture farmers club to Bangaluru from 10th March to 22nd March 2012.	Farmers were exposed to different new technologies

4.10 Organization of film shows

Krishi Vigyan Kendra East Siang, College of Horticulture & Forestry, Pasighat, A.P. demonstrated technologies to farmers by conducting 10 film shows benefitting 300 farmers.

Chapter-5

HUMAN RESOURCE DEVELOPMENT

5.1 Staff Details

A. College of Horticulture and Forestry, CAU, Pasighat

Sl. No.	Particulars	No. of staff		Total
		Teaching	Non Teaching	
1.	Professor	1*	-	1*
2.	Associate Professor	08	-	08
3.	Assistant Professor	29	-	29
4.	Librarian	-	1	1
5.	Junior Engineer	-	2	2
6.	Senior Stenographer	-	1	1
7.	Account Assistant cum Cashier	-	1	1
8.	Electrician	-	1	1
9.	Library Assistant	-	1	1
10.	Compounder cum Dresser	-	1	1
11.	Live Stock Assistant	-	1	1
12.	Farm Assistant	-	1	1
13.	FCLA	-	14	14
14.	LDC/CCT	-	9	9
15.	Medical Attendant	-	2	2
16.	Driver	-	4	4
17.	Security Guard	-	1	1
18.	Skilled Work Assistant	-	29	29
	Total	**38**	**69**	**107**

* upto 20th April, 2012

B. Krishi Vigyan Kendra, East Siang

Sl. No.	Particulars	No. of staff
1.	Programme Co-Ordinator	1
2.	SMS	03
3.	OSD cum Account	01
4.	Computer Programmer	01
5.	Training Assistant	01
6.	SWA/MTW	02
7.	**Total**	**09**

5.2 List of New Appointment and Retirements

A. College of Horticulture and Forestry, CAU, Pasighat

5.2.1 List of New Appointment: Nil

5.2.2 List of New Retirements: Nil

5.2.3 List of Staff Resigned/joined new assignment

1. Dr. V. K. Mishra, Dean & Professor
2. Dr. Atma Nand Tripathi, Assistant Professor

B. Krishi Vigyan Kendra, Pasighat

5.2.1 List of New Appointment: Nil

5.2.2 List of New Retirements: Nil

5.2.4 List of Staff Resigned/joined new assignment

1. Mrs. Rita Nongthomtam, Farm Manager

5.3 List of Transfers and Deputation

A. College of Horticulture and Forestry, CAU, Pasighat

5.3.1 List of Transfers

Sl. No.	Name	Designation	Place of new posting
1.	Mr. L. Rohendro Singh	FCLA	College of Agriculture, CAU, Imphal
2.	Mr. G. Shantikumar Singh	FCLA	College of Agriculture, CAU, Imphal
3.	Mr. Sanjay Upadhayay	FCLA	College of Agri. Engg. & PHT, CAU, Sikkim
4.	Mr. L. Momon Singh	CCT	Central Agricultural University, Imphal
5.	Mr. Y. Sanjoy Meitei	CCT	Central Agricultural University, Imphal

5.3.2 List of Deputation: Nil

B. Krishi Vigyan Kendra, Pasighat

5.3.1 List of Transfers and Deputation: Nil

5.4 Seminars/ Conferences/ Group meeting/Workshop, etc. attended

Sl. No	Participant	Name of the programme	Nature of participation	Period	Organizer & Place
1.	Dr. B.N. Hazarika	Ninth Senior Officer Meeting of CAU,	Participated	11th January, 2012	COF Agartala, Tripura
		International Symposium on Minor fruits and medicinal plants for health and ecological security,	Oral presentation	19-22nd Dec., 2011	BCKV, WB, India
		Third CAU Research Council Meeting	Participated	10 January, 2012	COF Agartala, Tripura
		Conference on New Frontiers on climate resilent farming system	Co-Chairman in session IV	30th Sept. - 1st Oct., 2011	ICAR, Umium
		First Meeting of Extension Education Council ,CAU, Imphal	Participated	26 Aug. 2011,	COF Agartala, Tripura
2.	Dr. B.R. Phukan	National conference on"Hortibusiness:Linking farmer with the market"	Poster Presentation	29-31st May, 2011	Late Capt. Amit Singh Memorial Foundation in collaboration with SVPUAT, Meerut, U.P. & GBPUA&T, Pantnagar, Uttarakhand
3.	Dr. P. Dennath	Safe Food for All	Oral presentation	21-23rd Feb, 2012	Visva-Bharati, Palli Sikha Bhavan, WB
4.	Dr. Sunil Kumar	International Conference on Issues for Climate Change, Land Use Diversification and Biotechnological Tools for Livelihood Security (ICLDBT-2011)	Poster Presentation	08-10th October, 2011	SVPUAT, Meerut, U.P.

		Ist Biennial International Congress on Urban Green Spaces	Poster Presentation	5-7th March, 2012	Centre for Urban Green Space (CUGS), Aravali Foundation for Educatuion, New Delhi.
5.	Dr. D. Sen	Rice based farming system for livelihood security under changing climate scenario	Oral Presentation	27-29th February 2012	OUAT, Chiplima, Sambalpur, Odisha
6.	Mr. Amit Kumar Singh	Co-ordinators meet at Gangtok, Sikkim	Review meeting	19-20th April, 2012.	Sikkim State council of Science and Technology, Gangtok, Sikkim.
7.	Dr. Rakesh Kumar Dubey	National Seminar on 'Protected cultivation of vegetables and flowers: A value Chain Approach'	Participated	11-12th January, 2012	GBPUAT, Pantnagar, Uttrakhand
		Group meeting of AICRP-Potato	Presentation	10-12th Sept.2011	CPRI, Shimla, at IGKV, Raipur, Chhattisgarh
		Group meeting of AICRP-Vegetables	Participation	13-16th January, 2012	GBPUAT, Pantnagar, Uttrakhand
8.	Dr. Vikas Singh	Group meeting of AICRP-Spices	Presentation	18 – 19th June, 2011	RAU, Jaipur, Rajasthan
9.	Dr. T. S. Mehra	National conference on"Hortibusiness:Linking farmer with the market"	Poster Presentation	29-31st May, 2011	Late Capt. Amit Singh Memorial Foundation in collaboration with SVPUAT, Meerut, U.P. & GBPUA&T, Pantnagar, Uttarakhand
		Brainstorming sessions on "NER Network proposal on Endangered Medicinal Plants of Northeast India"	Oral Presentation	10-11th November, 2011	NMPB&NEDFi, NEDFi House, Guwahati-6.

10.	Dr. Nicolee Lyngdoh	2nd meeting of State Steering Committee on Climate Change,	Represented College of Horticulture and Forestry	13th July, 2011	Dept. of Environment and Forest Itanagar, Arunachal Pradesh
11.	Dr. P.Raja	Group meeting of AICRP on Mushroom	Presentation	01-02nd August, 2011	DMR, Solan
		DBT-final project presentation	Final project presentation	4-8th August, 2011	DBT- New Delhi
12.	Dr. Mahesh Pathak PC, KVK, Pasighat	Annual Zonal Workshop of KVKs	Presentation	18- 20th May, 2011	Aizwal, Mizoram
		Academic Committee Meeting of State Agriculture Management & Extension Training Institute (SAMETI), Pasighat	Participation	29th July, 2011	Pasighat, Arunachal Pradesh
		First meeting of the Extension Education Council of CAU,	Participation	26th July, 2011	College of Fisheries, CAU, Lembucherra, Tripura
		ATMA-KVK Interface	Participation	15-16th September, 2011	EEI (NER), AAU, Jorhat, Assam
		6th National Conference on KVK-2011 and National Exhibition on Secondary Agriculture	Participation	3-5th December, 2011	Jawaharlal Nehru KrishiVishwaVidyalaya, Jabalpur, MP
		Coordination meeting of Management Committee (MC) and block Technology Manager (BTM)/BTT convenors of ATMA East Siang district	Participation	16th December, 2011	ATMA, East Siang district, AP

		Brainstorming session on "Issues of Agricultural Development and Role of KVK in Arunachal Pradesh and workshop on Climate Change, its impact and mitigation strategies from	Participation	05- 07th January, 2012	ICAR, A.P. Centre, Basar
		Action Plan Formulation workshop of KVKs	Participation	27 - 28th February, 2012	Itanagar, Arunachal Pradesh
13.	Ms. Th. EloniVida SMS	Interface meeting	Participation	18- 20th May, 2011	Aizwal, Mizoram
		Interaction meeting on Woman Empowerment	Participation	8- 9th August, 2011.	NASC Complex ICAR, New Delhi
14.	Mr. S.M. Hussain, SMS	Academic Committee Meeting of State Agriculture Management & Extension Training Institute (SAMETI), Pasighat	Participation	29th July, 2011	Pasighat, Arunachal Pradesh
		State Level Review Meeting on Fisheries Development Programme	Presentation	9- 10th August, 2011	Banquette Hall, Itanagar, Arunachal Pradesh Dept. of Fisheries, Govt. of Arunachal Pradesh
		Brainstorming session on "Issues of Agricultural Development and Role of KVK in Arunachal Pradesh and workshop on Climate Change, its impact and mitigation strategies from	Participation	05- 07th January, 2012	ICAR, A.P. Centre, Basar

5.5 Staff attended higher studies, long and short term training programmes

5.5.1 Higher studies : Nil

5.5.2 Long term training programmes (≥ 3 weeks)

Sl. No.	Name and Designation of Faculty	Title of Course/Programme	Place	Period
1.	Dr. P. Debnath Associate Professor	Advances in GIS and Remote Sensing based digital terrain analysis and Hydro-geomorphic application in Soil landscape modelling	NBSS and LUP, Nagpur	(3 weeks) 6-26th September, 2011
2.	Dr. Sunil Kumar Assistant Professor	Summer School on 'Current Trends in Commercial Floriculture'	Dr. YSPUHF, H.P.	(3 weeks) 01-22nd July, 2011
3.	Dr. Dinesh Sah Assistant Professor	Climate variability and its impact on crop production – physiological perspective towards mitigation	AAU, Jorhat, Assam	(3 weeks) 23rd Aug. – 12th Sept., 2011
4.	Dr. R.C. Shakywar	"Monitoring and forecasting of plant disease epidemics under climate change scenario"	CAFT, IARI, New Delhi-110012	(3 weeks) 10th Oct. - 01st Nov., 2011
5.	Dr. M.M. Kumawat	Quality management and plant protection practices for enhanced competitiveness in agricultural export.	GBPUAT, Pantnagar	(3 weeks) 12th Nov. – 2nd Dec. 2011
6.	Dr. Ng. Piloo	Advance extension strategy on Information Communication Technology for value added agriculture	BCKV, Kalyani, WB	(3 weeks) 2-22nd Nov., 2011

5.5.3 Short term training programmes (≤ 3 weeks)

Sl. No.	Name and Designation of Faculty	Title of Course/Programme	Place	Period
1.	Mr. Amit Kumar Singh Assistant Professor	"Bioinformatics in Multi-Omics Era: A microbial genomics prospective"	NBAIM Maunath Bhanjan, U.P.	(10 days) 22nd Feb. – 03rd March, 2012
2.	**Dr. L. Wangchu, Associate Professor**	Molecular Plant Breeding Short Course	Michigan State University, East Lansing, Michigan, USA.	(6 days) 21 -26th August, 2011

Sl. No.	Name and Designation of Faculty	Title of Course/Programme	Place	Period
3.	Mr. Prananath Barman, Assistant Professor	Advances in Biotechnological Research in Agri-Horticultural Crops for Sustaining Productivity, Quality improvement & Food Security	Centre of Excellence in Agri Biotechnology, College of Biotechnology, SVPUA & T, Meerut- UP.	(3 days) 14-16th September, 2011
4.	Mr. S.M. Hussain, SMS	Advances in Fisheries Management and Production in North-East	ZPD, Zone-III, Umiam, Meghalaya in collaboration with (CIFRI) Regional Centre, Guwahati	(3 days) 5-7th July, 2011
		Marketing Research and Information Network	GTC, Pasighat, East Siang, Arunachal Pradesh	20-22nd September, 2011
		Capacity building of Extension Functionaries of NE region with special reference to Hill Aquaculture	College of Fisheries, CAU, Lembucherra, Tripura	12th to 15th October 2011
		Organic Farming and Soil testing tools for Sustainable Agriculture	CHF, CAU, Pasighat, A.P.	27th Feb.- 03rd March, 2012
		Capacity Building of Extension Functionaries on Agroforestry	CHF, CAU, Pasighat, A.P.	12-13th March, 2012
5.	Mr. T. Riba, SMS	Future Market	College of Agriculture, CAU, Imphal	9-10th August, 2011
		Capacity building of Extension Functionary on use of improved agriculture equipments and Technology relevant to NE region	CAE & PHT, Gangtok, Sikkim	22-25th November, 2011
6.	Ms. Th. Eloni Vida, SMS	Capacity building of SMSs of KVK in NE Region with special reference to Home Science	College of Home Science, Tura.	1-3rd September, 2011
		Capacity Building of Extension Functionaries on Agroforestry	CHF, CAU, Pasighat, A.P.	12-13th March, 2012

Sl. No.	Name and Designation of Faculty	Title of Course/Programme	Place	Period
7.	Mr. Jintu Rajkhowa, Programme Asst. Computers	Capacity Building of Extension Functionaries on Agroforestry	CHF, CAU, Pasighat, A.P.	12-13th March, 2012
8.	Mrs. NabumYadi, Programme Asst. Agriculture	Capacity Building of Extension Functionaries on Advances in Production Technology of Fruit Crops	CHF, CAU, Pasighat, A.P.	13-19th March, 2012

5.6 Recognition of staff through their Excellency

5.6.1 Dr B N Hazarika, Associae Professor& Dean recognised as Reviewer of following high impacted journal

1. Fruits
2. Scientia Horticulturae
3. Acta Physiologia Plantarum

5.6.1a Resource person

Sl. No.	Name & Designation of faculty	Details of programme (organizer, place etc.)	Topic of lecture	Period
1.	Dr. P. Debnath Associate Professor	Training on Advances in Production Technology of Important Fruit Crops. organized by CHF, CAU, Pasighat	Soil in relation to fruits cultivation	12th -19th March, 2012
		Training on Organic Farming and Soil Testing-Tools for Sustainable agriculture organized by CHF, CAU, Pasighat	i. Vermicomposting –A valuable organic materials ii. Soil sampling procedure, preparation and analysis	Feb 27th - 3rd March, 2012.
2.	Dr. Saroj Kumar Pattanaaik, Assistant Professor	Training on Organic farming and soil testing-tools for sustainable agriculture organized by CHF, CAU, Pasighat	i. Soil and water conservation measures for hill agriculture ii. Status of farm mechanisation in NEH region	27th February - 3rd March 2012
		Training on Advances in	Water management in	13-19th

Sl. No.	Name & Designation of faculty	Details of programme (organizer, place etc.)	Topic of lecture	Period
		production technology of important fruit crops organized by CHF, CAU, Pasighat	fruit crops	March 2012
3.	Dr. Sunil Kumar Assistant professor	Hands on Training on Basic Techniques in Molecular Biology	Biotechnological tools in relation to the Floriculture	07-14th September, 2011
		Training on Value Addition of some Important Horticultural Crops of east Siang District organized by CHF, CAU Pasighat	Post-harvest handling of Flowers	21-28th February, 2012
		DHO, East Siang District, Pasighat	Commercial Floriculture	14th March 2012
4.	Dr. D. Sah Assistant professor	Training on Organic cultivation at SAMETI, GTC, Pasighat	Weed management for organic cultivation	21st April, 2011
		Training on Advances in Production Technology of Important Fruit Crops organized by CHF, CAU Pasighat	Weed management in fruit croups	12-19th March, 2012
5.	Dr. D. Sen Assistant professor	SAMETI, GTC, Pasighat	i. Nutrient management in organic Agriculture	21st April, 2011
			ii. System of Rice Intensification (SRI)	21st April, 2011
6.	Dr. Bikram Singh Assistant Professor	Training on Forest seed and Nursery Technology organized by CHF, CAU Pasighat	i. Seed collection-planning and organizing of forest tree species ii. Seed processing, bagging & labelling iii. Seed storage-orthodox and recalcitrant seeds iv. Seed testing & key factors in germination	13 –19th February, 2012

Sl. No.	Name & Designation of faculty	Details of programme (organizer, place etc.)	Topic of lecture	Period
			(breaking dormancy) v. Propagation techniques of tree species vi. Nursery Management in Forestry vii. Remote Sensing and GIS in Forestry	
		Training on Capacity Building of Extension Functionaries in Agroforestry organized by Directorate of Extension Education, Imphal held at CHF, Pasighat	Management options for multipurpose Trees in Agroforestry	12-13th March, 2012
7.	Dr. Sanjeev Kumar Assistant Professor	Training on Organic farming and soil testing tools organized by CHF, Pasighat	Agroforestry for livelihood security	22-27th February, 2012
		Training on Capacity Building of Extension Functionaries organized by Directorate of Extension Education, Imphal held at CHF, Pasighat	Agroforestry needs and objective	12-13th March, 2012
		Training on Advances in Production Technology of important fruit crops organized by CHF, Pasighat	Fruit based Agroforestry model for nutritional security	13-19th March, 2012
8.	Mr. Amit Kumar Singh, Assistant Professor	Training on Basic Laboratory Procedures in Biotechnology held at CHF, Pasighat	Role Recombinant DNA Technology	28- 30th November, 2011
		Hands on Training on Basic Techniques in Molecular Biology held at CHF, Pasighat	RFLP in characterization of germplasm	07- 14th September, 2011
9.	Mr. Siddhartha Singh Assistant Professor	Hands on Training on Basic Techniques in Molecular Biology held at CHF, Pasighat	Nucleic Acid : Basis of Genetic Material	07- 14th September, 2011

Sl. No.	Name & Designation of faculty	Details of programme (organizer, place etc.)	Topic of lecture	Period
10.	Dr. Vikas Singh Assistant professor	Training on Organic Farming and Soil Testing-Tools for Sustainable agriculture organized by CHF,CAU Pasighat	i. Nursery management under organic vegetable production ii. Cultivation practices of organic ginger in NEH region	27th Feb. - 3rd March, 2012
		Hands on training on basic technique in molecular biology, organized by CHF, CAU, Pasighat	Role of biotechnology in vegetable improvement	7-14th September, 2011
		Training on Advances in production technology of important fruit crops organized by CHF,CAU Pasighat	Benefits of intercropping in fruit crops	13 – 19th March, 2012
		Training on Value addition of some important horticultural crops of East Siang District organized by CHF,CAU Pasighat	Suitable vegetables for processing in East Siang District	21st – 28th February, 2012
11.	Dr. Arun Kumar Assistant professor	Training on Value addition of some Important Horticultural Crops of east Siang District organized by CHF, Pasighat	Post-harvest handling of Medicinal & Aromatic Plants	21-28th February, 2012
12.	Dr. T.S.Mehra Associate Professor	Organic cultivation of medicinal and aromatic plants in Arunachal Pradesh organized by CHF, Pasighat	Organic cultivation of medicinal and aromatic plants in Arunachal Pradesh-a potential to be taped judiciously.	27th Feb. - 3rd March, 2012
13.	Dr Naresh Kumar Assistant professor	Training on Forest Seed and Nursery Technology organized by CHF, Pasighat	NWFPs of Arunachal Pradesh	13-19th February, 2012
14.	Dr. Mukul Kumar Associate Professor	Hands on Training on Basic Technique in Molecular Biology held at CHF, Pasighat	Role of Biotechnology in Crop Improvement	7-14th September, 2011
15.	Dr. Tisu Tayeng Assistant Professor	Training on Forest Seed and Nursery Technology	Mycorrhizae in Forest Nursery and	13-19th February,

Sl. No.	Name & Designation of faculty	Details of programme (organizer, place etc.)	Topic of lecture	Period
		organized by CHF, Pasighat	Plantation	2012
16.	Dr. Nicolee Lyngdoh Assistant Professor	Training on Forest Seed and Nursery Technology organized by CHF, Pasighat	Tree Improvement for quality seed production	13-19th February, 2012
17.	Dr. L. Wangchu Associate Professor	Advances in Production Technology of Important Fruit Crops, organised by organized by CHF, Pasighat	i. Demonstration of propagation of various fruit crops. ii. Techniques of quality management in Horticulture commodity – the Approach and Methodology. iii. Improved production technology of citrus. iv. Potential underutilized tropical fruits of India. v. Quality regulation in fruit crops for export.	13 – 19th March, 2012
18.	M. Bishwapati Devi Assistant Professor	Online Video Conferencing Session-Seminar for PG Students conducted by PSGR Krishnammal College for Women, Coimbatore.	Computer Network and its application	19th January, 2012
19.	Dr. Arunkumar Phurailatpam Assistant Professor	Training on Value addition of some important horticultural crops of east siang district	Post harvest technique of medicinal and Aromatic plants	21-28th February, 2012
20.	Dr. B.P Mishra Assistant Professor	Training on Forest seed & Nursery Technology organized by CHF, Pasighat	Participatory Appraisal of Natural Resources	13- 19th February, 2012
		Training on Extension methods & traditional Aids organized by GTC, Pasighat	Selection of Instructional Aids for extension teaching	02- 4th April, 2011
		Training on Value addition of some important	Role of SHGs in Women	21st , February

Sl. No.	Name & Designation of faculty	Details of programme (organizer, place etc.)	Topic of lecture	Period
		horticultural crops organized by CHF, Pasighat	Empowerment	2012
21.	Dr. A.S. Mailappa Assistant Professor	Advances in Production Technology in important Fruit Crops	Soil and Nutrient Management	15th March, 2012
		Organic Farming	Soil and Nutrient Management in Organic Farming	25th May, 2011
		Organic Farming	Soil and Nutrient Management	2nd June, 2011
		Organic Farming	Nutrient Management in Organic Farming	6th June , 2011
		RFWE	Soil Analysis	5th August , 2011
		RHWE	Soil and Plant Analysis	28 February, 2012
22.	Mr. S.M. Hussain SMS	Training programme for progressive farmers organized by HDO, Bilat, East Siang	Composite fish farming system	11th April, 2012
		Training on Organic Farming and Sustainable Agriculture organized by SAMETI, Pasighat	Integrated farming system	19-21st April, 2011
		Training Programme organized by HDO, Bilat, East Siang, A.P.	Rice fish farming	12th June, 2011
		Training Programme organized by FISCOPFED, Guwahati, Assam at DFDO's office, Pasighat	Non-conventional method of Fish farming	29-31st July, 2011
		Training Programme conducted by Department of Agriculture under RKVY at Riga, East Siang, AP.	Composite fish farming system	15th November, 2011
		Training programme on Value addition of some important Horticultural	Value addition of fish products	21-28th February, 2012

Sl. No.	Name & Designation of faculty	Details of programme (organizer, place etc.)	Topic of lecture	Period
		Crops of East Siang district organized by CHF, Pasighat		
23.	Mr. T. Riba SMS	Training Programme organized by HDO, Bilat, East Siang, A.P.	IPM in important horticultural crops	12th June, 2011
		Training programme on Value addition of some important Horticultural Crops of East Siang district organized by CHF, Pasighat	Value addition in important horticultural crops	21-28th February, 2012
		Training Programme conducted by Department of Agriculture under RKVY at Riga, East Siang, AP.	IPM in solanaceous vegetable crops	15th November, 2011
		District level Farmers Training organized by ATMA, East Siang	IPM in rice	24th August, 2011
24.	Ms. Th. Eloni Vida SMS	Training programme on Value addition of some important Horticultural Crops of East Siang district organized by CHF, Pasighat	Value addition in important horticultural crops	21-28th February, 2012
25.	Dr. B.N. Hazarika Associate Professor	Capacity building of extension functionaries on Advanced Production Technology of Fruit Crops organised by CHF, CAU, Pasighat	i. Advances in cultivation technology of banana ii. Advances in cultivation technology of pineapple iii. Advances in cultivation technology of litchi iv. Advances in cultivation technology of guava v. Potential of jackfruit as fruit crop	13 – 19th March, 2012

Sl. No.	Name & Designation of faculty	Details of programme (organizer, place etc.)	Topic of lecture	Period
			vi. Commercial cultivation of fruit crops- potential and limitation vii. Demonstration of macropropagation in banana	
		Training on Forest seed and Nursery Technology organized by CHF, CAU Pasighat	Vegetative propagation of forestry species	18th February, 2012
		Training on Organic Farming and Soil Testing-Tools for Sustainable agriculture organized by CHF, CAU, Pasighat	Organic farming – issues and strategies	Feb 27 March, 2012.
		Training on Capacity Building of Extension Functionaries organized by Directorate of Extension Education, Imphal held at CHF, Pasighat	Potential of Fruit based agroforestry system	12 March, 2012
		Training on Basic Laboratory Procedures in Biotechnology held at CHF, Pasighat	Biotechnology in crop improvement	28th November, 2011
26.	Dr. B.R.Phukan Associate Professor	Training on Capacity Building of Extension Functionaries organized by Directorate of Extension Education, Imphal held at CHF, Pasighat	Economics of Fruit production	19th March 2012
		Commodity future market for Extension Functionaries held at CAU, Imphal	i. Commodity future market rationale for Commodity future ii. Economic Benefits of commodity futures	9th August 2011 10th August 2011
		Training programme on Value addition of some important Horticultural	Organising market for value added products	28th February, 2012

Sl. No.	Name & Designation of faculty	Details of programme (organizer, place etc.)	Topic of lecture	Period
		Crops of East Siang district organized by CHF, Pasighat		

5.6.2 Served as External Examiners

Sl. No.	Name and Designation	Place
1.	Mr. Siddhartha Singh, Assistant Professor	External Examiner, Jawaharlal Nehru College, Pasighat, Arunachal Pradesh.
2.	Dr. S.K. Pattanaik Assistant Professor	External Paper setter, OUAT, Bhubaneshwer
3.	Dr. P. Debnath Accosiate Professor	External Paper setter, CoA, Govt. of Tripura
4.	Dr. D. Sen Assistant Professor	External Paper setter, CoA, Govt. of Tripura

5.6.3 Received Ph. D: Nil

5.7 Awards and Recognitions: Nil

Chapter-6

DEVELOPMENTAL WORKS

Construction Agency	Details of work	Sanctioned Amount(Rs.)	Status of work (value of work as per last expenditure statement in Rs.)
NPCC, Ltd.	Construction of ATIC building	1,04,00,000.00	19,34,692.00
NPCC, Ltd.	Construction of Boys Hostel	2,10,00,000.00	8,80,590.00
NPCC, Ltd.	Construction of Research Farm of college building	2,66,00,000.00	30,06,062.00
Shri Dilip Das, Guwahati	Construction of water harvesting tank.	42,02,403.00	20,92,804.00 (upto date-29,90,828.50)
Shri Dilip Das, Guwahati	Renovation of Entomology lab.	2,07,490.00	1,93,467.00
Departmentally	Electrification of renovated entomology lab.	80,212.00	80,000.00 (completed)
Departmentally	Electrification of renovated Mushroom lab.	81,192.00	80,212.00
Departmentally	Construction of potato shed.	4,92,955.00	4,92,068.00 (completed)
Departmentally	Anti fungal painting of academic block	1,83,283.00	1,83,274.00 (completed)
Departmentally	Anti fungal painting of boundary wall.	3,24,339.00	2,73,490.00 (completed)
Departmentally	Anti fungal painting in Girls Hostel	98,500.00	98,222.00 (completed)
Departmentally	Construction of kutcha road in fruit science lab.	2,92,200.00	2,80,210.00 (completed)
Departmentally	Construction of poly house	5,79,097.00	3,54,905.00
Departmentally	Construction of net house		
Departmentally	Construction of potting house		

Chapter-7

FINANCIAL EXPENDITURES AND REVENUE

7.1 Financial Expenditure

Sl. No.	Head of Account	Budget allocation (including additional allocation)(figure in lakh)	Expenditure (actual figure)
	1	2	3
1.	**A-Recurring expenditure**		
	A-1 Estt expenses		
a	Pay and allowances	447.00	44363821.00
b	Retrial benefit		
2.	**Traveling Allowance**	9.60	991112.00
3.	HRD	1.00	35429.00
4.	**Recurring contingency**		
i.	Misc. expenditure	110.00	10985124.00
ii.	Advertisement & Publicity	0.60	68049.00
iii.	Formal ship/Award/Scholarship	3.19	382934.00
5.	**New Initiatives**		
i.	IRP	0.15	22818.00
ii.	Experimental Farms	15.00	1321425.00
iii.	Extension Demonstrations in New Technologies	1.85	131975.00
iv.	Extension Activities in Colleges	4.05	345610.00
v.	Informal solution Programme for farmers	2.92	113007.00
vi.	Formal training Programme for personnel of Line Deptt.	0.85	29851.00
vii.	Students counseling cells	5.01	473378.00
viii.	Vocational training centres	0.00	
ix.	AITCs	15.00	711261.00
Total Recurring Expenditure(A)		**616.22**	**59975794.00**
B	**Non-Recurring**		
i.	General equipments	20.00	1451757.00
ii.	Equipment for experiential learning	47.90	3871750.00
iii.	Library	20.00	1999551.00
iv.	Vehicles		
v.	Furniturs & fixture	1.00	106482.00

vi.	Information Technology	6.61	527544.00
Total Non-Recurring Expenditure (B)		**95.51**	**7957084.00**
C	**Works**		
B	New proposal from xi plan	22.42	2241520.00
C	ARMO/Deptt works	58.00	5099461.00
Total Work Expenditure (C)		**80.42**	**7340981.00**
GRAND TOTAL(A+B+C)		**792.15**	**75273859.00**

7.2 REVENUE EARNED

Sl. No.	Particulars	
(a)	Miscellaneous Income	4612.00
(b)	Sale of Tender Forms	26500.00
(c)	Photo copying and printing Charges	98119.00
(d)	Hiring Charges of Vehicles use on Private affairs	9648.00
(e)	Over Head Charges (Institutional charge)	
(f)	License fee	308551.00
(g)	Water charges	69637.00
(h)	Rent of Transit Hotel	113276.00
(i)	Rent of Guest house	3625.00
(j)	Poultry bird	10976.00
(k)	Vegetable	1315.00
(l)	Sale of budding	25600.00
(m)	Sale of mushroom	12789.00
(n)	Sale of flower	76025.00
(o)	Sale of potato seed	18000.00
(p)	Migration fee	1700.00
(q)	Interest on SB Account	551584.00
	Total	**1331957.00**

Chapter-8

RESEARCH PUBLICATIONS

A. Full Length Research Papers

1. Akhtar MS, Kumawat MM, Ramamurthy VV (2010). A revisionary study of the major Indian species of *Xanthopimpla* (Hymenoptera: Ichneumonidae: Ephialtini). *Indian Journal of Entomology*, 72 (2): 160-174.
2. Banik BC, Singh SR (2011). Performance of blackgram as an intercrop in mango cv. Himsagar. *Environment and Ecology*, 29(2): 520-52.
3. Banik BC, Singh SR, Irenius KS (2011). Effect of irrigation and organic mulching related to flowering and fruit setting in mango cv. Amrapali. *Environment and Ecology*, 29 (2): 517-519.
4. Bishwapati M, Lyngdoh N, Challam, T (2012). A comparative analysis of NAAS ratings of 2007 and 2010 for Indian journals. *Current Science*, 102 (1): 10-12.
5. Chandra P, Chand R, Mehra TS**,** Raina R (2011). Evaluation of different collections of *Mucuna pruriens* for morphological parameters and L-DOPA yield. *The Indian Forester*, 137(7): 840-846.
6. Datt S, Sharma PR, Singh KN, Kumar, M (2011). Combining ability analysis for yield and other quantitative traits in soybean (*Glycine max* L. Merril). *Indian Journal of Plant Genetic Resources*, 24(3): 352-354.
7. Debnath P, Ghosh SK (2011). Determination of critical limit of boron for rice in Terai zone soils of West Bengal. *Journal of Indian Society Soil Science*, 5(1) 82-86.
8. Debnath P, Sen D, Sah D, Ghosh SK (2011). Distribution of available boron in relation to physical and chemical properties of soils in old alluvial zone of West Bengal. *Journal of Interacademicia*, 15(4):556-561.
9. Devi KN, Singh LNK, Singh DTS, Devi HN, Singh TB, Singh KK, Singh WM (2012). Response of soybean (*Glycine max* L. Merrill) to sources and level of phosphorous. *Journal of Agricultural Science Canada*, 4(6): 51-159.
10. Devi KN, Singh LNK, Singh MS, Singh SB, Singh KK (2012). Influence of sulphur and boron fertilization on yield, quality, nutrient uptake and economic soybean (*Glycine max* L. Merrill) under upland conditions. *Journal of Agricultural Science Canada*, 4(4): 1-10.

11. Dubey RK, Singh V, Devi K, Kartek K (2011). Effect of different planting dates on yield and yield components of Potato (*S. tuberosum* L.) in foot hills of Arunachal Pradesh. *Environment & Ecology*, 29(2A): 745-751.

12. Kanwat M, Chargotra M, Suresh PK, Mishra BP (2011). Attitudes of the agricultural graduates towards Agri-clinics & Agri- business centres in Arunachal Pradesh. *Indian Research Journal of Extension Educations*, 11(1): 117-119.

13. Kishore N, Chaudhary HK, Chahota RK, Kumar V, Sood SP, Jeberson S, Tayeng T (2011). Relative efficacy of the maize and *Imperata cylindrica*-mediated chromosome elimination approaches for induction of haploids of wheat-rye derivatives. *Plant Breeding*, 130 (2): 192-194.

14. Kumar M, Jamini LD, Sharma PR, Prasad A (2011). Enhancing productivity and economics of groundnut cultivation through front line demonstration in NEH Region. *International Journal Agricultural and Statistical Science*, 7(2): 511-516.

15. Kumar P, Singh V, Dubey RK (2011). Potential of genetic improvement for pod yield and yield related traits in okra (*A. esculentus* (L.) Moench). *Environment & Ecology*, 29(4A): 2067-2069.

16. Kumar VS, Jaishankar R, Phurailatpam AK, Annamalai A (2012). *Ensete superbum* is a multi utility plant. *Indian Horticulture*, pp-31.

17. Kumawat MM (2011). Save the diversity of Parti-coloured flying squirrel, *Hylopetes alboniger*. *Rodent Newsletter*, 35(1-2): 7-8.

18. Lyngdoh N, Gunaga RP, Jawre G, Vasudeva R (2012). Clonal variation for growth and resistance against trunk borer in teak (*Tectona grandis* L.f.). *Indian Journal of Forestry*, 35(1): 61-66.

19. Meena ML, Sah D (2011). Effect of weed control and fertilization on yield attributes and seed yield of Indian mustard under western plains of U.P. *Environment & Ecology*, 29(2A): 929-931.

20. Meena ML, Sah D, Singh K (2011). Response of Indian Mustard to herbicides and fertilization. *Environment & Ecology*, 29(2A): 926-928.

21. Mishra BP, Ram D, Prasad A, Kannat M, Kumar N, Sujan, DK (2011). Purpose & extent of farmers contact of Eastern U. P with ATIC: An analysis. *Journal of Communication Studies*, 29(1): 21-26.

22. Pathak M, Mishra BP, Singh NK (2011). Farmers' empowerment through participation on farm trials in rainfed rice ecosystem of Koderma, Jharkhand. *Journal of Communication Studies*, 29(2): 121-126.

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24. Pattanaik, SK, Singh OP, Singh DK and Sahoo RN (2011). GIS and RS technique based water logging and salinity simulation- a case study. *Journal of Soil and Water Conservation*, 11(1): 94-102

25. Raina R, Mehra TS (2011). Scope of re-incorporation of selected medicinal plants in forest ecosystems. *The Indian Forester*, 137(5): 644-648.

26. Raja P (2011). Efficacy of fungicides against leaf spot of eggplant. *Annals of Plant Protection Sciences*, 19(1): 203-260.

27. Raja P, Jain RK (2011). Nucleocapsid protein gene mediated resistance against groundnut bud necrosis virus in tomato using sense and antisense constructs. *Acta virologica*, 55: 283–284.

28. Samantaray S, Phurailatpam AK, Bishoyi AK, Geetha KA, Maiti S (2011). Identification of sex-specific DNA markers in betel vine (*Piper betle* L.). *Genetic Resources and Crop Evaluation*. 59: 645-653.

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30. Shakywar RC, Pathak SP, Pathak M, Singh, AK (2012). Evaluation of taro (*Colocasia esculenta var. antiquorum*) genotypes against leaf blight (*Phytophthora colocasiae*) under eastern Uttar Pradesh condition, *HortFlora Research Spectrum*, 1(2): 184-186.

31. Sharma LP, Patel N, Ghosh MK, Debnath P (2011). Landslide vulnerability assessment and zonation through ranking of causative parameters based on landslide density-derived statistic indication. *Geocarto International*, 26(6):491-504.

32. Singh D, Wangchu L, Chaudhary DMH, Meena ML (2011). Drying of pomegranate seeds (Anardana) under different conditions. *Acta Horticulturae*, 890: 433 – 440.

33. Singh HK, Shakywar RC, Singh S, Singh AK (2012). Evaluation of comparative efficacy of native *Trichoderma viride* against rhizome rots of ginger. *Journal of Plant Diseases Science*, 7 (1): 22-26

34. Singh KM, Kumawat MM, Riba T (2011). Evaluation of insecticidal activity of *Trichilia connaroides* and *Melia azedarach* against *Plutella xylostella* and *Spodoptera litura*. *Journal of Applied Zoological Researches*, 22 (1): 27-30.

35. Singh KM, Singh LNK, Riba T, Yadi N. (2012). Evaluation of insecticidal activity of certain plants of Zingiberaceae and Araceae against *Spodoptera litura*. *Environment and Ecology*, 30(1): 133-135.

36. Singh S, Anand A, Srivastava PK (2012). Regulation and properties of glucose-6-phosphate dehydrogenase: A review. *International Journal of Plant Physiology and Biochemistry*, 4(1): 1-19.

37. Singh SR**,** Banik BC (2011). Response of integrated nutrient management on flowering, fruit setting, yield and fruit quality in mango cv. Himsagar (*Mangifera indica* L.). *Asian Journal of Horticulture*, 6(1): 151-154.

38. Singh SR**,** Banik BC (2011). Development of RAPD marker related to fruit cracking in jackfruit (*Artocarpus heterophyllus* Lam). *Asian Journal of Horticulture*, 6(1): 1199-1202.

39. Singh SR**,** Banik BC (2011). Effect of integrated nutrient management on yield and quality in mango cv. Himsagar. *Environment and Ecology*, 29(2A): 842– 845.

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Chapter-9

VISITORS

Sl. No.	Name	Date of visiting
1.	Sri Bosiram Siram Minister of Education, Government of Arunachal Pradesh	27th February, 2012
2.	Sri Nenong Ering Member of Parliament, Government of India	7th March, 2012
3.	Dr. A. K. Chengappa Ex Vice- Chancellor, UAS, Bangalore	4th June, 2011
4.	Dr. A. K. Pathak Ex Director of Research AAU, Jorhat, Assam	21st March, 2012
5.	Dr. G. K. Prasad Ex. Director General, ICFRE, Dehradun	21st March, 2012
6.	Sri N. Pertin Directorate of Horticulture, Government of Arunachal Pradesh	4th June, 2011
7.	Dr R. P. Medhi Director, NRC on Orchids, Pakyong, Sikkim	21st March, 2012
8.	Dr. V. Vasudeva Rao Project Coordinator, AINP (Ornithology), Hyderabad	11-13th March, 2012
9.	Dr. K. K. Jindal Ex. Director of Research, CAU, Imphal, Manipur	4th June, 2011
10.	Dr. A. N. Maurya Ex. Director, Institute of Agril. Sciences, BHU, Varanasi	25th February, 2012
11.	Dr. A.K. Gogoi Zonal Project Director, Zone-III, ICAR, Barapani	4th June, 2011
12.	Dr. R.K. Pathak Ex Director, CISH, Lucknow	7th December, 2012
13.	Mr. S.Roy Agartala, Tripura	21st March, 2012

APPENDIX-I

PHOTO PAGE OF EXTRA-CURRICULAR ACTIVITIES (11TH COLLEGE WEEK-2011)

Inaugural ceremony of the 11th College Week

Guard of Honour by students in the 11th College Week

Cultural activities in the 11th College Week

Sports activities in the 11th College Week

Literary activities in the 11th College Week

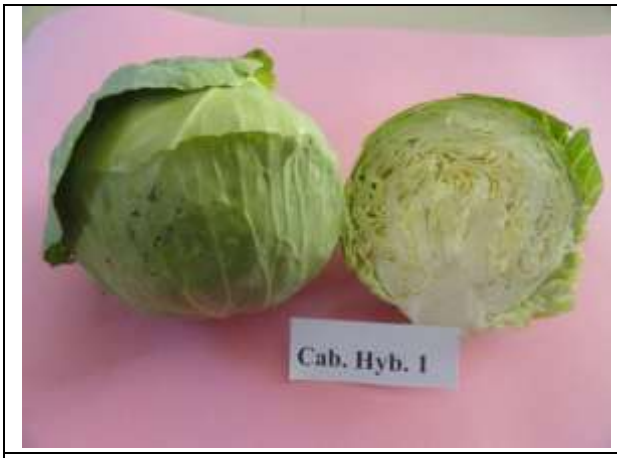
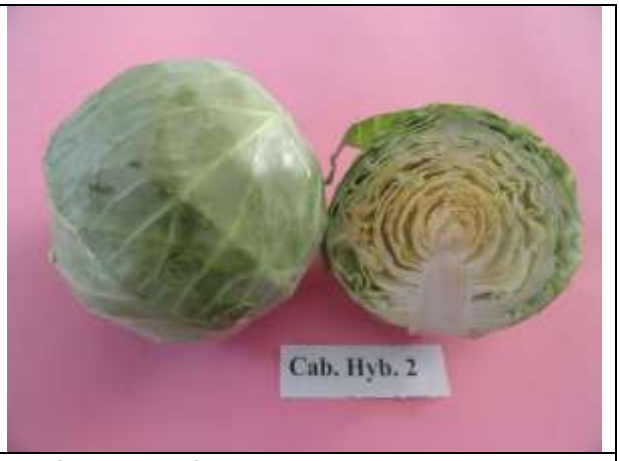
Prize distribution ceremony in the 11th College Week

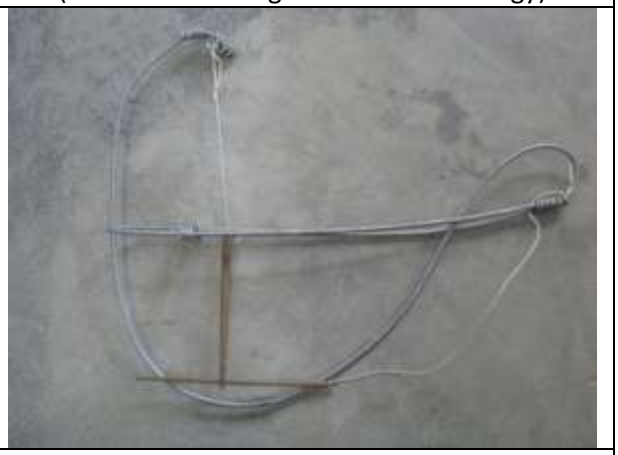
Lighting of Lamp in the closing ceremony of the 11th College Week

Closing ceremony of the 11th College Week

APPENDIX-II
PHOTO PAGE OF RESEARCH

	
Growing of citrus rootstock under MM1(under MM1 project)	Polyhouse/ Shade house for citrus nursery raising(under MM1 project)
	
Performance low chilling Peach at Pasighat (under AINP- outreach of technology for temperate fruit crop)	Testing of yield performance of Apple cultivars at Shergaon, West Kameng, Arunachal Pradesh (under AINP- outreach of technology for temperate fruit crop)
	
Trial on post harvest quality in potato (AICRP on potato)	Trial of date of planting in potato (AICRP Potato)

	
Performance of Cab. Hyb. 1 in Pasighat condition	Performance of Cab. Hyb. 2 in Pasighat condition
	
AICRP on mushroom	**PGPR treated tomato plants in the field**
	
IPM plot at Pasighat (under AICRP on Biological Control)	**TSP demonstration plot at Oyan (under AICRP on Biological Control)**

	
Bird watching tower (Under AINP on Agricultural Ornithology)	Reflective ribbon used by farmers in maize (Under AINP on Agricultural Ornithology)
	
Rodent trap (*Etku*) (under AINP on Rodent control	**Rodent trap (*Pak*) (under AINP on Rodent control**

APPENDIX-III

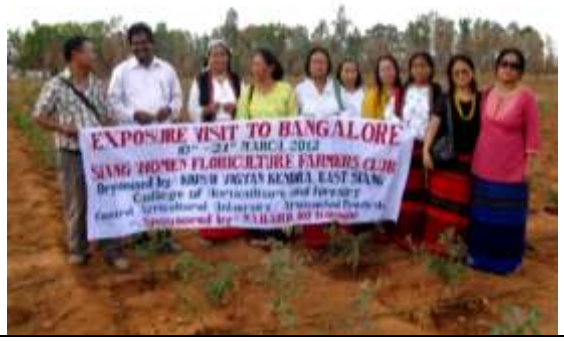
PHOTO PAGE OF EXTENSION ACTIVITIES

<table>
<tr><td> 
</td><td>  </td></tr>
<tr><td>Arunachal Citrus Show-2012</td><td>Farmers visiting Arunachal Citrus Show-2012</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Training on Capacity Building in Agro-Forestry</td><td>Participation in CAU - Agri Fair, 2012- College stall visited by honorable dignitaries</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Capacity Building of Extension Functionaries in Advances in Production Technology in Fruit Crops</td><td>Training on Organic farming and soil testing</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Trainees conducting practical classes in laboratory</td><td>Training on Basic Laboratory Practices</td></tr>
</table>

APPENDIX -IV

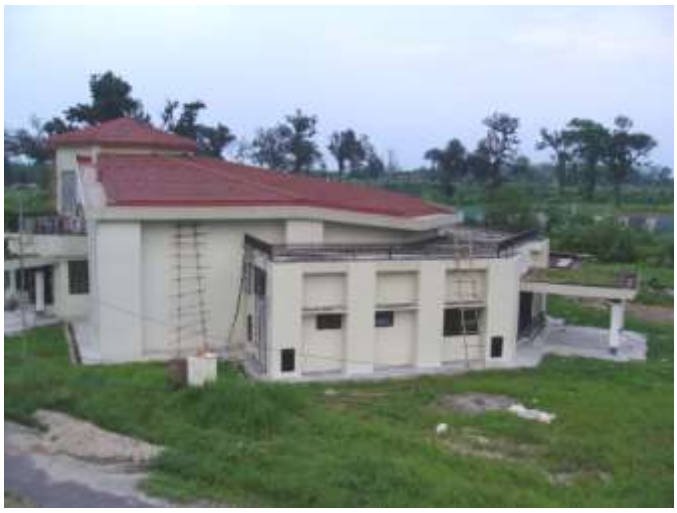
ACTIVITIES OF KVK EAST SIANG

	
FLD on Sesame Var. AST-1	**FLD on IPM in Cabbage using Mustard as trap crop**
	
FLD on Toria Var. TS-46	**FLD on Composite fish farming system**
	
FLD on Rice-Fish farming	**FLD: Home Science**
	
Ongoing FLD: Home Science	**Training Programmes: Plant Protection**

	
Farmers Exposure visit to Bangalore 2012	**QRT Team Visit To KVK East Siang**

APPENDIX-V
DEVELOPMENTAL WORKS

Newly constructed water harvesting tank



Auditorium

Board room at guest house

Polyhouse (New)

Lawn developed in office building

Potato Shed

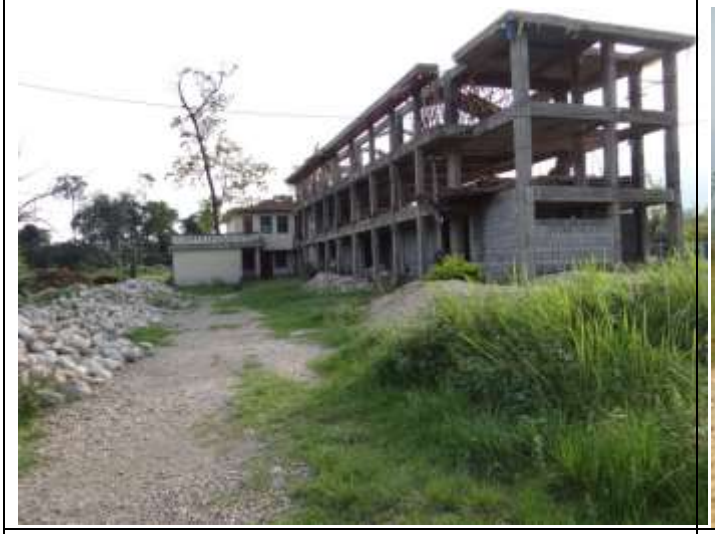
	
New Boys Hostel	Development of Farm road
	
200KVA DG Set for uninterrupted power supply	State of art lab facility
	
Renovation of mushroom lab	Renovation of Entomology lab

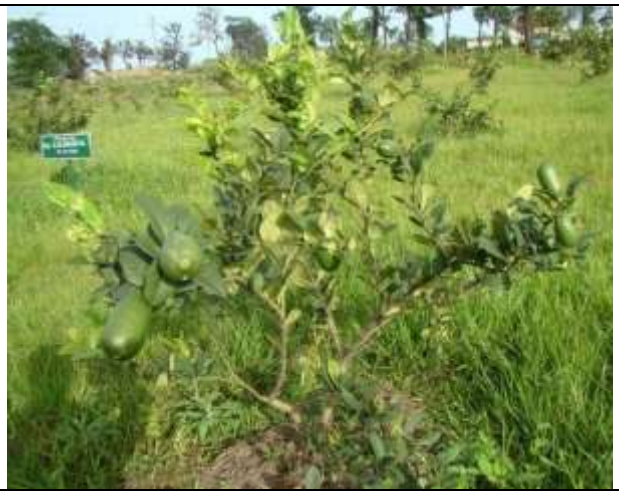
PHOTO PAGE OF FARM DEVELOPMENT

Herbal Garden developed at CHF Pasighat

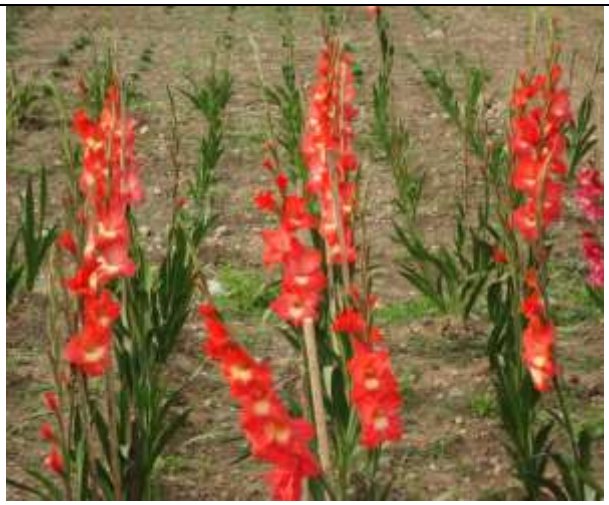
Intercrops in young orchards of Litchi

Performance of banana var.Grand Naine

Introduction of exotic vegetables (Summer squash) in the Nutritional Garden, CHF, Pasighat



Performance of Assam Lemon in the Nutritional Garden, CHF, Pasighat

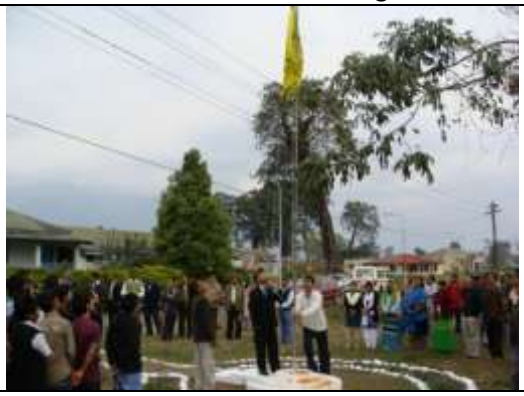
	
Demonstration of Agroforestry system at CHF Pasighat	Performance of Gladiolus variety under Pasighat condition
	
Filtered check constructed across natural drain CHF, Pasighat	Development of Forestry nursery at CHF, Pasighat

APPENDIX-VI

PHOTO PAGE OF OTHER ACTIVITIES

1st Board of Studies Meeting at CHF

Discussion in the Board of Studies meeting



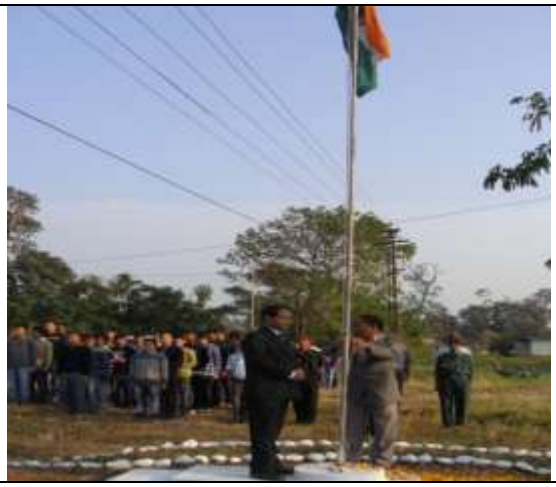
Flag hoisting ceremony at the 11th College foundation day

Hon'ble MP as Chief Guest in the 11th College foundation day

Scientific Advisory Committee Meeting

Discussion in SAC Meeting

Celebration of Independence Day – 2011at CHF



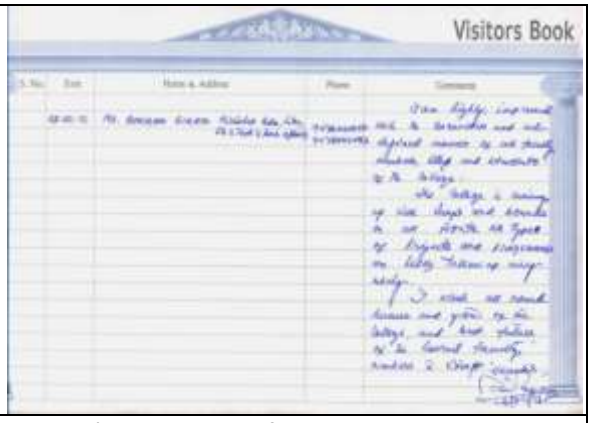
Celebration of Republic Day-2012 at CHF

Counselling of JRF aspirants by Dr. R.K. Bhattacharyya, Professor & HOD, AAU, Jorhat

Counselling of JRF aspirants by Dr. R.K. Pathak, Ex-Director, CIHS, Lucknow

APPENDIX-VII
PHOTO - VISITORS' PAGE

Hon'ble minister of education, Arunachal Pradesh Mr. Bosiram Siram visited the college campus



Hon'ble minister of education, Arunachal Pradesh Mr. Bosiram Siram put his comments

Hon'ble VC, CAU, Dr. R.P. Medhi, Director, NRCO, Pakyong, Dr. G. K. Prasad, Ex. Director General, ICFRE and Shri S Dey, Member BOM, CAU visited the college

Dr. A. K. Chengappa, Ex Vice- Chancellor, UAS, Bangalore, Dr. A.K.Gogoi, ZPD, Dr. K.K.Zindal, Ex-DR, CAU and Shri N. Pertin, Director (OSD), Horticulture, Govt. of Arunachal Pradesh visited the college campus

Dr. A.N.Maurya, Ex-Director, Dr. K.Sheela, Dean, College of Home Science, CAU attended the first BOS meeting

The honourable chief justice of Gauhati High court, Shri O Panyang, DC, East Siang visited the college

	
Hon'ble MP, Arunachal Pradesh visiting CHF campus	Dr. K. Krishna Kumar, Director, NBAII, Bangalore visited farmers' field at Pasighat
	
Dr. V Vasudeva Rao, PC, AINP on Agril. Ornithology visited Dr. D.Ering Wild Life Sanctuary, Pasighat	PCF and CCF, Govt. of Arunachal Pradesh visited the college