

# ANNUAL PROGRESS REPORT OF KVK, BAJAURA (April 2010- March 2011)

## 1. GENERAL INFORMATION ABOUT THE KVK

### 1.1. Name and address of KVK with phone, fax and e-mail

Address	Telephone		E mail
Krishi Vigyan Kendra, Kullu at Bajaura, Distt.Kullu-175 125 (HP)	Office: 01905- 287318	FAX: 01905- 287318	<a href="mailto:kvkkullu@gmail.com">kvkkullu@gmail.com</a> <a href="mailto:vinodpatadhi@gmail.com">vinodpatadhi@gmail.com</a>

### 1.2. Name and address of host organization with phone, fax and e-mail

Address	Telephone		E mail
	Office	FAX	
Chaudhary Sarwan Kumar HP Krishi Vishvavidyalaya Palampur, Distt. Kangra ( H.P.) Pin code- 176 062	01894- 230383	01894- 230511	<a href="mailto:registrar@hillagric.ernet.in">registrar@hillagric.ernet.in</a>

### 1.3. Name of the Programme Coordinator with phone & mobile No

Name	Telephone / Contact		
	Residence	Mobile	Email
Dr. Vinod Sharma	01902- 222144	94181- 39639	<a href="mailto:vinodpatadhi@gmail.com">vinodpatadhi@gmail.com</a>

### 1.4. Year of sanction: 1985

### 1.5. Staff Position (as on 31st March 2011)

Sl. No.	Sanctioned post	Name of the incumbent	Designation	Discipline	Pay Scale (Rs.)	Present basic (Rs.)	Date of joining	Permanent /Temporary	Category (SC/ST/OBC/Others)
1	Programme Coordinator	Dr Vinod Sharma	Programme Coordinator	Agronomy	37400-67000+9000	52,250/-	23.10.2007	Permanent	Others
2	Subject Matter Specialist	Dr (Ms.) Chander kanta	Subject Matter Specialist	Food Science & Nutrition	37400-67000+9000	53,820/-	04.07.1994	Permanent	Others
3	Subject Matter Specialist	Dr K C Sharma	Subject Matter Specialist	Vegetables crops	37400-67000+9000	52,250/-	4.11.2009	Permanent	Others
4	Subject Matter Specialist	Dr Ramesh Lal	Subject Matter Specialist	Entomology	15600-39100+6000	25,820/-	24.10.2007	Co-Terminus	SC

5	Subject Matter Specialist	Dr Deepali Kapoor	Subject Matter Specialist	Vety. Parasitology	15600-39100+6000	24,320	07.04.2006	Co-Terminus	Others
6	Subject Matter Specialist	Dr L.K.Sharma	Subject Matter Specialist	Pomology	15600-39100+6000	25,820/-	12.04.2006	Co-Terminus	Others
7	Subject Matter Specialist	Dr.Dhanbir Singh	Subject Matter Specialist	Soil Science	15600-39100+6000	25,060/-	09.10.2007	Co-Terminus	SC
8	Programme Assistant	Sh. Hira Lal Verma	Tech. Asstt., Gr-II	-	10300-34800+3600	20,360/-	14.03.2007	Permanent	Others
9	Computer Programmer	Vacant	-	-	-	-	-	-	-
10	Farm Manager	Sh.Bhupinder Gautam	Tech. Asstt., Gr-1	-	10300-34800+5000	21,930/-	02.07.2007	Permanent	Others
11	Accountant / Superintendent	Sh L.M. Thakur	Supdt.	-	10300-34800+4200	25,330/-	10.11.2008	Permanent	Others
12	Stenographer	Sh. Davender Kumar	Jr. Assistant	-	5910-20200+2800	11,860/-	1.05.10.	Permanent	Others
13	Driver	Sh. Prem Chand	Driver	-	5910-20200+2800	21,690/-	23.01.2001	Permanent	Others
14	Driver	Sh. Suraj Mal	Driver	-	5910-20200+2800	9,020/-	18.07.2007	Co-Terminus	SC
15	Supporting staff	Sh. Hakim Singh	Chowkidar	-	4900-10680+1400	10,830/-	25.10.1994	Permanent	Others
16	Supporting staff	Sh. Thari Lal	Peon	-	4900-10680+1400	9,300/-	23.03.1998	Permanent	Others

**1.6. Total land with KVK (in ha) : 7.80**

S. No.	Item	Area
1	Under Buildings	464 sq.m
2.	Under Demonstration Units ( Animal shed)	88.3 sq.m
3.	Under Crops a) Crops & Vegetables b) Fodder crops	3.00 ha 1.63 ha
4.	Agro-forestry	2.16 ha
5.	Others – Flood hit under reclamation	1.0 ha

## 1.7. Infrastructural Development:

### A) Buildings

S. No.	Name of building	Source of funding	Stage					
			Complete			Incomplete		
			Completion Date	Plinth area (Sq.m)	Expenditure (Rs.)	Starting Date	Plinth area (Sq.m)	Status of construction
1.	Administrative Building	ICAR	14.12.1989		5,64,070.60			
2.	Farmers Hostel	ICAR	19.06.1994		4,38,781.35			
3.	Staff Quarters (6)	ICAR	27.10.1993		4,74,491.03			
4.	Demonstration Units (2)	ICAR	07.06.1990		1,17,223.75			
5	Fencing	Host Institution	Boundary wall under construction					
6	Rain Water harvesting system							
7	Threshing floor	Host Institution	Under Construction					
8	Farm godown							

### B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Total kms. Run	Present status
Jeep Mahindra & Mahindra, (Bolero)	May, 2010	5,49,644/-	21800	Good
Tractor Sonalika International, DI-35	November 2004	3,45,590/-	852 hours	Good

### C) Equipments & AV aids (Items above Rs. 5000/- listed):

Sr. No.	Name of equipment	Cost (Rs.)	Date of purchase	Present status
01.	Godrej refrigerator	8050/-	22.03.1995	Unserviceable
02.	Power spray pump	9000/-	31.03.1987	Unserviceable
03.	Diesel engine( Kirloskar)	7100/-	31.03.1987	Good
04.	Film sound projector	12000/-	16.12.1986	Unserviceable
05.	Micro-photography equipment for microscope COSINA (camera)	9640/-	04.04.1988	Unserviceable
06.	Epidiascope	7025/-	19.03.1994	Unserviceable
07.	Television (Videocon)	16990/-	30.05.1991	Good
08.	VCP (Videocon)	13690/-	30.05.1992	Good
09.	Overhead projector	6175/-	23.06.1992	Good
10.	Hot air oven	5304/-	27.03.1999	Good
11.	UPS-625 VA	8512/-	30.03.1999	Unserviceable
12.	Computer & monitor with CD writer	57784/-	15.05.1999	Good

13.	Scanner 5200C HP	16101/-	30.03.1999	Good
14.	Scientific computer work station (table)	6406/-	30.03.1999	Good
15.	Printers (LaserJet 6L gold HP)	19196/-	24.04.1999	Good
16.	Printer LaserJet 695Cci HP	7010/-	24.04.1999	Unserviceable
17.	Vacuum cleaner (M/s. Eureka Forbes)	5400/-	21.03.2002	Good
18.	Photocopier (M/s. Ricoh India Ltd.)	85,250/-	17.10.2002	Good
19.	Godrej overhead projector	22,100/-	31.03.2004	Good
20.	Wheat thrasher	9,351/-	28.04.2004	Good
21.	Computer (Siemens make), P-II+CPU	59,117/-	10.01.2000	Good
22.	Lexmark printer 695 Cci (HP)	7,010/-	10.01.2000	Unserviceable
23.	UPS IKVA-3313	17,000/-	09.02.1999	Repairable
24.	Fax modem (33.6 kpbs)	9,100/-	10.01.2000	Good
25.	LG refrigerator	15,200/-	21.08.2004	Good
26.	LG-refrigerator	15,725/-	24.09.2005	Good
27.	Water distillation still (glass)	31,590/-	14.01.2005	Good
28.	Combined Kjeldahl digestion & distillation unit(2)	44,800/-	14.01.2005	Good
29.	Portable top pan balance	31,158/-	17.03.2005	Good
30.	Flame photometer	33,372/-	21.03.2005	Good
31.	Chemical balance	99,900/-	21.03.2005	Good
32.	Shaker	29,916/-	21.03.2005	Good
33.	Oven	13,608/-	21.03.2005	Good
34.	Grinder	19,656/-	21.03.2005	Good
35.	P.H.& conductivity meter	46,332/-	21.03.2005	Good
36.	Spectrophotometer	1,67,400/-	30.03.2005	Good
37.	Leveler (planker)	6,500/-	30.03.2005	Good
38.	Offset disc harrow 14 disc	21,500/-	30.03.2005	Good
39.	Cultivator 9 tines	11,500/-	30.03.2005	Good
40.	2 F disc plough	14,500/-	30.03.2005	Good
41.	Trolley(9'x5'x1.5') hydraulic	49,500/-	30.03.2005	Good
42.	Scanner	7,176/-	25.04.2005	Good
43.	Computer,CPU,keyboard & mouse	77,750/-	16.05.2005	Good
44.	Printer laser jet	12,200/-	10.06.2005	Good
45.	UPS 1.4 KVA	18,500/-	20.10.2005	Good
46.	Laser Fax Panasonic FL 512	17,680/-	08.02.2006	Good
47.	Colored Laser Jet Printer	20,990/-	23.03.2006	Repairable
48.	Sony make digital camera	32,705/-	24.03.2006	Good
49.	Digital Light processing Projection (LCD) BENQ	99,405/-	23.02.2007	Good
50.	Computer, Desk top computer, LENOVO	38,250/-	12.05.2008	Good
51.	Projection Screen	5600/-	23.03.2008	Good
52.	Sony Bravia LCD TV 40"	76,900/-	09.10.2008	Good
53.	Disc Harrow 6x6	35,880/-	07.01.2009	Good
54.	Stiching Machine (for jute bag stiching etc.)	5,479/-	08.07.2010	Good
55.	VST Power Tiller 130 DI with 600 mm rotary	2,08,457	20.09.2010	Good
56.	Whirlpool Double Door Refrigerator	37,800/-	12.04.2010	Good
57.	Aquasure RO Water Purifier	16,000/-	12.04.2010	Good
58.	BOD Incuvator	1,33,000/-	07.06.2010	Good
59.	Binocular Microscope	36,248/-	03.06.2010	Good
60.	Laminar Air Flow	46,575/-	07.06.2010	Good
61.	Ricoh Digital Copier	1,00,000/-	21.04.2010	Good
62.	Autoclave Vertical	98,325/-	26.04.2010	Good
63.	PC HP Pavilion	36,190/-	27.04.2010	Good
64.	HP Laserjet Printer	11,500/-	27.04.2010	Good
65.	Internet Lab- One server + 5 PCs + 1 laserjet printer + 1 Dot matrix printer + 1 scanner + other accessories			Good

### 1.8. A). Details SAC meeting\* conducted in the year

S. No.	Date	Number of Participants	Salient Recommendations	Action Taken
1.	20.08.2010	68	Presence of Heads of Departments from University and some progressive farmers from the district should be ensured	Presence of Heads of departments from university and progressive farmers from district was ensured with the purpose of planning need based research programmes based on feedback from farmers
			Emphasis should be given on Demand –driven extension	In all the programmes of KVK, emphasis was given on market led extension to diversify agriculture for more profits and to attract rural youth
			To earn more profits from less acreage, emphasis should be given on polyhouse technology	Trainings on “Polyhouse Technology” under all the flagship programmes of state are being organized at KVK and also scientists are visiting polyhouses frequently to solve day to day problems. For “Package of Practices” for Polyhouses, KVK is in constant touch with university.
			For small and fragmented holdings, emphasis should be given on diversification towards cash crops	This aspect is being taken care of in all the trainings and demonstrations to motivate farmers for growing location specific cash crops for higher returns
			Organic farming should be promoted	Special trainings on organic farming with the deptt. Of Agriculture and Himachal Organic Farmers’ Forum are being organized. Demonstrations on pest management through organic means are also being conducted. Special campaign is underway to popularize fruit fly traps
			Monocropping should be stopped	In all the trainings, farmers are being made aware about ill effects of monocropping and advised for taking up crop rotations based on scientific lines
			Emphasis should be given to nutritional enrichment of straw	This aspect is being taken care of in all the trainings and demonstrations on nutritional enrichment of straw are also

				being organized. Apart from this UROMIN bricks and Mineral Mixture is also being provided to farmers
2.	16.02.2011	72	Mulching should be promoted under project entitled "National Initiative on Climate Resilient Agriculture" particularly in fruit crops.	This has been included in the Action Plan of the project
			In trainings of Krishak Mitras, scientists from Regional Horticultural Research Station, Bajaura should be involved more and more keeping in view the importance of horticultural crops in the district.	This has been ensured in the trainings conducted from February, 2011 onwards
			Many farmers showed their concern about spurious products (inputs) in the market	Farmers are being advised for use of only those products which are recommended by NARS
			Location specific mineral mixture should be promoted	This has been included in Action Plan of NICRA project

*\* Attach a copy of SAC proceedings along with list of participants*

## **2. DETAILS OF DISTRICT (2010-11)**

Kullu district is situated in the Inner Himalayas between 30° 51' 00" North latitude and 77° 06' 04" East longitude. The altitude of the district ranges from 500 m to 5000 m amsl, but the habitation is only up to 3500 m. In terms of geographical conditions the district is mountainous cruised by rivers & valleys. The Satluj and Beas are the principal rivers with many tributaries. For development purpose, the district has been divided into five blocks viz. Naggar, Kullu, Banjar, Ani and Nirmand. There are 204 Gram Panchayats and 172 revenue villages having many hamlets. Total population is 4,37,474 as per 2011 census.

Net cultivated area is 36,765 hectares. 30,053 ha is cultivated more than once thus making the total cultivated area to 66,818 ha. Only 2905 ha is irrigated which comes to 7.9 per cent of the net cultivated area. Out of 62,954 total operational holdings 0.02 % (15) are very large, 0.79 % (499) large, 4.84 % (3047) medium, 13.87 % (8731) small and 80.47 % (50,662) marginal.

The district experiences mild summers and severe winter due to snow fall on mountain ranges. December marks the onset of winter which continues till the end of February, sometimes continuing till the month of March. The snow and sleet fall in the upper region while rains are confined to the lower areas. From March onwards weather begins to warm up accelerating growth of rabi (winter) crops. Hailstorms are received sometimes during April & May causing considerable damage to field crops and fruits. Monsoon begins in the end of June or beginning of July and recedes by the middle of September. In winter, heavy rainfall in lower belt and snow in higher belt is received due to western disturbances.

## 2.1 Major farming systems/enterprises

S. No	Farming system/enterprise
1.	Horti. +Agri. +Dairy
2.	Agri. +Horti. +Dairy
3.	Agri. +Dairy +Horti.
4.	Veg. +Horti. +Dairy
5.	Horti. +Agri.
6.	Agri. +Dairy
7.	Horti. +Dairy
8.	Veg. +Dairy

## 2.2 Description of Agro-climatic Zone & major agro ecological situations (based on soil and topography)

S. No	Agro-climatic Zone	Characteristics
1.	Mid-hill sub-humid zone	The elevation of this zone varies from 651 to 1800m amsl. Soil texture varies from loam to clay loam and soils are deficient in N & P with poor water & nutrient holding capacity. Soils are acidic in reaction. The average rainfall is about 1500mm. In this zone, wheat, paddy, maize, seed potato, pulses and oilseeds are the main crops Stone and citrus fruits occupy considerable area. Forest and pastures are also important in this zone.
2.	High-hills temperate wet zone	The elevation of this zone lies above 1800m amsl. The soils are shallow in depth, acidic in reaction, silt loam to loam in texture and deficient in N & P. Terrace farming is practiced. Soil erosion, low fertility and inadequate water management are main problems of this zone. The main crops are wheat, maize, paddy, barley, pulses and oilseeds. Mostly rainfed farming is practiced. The average rainfall is about 1000mm. This zone is suitable for raising off-season vegetable and seed production of temperate vegetable, Apple, other temperate fruits and nuts are important horticultural crops.

S. No	Agro ecological situation	Characteristics
1.	Valley areas	This includes the valley areas having elevation ranging from 651 to 1300m amsl in all the five development blocks. The average annual rainfall is about 1000mm. Soils are Entisol and Inceptisol with gentle slopping topography. The net cultivated area under this AES is about 12.7 thousand ha (35.05%) with partial irrigation facilities. Main sources of irrigation are flow and lift irrigation schemes. Vegetables, cereal and fruit based cropping systems are predominant in

		this AES. The net cultivated area is spread over approximately 54.3, 11.8, 11.8, 11.8 and 10.3% in Kullu, Naggar, Banjar, Nirmand and Ani blocks, respectively.
2.	Mid-hill mild temperate areas	Area of this AES also spreads through the five blocks of the districts. The elevation of this AES ranges from 651 to 1300m amsl having annual rainfall of about 1540mm. The soil are Entisol, Inceptisol and Mollisol. Topography is hilly terrain. The net cultivated area is about 16.02 thousand ha (44.23%) with meager irrigation facilities. Cereal, pulse, fruits and vegetable based cropping systems are predominantly in practice in this AES. The net cultivated area is spread over approximately 19.2, 16.7, 20.6, 18.5 and 24.7% in Kullu, Naggar, Banjar, Nirmand and Ani blocks, respectively.
3.	High-hill temperate areas	Area of this AES too spreads in all the five blocks of the district with elevation ranging from 1300 to 1800 m amsl. Average rainfall is about 1078 mm and soil types are Alfisol and Inceptisol. Topography is hilly terrain having net cultivated area of approximately 6.0 thousand ha (16.58 %) with inadequate irrigation facilities. Fruits, off-season vegetables, pulses and traditional mountain crops are predominant. The net cultivated area under this AES is spread over approximately 41.3, 25.0, 15.1, 13.3 and 5.3% in Kullu, Naggar, Banjar, Nirmand and Ani.
4.	High hill wet temperate areas	This AES also extends in all the five blocks with elevation above 1800 m amsl with medium shallow soil. Topography is hilly terrain with net cultivated area of approximately 1.5 thousand ha (4.14%). Heavy snowfall with one growing season is characteristic feature in some of areas in this AES. Mountain traditional crops, pulses, cereals, fruits and vegetables are grown by the peasants. The net cultivated area under this AES is spread over approximately 33.3, 21.0, 12.3 and 13.3% in Kullu, Naggar, Banjar and Nirmand blocks, respectively.

### 2.3 Soil type/s

S. No	Soil type	Characteristics	Area in ha
1. Valley Areas	Entisols & Inceptisols	Entisols: Soil has no diagnostic pedogenic horizons. They may be found in virtually any climate on very recent geomorphic surfaces. Inceptisols: Soils that are usually moist with pedogenic horizons of alteration of parent materials but not of illuviation. Generally, the direction of soil development is not yet evident from the marks left by various soil- forming processes or the marks are	12.7 thousand hectare



		too weak to classify in another order	
2. Mid-hill mild temperate areas	Entisols, Inceptisols and Mollisols	Entisols: Soil has no diagnostic pedogenic horizons. They may be found in virtually any climate on very recent geomorphic surfaces. Inceptisols: Soils that are usually moist with pedogenic horizons of alteration of parent materials but not of illuviation. Generally, the direction of soil development is not yet evident from the marks left by various soil- forming processes or the marks are too weak to classify in another order. Mollisols: Soils with nearly black, organic – rich surface horizons and high supply of bases. They have mollic epipedons and base saturation greater than 50% in any cambic or argillic horizon.	16.4 thousand hectare
3. High-hill temperate areas	Alfisols & Inceptisols	Alfisols: Soil with gray to brown surface horizons, medium to high supply of bases, and B horizons of alluvial clay accumulation. These soils form mostly under forest or savanna vegetation in climates with slight to pronounced seasonal moisture deficit. Inceptisols: Soils that are usually moist with pedogenic horizons of alteration of parent materials but not of illuviation. Generally, the direction of soil development is not yet evident from the marks left by various soil- forming processes or the marks are too weak to classify in another order.	6.0 thousand hectare
4. High hill wet temperate areas	Medium shallow	-	1.5 thousand hectare

#### 2.4 Area, Production and Productivity of major crops cultivated in the district (2010-11)

S. No	Crop	Area (ha)	Production (MT)	Productivity (Qtl/ha)
1.	Maize	16,600	32,000	19.27
2.	Rice	1250	1450	11.60
3.	Wheat	24,500	23,600	9.63
4.	Barley	2400	3600	15.00
5.	Tomato	745	23840	320.00
6.	Cabbage	847	25,410	300.00
7.	Peas	870	8265	95.00
8.	Cauliflower	575	11,500	200.00
9.	Capsicum & Chillies	157	1256	80.00
10.	Onion	55	880	160.00
	Garlic	892	8920	100.00
11.	Beans	130	1040	80.00
12.	Cucurbits	124	3212	259.00
13.	Okra	64	384	60.00

14.	Brinjal	40	600	150.00
15.	Radish, Turnip, Carrot	210	3150	150.00
16.	Apple	23,870	160000	-
17.	Plum	2079	8000	-
18.	Pear	493	17000	-
19.	Pomegranate	256	260	-
20.	Persimmon	169	80	-

## 2.5 Weather data

Month	Rainfall (mm)	Temperature ° C		Relative Humidity (%)
		Maximum	Minimum	
April, 2010	55.0	29.4	10.1	56.5
May, 2010	83.8	31.3	13.7	57.0
June, 2010	170.9	30.2	15.6	63.0
July, 2010	265.4	28.5	20.4	76.0
August, 2010	186.0	29.7	21.7	77.0
September, 2010	123.8	28.3	18.1	71.0
October, 2010	44.6	27.1	10.2	62.5
November, 2010	11.6	23.7	4.8	63.5
December, 2010	65.8	18.3	-0.5	60.5
January, 2011	27.2	15.1	0.3	64.5
February, 2011	102.2	16.6	4.0	67.5
March, 2011	90.4	23.3	6.6	61.5

## Live stock population in the district ( as per 2007 census)

Category	Population
<b>Cattle</b>	<b>1,97,930</b>
<i>Crossbred</i>	76,084
<i>Indigenous</i>	1,21,846
<b>Buffalo</b>	<b>890</b>
<b>Sheep</b>	<b>1,14,954</b>
<i>Crossbred</i>	17000
<i>Indigenous</i>	97,954
<b>Goats</b>	<b>69,535</b>
<b>Rabbits</b>	<b>3236</b>
<b>Poultry</b>	<b>11560</b>

## 2.7 Details of Operational area / Villages (2010-11):

Whole of Kullu district having 5 development blocks viz. Naggar, Kullu, Banjar, Ani and Nirmand is the operational area of Krishi Vigyan Kendra, Kullu (Bajaura). Kisan goshties, survey & surveillance, interactions and PRA etc. are carried out time to time to identify major problems for aiming thrust areas. The following thrust areas have been identified for implementation by this KVK.

## 2.8 Priority thrust areas

- Niche based diversification – Identification & cultivation of off-season vegetables, horticultural crops and introduction of new enterprises in new/remote/potential pockets of the district.
- Improved production techniques of different crops
- Soil moisture conservation with emphasis on rain water harvesting and its efficient use.
- Training & demonstrations on polyhouse technology.
- Emphasis on organic farming.
- Training & demonstrations on integrated management of key insect pest and diseases.
- Proper management of orchards.
- Post harvest handling, preservation and value addition in fruits and vegetables.
- Conservation and value addition of traditional mountain crops.
- Management of dairy cattle with greater emphasis on de-worming and vaccination schedule.
- Emphasis on balanced feed and fodder management
- Home management.
- Child care and health management.

## 3. TECHNICAL ACHIEVEMENTS

### 3. A. Details of target and achievements of mandatory activities by KVK during 2010-11

OFT (Technology Assessment and Refinement)				FLD (Oilseeds, Pulses, Cotton, Other Crops/Enterprises)			
1				2			
Number of OFTs		Number of Farmers		Number of FLDs		Number of Farmers	
Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
10	10	40	42	161	237	161	237

Training (including sponsored, vocational and other trainings carried under Rainwater Harvesting Unit)					Extension Activities			
3					4			
Number of Courses			Number of Participants		Number of activities		Number of participants	
Clientele	Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
Farmers	50	49	1500	1428	125	135	>20,000	>26,000
Rural youth	15	21	500	618				
Extn. Functionaries	8	9	200	271				

Seed Production (Qtl.)		Planting material (Nos.)	
5		6	
Target	Achievement	Target	Achievement
19.00	19.02	3500	3887

### 3. B. Abstract of interventions undertaken

S. No	Thrust area	Crop/ Enterprise	Identified Problem	Interventions					Supply of seeds, planting materials etc.
				Title of OFT if any	Title of FLD if any	Title of Training if any	Title of training for extension personnel if any	Extension activities	
1.	Niche based diversification	Vegetable crops	Need for diversification	Evaluation of cauliflower hybrids Evaluation of Frenchbean varieties	Demonstration on cucumber genotypes	Off-season vegetable production techniques Polyhouse Technology	-	Field days, News paper/ Radio/ TV talks etc.	Supply of seedlings
		Colour strains of apple, new fruits such as Nectarines & pomegranate etc.	Due to global warming – colour problem in apple in lower belt, so need for diversification	-	-	Horticultural management with special emphasis on new varieties / cultivars & new fruits	General Horticultural management	Field days, News paper/ Radio/ TV talks etc.	
		Bee keeping	Poor management of colonies	-	-	Beekeeping-scientific management of honey bee colonies	-	Field days, News paper/ Radio/ TV talks etc.	
		Medicinal and Aromatic Plants	Exploration from wild so need to cultivate	-	-	Training programme on cultivation technique for medicinal and aromatic plants	-	-	-
2.	Improved production techniques of different crops	Cereals, pulses, oilseeds and vegetables	Old & local varieties, imbalance & injudicious use of fertilizers & indiscriminate use of pesticides	Evaluation of wheat varieties INM in cauliflower IPM in vegetables	Demonstrations on improved varieties of wheat ,Mash, Rajmash, Soybean, Gobhi Sarson, Chillies, Okra,	Agrotechniques for offseason vegetables Agro techniques for cereals, pulses & Oil seed	-	Field days, News paper/ Radio/ TV talks etc	Supply of seed
3.	Soil moisture conservation with emphasis on rain water harvesting & its efficient use	All	Soil erosion , very less irrigation facility , frequent droughts	Evaluation of in-situ moisture conservation techniques in maize & okra	-	Scaling up of water productivity in agriculture	-	Field days, News paper/ Radio/ TV talks etc	

4.	Polyhouse technology, Low cost small polyhouses/ polytunnels for nursery raising	All vegetables	Damping off, non availability of nursery during low temperature	-	-	Management of polyhouses Scientific nursery raising	-	Field days, News paper/ Radio/ TV talks etc	
5.	Organic farming	As a system	Environment pollution & indiscriminate use of agrochemicals	-	-	Principal & ways & means of Organic Farming, mobilization of farmers	-	Field days, News paper/ Radio/ TV talks etc	
6.	Integrated management of key insects pests & diseases	All crops	Huge losses due to insect pest & diseases	Management of fruit borer in brinjal	-	IPM in vegetable crops  IPM in fruit crops  IPM in cereals, pulses & oil seed	-	Field days, News paper/ Radio/ TV talks etc	
7.	Proper management of orchards	Apple, stone fruits, pomegranate	Poor management, Low yields, pollination problems	Effect of different pruning intensities on growth & yield of apple Effect of top working with different pollinizers in apple	Demonstrations on training and pruning of apple Demonstrations on the control of fruit cracking in pomegranate	Scientific orchard management	-	Field days, News paper/ Radio/ TV talks etc	
8.	Post harvest handling & preservation of fruits and vegetables	Seasonal fruits and vegetables	Perishable commodities are being sold at low prices when there is glut in market & huge post harvest losses	Quality improvement of wheat flour	Demonstration on preparation value added products	Post harvest handling & value addition in fruits and vegetables	-	Field days, News paper/ Radio/ TV talks etc	
9.	Conservation and value addition in traditional crops	Buckwheat, Amaranthus, Chenopodium	Extinction of these crops, so conservation needed	-	-	Value addition & preparation of recipes from traditional mountain crops	On farm conservation and promotion of traditional mountain crops	Field days, News paper/ Radio/ TV talks etc	

10.	Management of dairy cattle	Cattle	Poor health, low production	Efficacy of different organics for control of endo and ecto parasites in goat	-	General / Scientific management of dairy animals	-	Field days, News paper/ Radio/ TV talks etc	
11.	Emphasis on balanced feed and fodder management	Cattle	Improper feeding	-	Demonstration on the production of Napier and Setaria as compared to local grasses on field bunds Demonstrations on the use of improved fodder trees( Thorn less rubiana)	General / Scientific management of dairy animals	-		
12.	Home management, child care and health management	-	Malnutrition particularly in women & child	-	-	General home management , child care & health management	Diet during pregnancy & lactation Weaning & supplementary feeding Malnutrition, its causes, consequences& diet	Field days, News paper/ Radio/ TV talks etc	

### 3.1 Achievements on technologies assessed and refined

#### A.1 Abstract of the number of technologies assessed\* in respect of crops/enterprises

Thematic areas	Cereals	Oilseeds	Pulses	Commercial Crops	Vegetables	Fruits	Flower	Plantation crops	Tuber Crops	TOTAL
Varietal Evaluation	1	-	-	-	2	-	-	-	-	3
Integrated Crop Management	-	-	-	-	-	2	-	-	-	2
Integrated Nutrient Management	-	-	-	-	1	-	-	-	-	1
Integrated pest management	-	-	-	-	1	-	-	-	-	1
Water management	1	-	-	-	-	-	-	-	-	1
Value addition	1	-	-	-	-	-	-	-	-	1
<b>TOTAL</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>9</b>

#### A.2. Abstract of the number of technologies refined\* in respect of crops/enterprises: NA

Thematic areas	Cereals	Oilseeds	Pulses	Commercial Crops	Vegetables	Fruits	Flower	Plantation crops	Tuber Crops	TOTAL
Varietal Evaluation										
Integrated Crop Management										
<b>TOTAL</b>										

\* Technology that is refined in collaboration with ICAR/SAU Scientists for improving its effectiveness.

#### A.3. Abstract of the number of technologies assessed in respect of livestock / enterprises

Thematic areas	Cattle	Poultry	Sheep	Goat	Piggery	Rabbitary	Fisheries	TOTAL
Pest Management	-	-	-	1	-	-	-	1
<b>TOTAL</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1</b>

## B. Details of each On Farm Trial to be furnished in the following format

### A. Technology Assessment

#### Trial 1

- 1) Title : Evaluation of wheat varieties under timely sown conditions in high hills
- 2) Problem diagnose/defined : Varietal replacement as this area is hot spot for yellow rust disease
- 3) Details of technologies selected for assessment  
/refinement : V<sub>1</sub> – HPW 236  
V<sub>2</sub> – PBW 343 (Check)
- 4) Source of technology : CSKHPKV, Palampur
- 5) Production system : Rainfed (Maize/Blackgram/Cauliflower- wheat)
- 6) Thematic area : Varietal evaluation
- 7) Performance of the technology with  
Performance indicators : Variety HPW 236 resulted in higher yield (30.4 q /ha) as compared to PBW 343 (18.5 q/ha) and found resistant for Yellow rust disease which is the major problem of the area.
- 8) Final recommendation for  
micro level situation : Variety HPW 236 should be grown in place of PBW 343 as this resulted in better yield and resistance against Yellow rust disease.
- 9) Constraints identified and  
Feedback for research : Availability of seed should be ensured
- 10) Process of farmers  
participation and  
their reaction : Testing was done in farmers' field in six locations and they were impressed with the performance of this variety as it resulted in higher yield and was free from the Yellow rust disease.

#### Trial 2

- 1) Title : Effect of integrated nutrient management on cauliflower yield and soil health
- 2) Problem diagnose/defined : Low yield due to nutrient deficiencies.



3) Details of technologies

selected for assessment

/refinement : T<sub>1</sub> – Farmers practice 10t FYM + 100 kg 12:32:16 /ha  
T<sub>2</sub> – 20t FYM/ ha.  
T<sub>3</sub>- 100% NPK +20t FYM /ha.  
T<sub>4</sub>- 100% NPK +20t vermicompost/ ha.

4) Source of technology : CSKHPKV, Palampur

5) Production system : (Maize/Tomato-Cauliflower)

6) Thematic area : Integrated nutrient management

7) Performance of the technology with

Performance indicators : Results showed that 100% NPK +20t vermicompost/ha resulted in highest yield of (162.0q / ha) as compared to 20t FYM ha<sup>-1</sup> (56.00 q / ha).

8) Final recommendation for

micro level situation : Integrated nutrient management is effective method of nutrient management in vegetable crops and it increases crop yield as compared to alone application of farm yard manure.

9) Constraints identified and

Feedback for research : Fertility map of the whole district should be developed

10) Process of farmers

participation and

their reaction : Farmers were convinced with production and quality of produce

**Trial 3**

1) Title : Nutritional improvement of wheat flour

2) Problem diagnose/defined : i) Not aware about about nutritional value of minor crops  
ii) Minor crops can only be conserved if put to some productive use, otherwise there will be erosion of useful germplasm  
iii) Lack of technical knowhow & skill.

3) Details of technologies

Selected for assessment/refinement : Wheat Flour + Minor crops  
(Amaranthus+ Fingermillet + soybean)

T<sub>1</sub>– 100%Wheat flour

T<sub>2</sub>- 95+5 % ( Wheat Flour+ Minor crops )

T<sub>3</sub>- 90+10 % ( Wheat Flour+ Minor crops)

T<sub>4</sub>- 85+15 % ( Wheat Flour+ Minor crops)

T<sub>5</sub>- 80+20 % ( Wheat Flour+ Minor crops)

4) Source of technology : CSKHPKV, Palampur

5) Production system : -

6) Thematic area : Nutritional improvement of wheat flour

7) Performance of the technology with

Performance indicators : i) Supplementation of wheat flour up to 20% with minor crops (Amaranthus10%+Finger millet 5%+ soybean 5%) was found well accepted without affecting its basic physical, cooking and organoleptic characters like elasticity, puffing, color, taste, softness etc.

ii) Supplementation also improved & enhanced the nutritional qualities of the product by providing micro nutrients like iron, calcium, minerals etc.

8) Final recommendation for

micro level situation : Supplementation of minor crops up to the level of 20% can be added to the wheat flour enhance the nutritional quality.

9) Constraints identified and

feedback for research : Nutritional, proximate analysis may be done

10) Process of farmers

participation and their reaction : Farmers women were convinced and are adopting it .

#### **Trial 4**

1) Title : Effect of herbal oils against tick parasitism in goats

2) Problem diagnose/defined :In the wake of emerging resistance problem and health hazards of chemical insecticides, safer and eco friendly alternative methods of control of ecto parasites of domestic animals using herbal products are required.

3) Details of technologies

selected for assessment: i) Lemon grass oil (1:2)

/refinement ii) Lemon grass oil (1:3)

- iii) Neem oil (1:2)
- iv) Neem oil (1:3)
- v) No treatment

- 4) Source of technology : Standard technology
- 5) Production system : -
- 6) Thematic area : To study the efficacy of Lemon grass oil and neem oil at different dilutions against ticks in goats.

7) Performance of the technology with

performance indicators : The lemon grass oil was 100% effective at 1:2 and 97.76% effective at 1:3 dilution. Neem oil was 93.41% effective at 1:2 and 76.72% at 1:3 dilution.

8) Final recommendation for

micro level situation : Lemon grass oil and neem oil in dilutions of 1:2 can effectively replace the chemical insecticides.

9) Constraints identified and

feedback for research : Ready to use veterinary preparations are not easily available in the market.

10) Process of farmers :  
participation and  
their reaction

Farmers interested in organic management of animals approached KVK for the control of ecto parasites in their goats by unconventional methods. They were satisfied by the results of this OFT conducted on their animals and found these oils safe for the animal as well as the handler. However non availability of ready to use products containing these oils was cited as the major bottleneck in adoption of this technology.

## Trial 5

- 1) Title : Evaluation of Frenchbean varieties
- 2) Problem diagnose/defined : Monocropping of tomato resulting in low yields over the period of time. Frenchbean is one of the important crops which fits in many crop rotations and also fetches good price in the market.

So, there is need to introduce new varieties with good market acceptability and higher yield over the existing variety Contender.

3) Details of technologies

Selected for assessment

- /refinement : i) V<sub>1</sub> – Palam Mridula  
ii) V<sub>2</sub> - Falguni  
iii) V<sub>3</sub> - Contender (Farmers' practice)

4) Source of technology : CSKHPKV, Palampur

5) Production system : Irrigated vegetable based

6) Thematic area : Varietal evaluation

7) Performance of the technology with

Performance indicators : Palam Mridula a public sector variety from CSK HPKV, palampur gave the highest pod yield (123.6 q/ha) followed by Falguni (102.5 q/ha)

8) Final recommendation for

micro level situation : Palam Mridula should be grown .

9) Constraints identified and

feedback for research : More and more public sector varieties should be developed

10) Process of farmers

participation and

their reaction

: Testing was done on farmers' field and they were impressed with the performance of Palam Mridula .

## **Trial 6**

1) Title : Management of brinjal fruit and shoot borer

2) Problem diagnose/defined: Losses due to brinjal fruit and shoot borer resulted low marketable yield in Kullu valley

3) Details of technologies

Selected for assessment/refinement :

T<sub>1</sub>: Endosulfan 35 EC ( 2 ml/ litre)—Lambdacyhalothrin 5 EC  
(0.8 ml/litre)

T<sub>2</sub>: Emamectin benzoate 5 SG ( 2g/5 litre)-- Endosulfan 35 EC(2 ml/ litre

T<sub>3</sub>: Agro spray oil T (1.5 ml/ litre) -- Endosulfan 35 EC (2 ml/ litre

T<sub>4</sub> : Repeated spray of endosulfan 35 EC ( Farmers' practice)

4) Source of technology : CSKHPKV, Palampur

5) Production system : Irrigated vegetable based

6) Thematic area : Integrated Pest Management

7) Performance of the technology with

Performance indicators : Spray of Emamectin benzoate 5 SG (2g/5 litre) followed by Endosulfan 35 EC(2 ml/ litre of water) gave the highest yield (190.00 q/ha) and found maximum reduction in shoot and fruit borer infestation after 7<sup>th</sup> day of spray

8) Final recommendation for

micro level situation : Spray of Emamectin benzoate 5 SG ( 2g/5 litre) followed by Endosulfan 35 EC(2 ml/ litre of water is effective against shoot and fruit borer in brinjal.

9) Constraints identified and

feedback for research : -

10) Process of farmers

participation and

their reaction :These insecticides were tested in the famer's fields and they were appreciated this treatment.

## **Trial 7**

1) Title : Effect of insitu-moisture conservation techniques in rain-fed areas of H.P.

2) Problem diagnose/defined : Low yield in Maize-wheat/ okra-wheat cropping sequence due to low moisture content in rain-fed areas.

3) Details of technologies

Selected for assessment /refinement : T<sub>1</sub> - (Farmers' practice – No mulch & 100 kg 12 : 32 : 16 /ha)

T<sub>2</sub> –Recomended doses of fertilizers + Mulch application @20t /ha at the time of sowing.

T<sub>3</sub> - Recomendded doses of fertilizers + Mulch application @20t ha at the time of receding monsson.

- 4) Source of technology : CSKHPKV, Palampur
- 5) Production system : Rainfed Maize-wheat/ okra-wheat cropping sequence.
- 6) Thematic area : insitu moisture conservation techniques.
- 7) Performance of the technology with  
 Performance indicators : Results showed that recommended doses of fertilizers + Mulch application @20t /ha at the time of sowing resulted in highest maize and okra yield (38.0q / ha & 104 q/ha) as compared to Farmers' practice (22.0 0q / ha and 65.0 q / ha), respectively.
- 8) Final recommendation for  
 micro level situation : In-situ-moisture conservation techniques (Recommended doses of fertilizers + Mulch application @20t /ha at the time of sowing) is effective method of moisture conservation in rainfed areas and it increases crop yield as compared to farmers practice i.e. Recommended doses of fertilizers +conventional tillage system.
- 9) Constraints identified and  
 feedback for research : Shortage of biomass
- 10) Process of farmers  
 participation and  
 their reaction : Farmers were convinced with technology

### **Trial 8**

- 1) Title : Evaluation of cauliflower hybrids
- 2) Problem diagnose/defined : Need for better hybrids
- 3) Details of technologies  
 Selected for assessment  
 /refinement : i) V<sub>1</sub> – Fuziama  
 ii) V<sub>2</sub> - Swati  
 iii) V<sub>3</sub> – 71 No. (Farmers' practice)
- 4) Source of technology : CSKHPKV, Palampur
- 5) Production system : Irrigated vegetable based
- 6) Thematic area : Varietal evaluation
- 7) Performance of the technology with

- Performance indicators : Hybrid Fuziama gave the highest yield
- 8) Final recommendation for  
micro level situation : Hybrid Fuziama should be grown .
- 9) Constraints identified and  
feedback for research : Public sector hybrids should be developed
- 10) Process of farmers  
participation and  
their reaction : Testing was done on farmers' field and they were  
impressed with the performance of hybrid Fuziama .

### Trial 9

- 1) Title : Top working of apple cultivar with pollinizers to supplement pollination
- 2) Problem diagnose/defined : Apple being a cross pollinated crop needs appropriate proportions of pollinizers. In Himachal Pradesh average proportions of pollinizing trees in the orchard is less than 15 per cent which results in the declining of productivity of apple. Therefore on farm trial on top working of apple cultivar with pollinizers was initiated to increase the proportions of pollinizing trees in the orchard to enhance its productivity.
- 3) Details of technologies  
Selected for assessment:  
/refinement
- T<sub>1</sub> - Top working with Golden Delicious + Granny Smith
- T<sub>2</sub> -Top working with Golden Delicious+ Spartan
- T<sub>3</sub> - Top working with Commercial+ Mollis Delicious + Gloster
- T<sub>4</sub> - Top working with Commercial + Black Ban Davis+ Spartan
- T<sub>5</sub> - Farmers' practice (Golden Delicious or Red Gold)
- 4) Source of technology : YSPUHF, Solan
- 5) Production system : Rainfed horticulture based
- 6) Thematic area : Integrated orchard management
- 7) Performance of the technology with

Performance indicators: In progress

8) Final recommendation for  
micro level situation : In progress

9) Constraints identified and  
feedback for research : -

10) Process of farmers  
participation and  
their reaction : -

### Trial 10

1. Title : Effect of plant bioregulators and nutrient sprays on the  
growth, productivity and quality of pomegranate

2. Problem diagnose/defined : Poor yield and quality of fruit

3. Details of technologies selected for assessment/refinement:

T<sub>1</sub>- GA<sub>3</sub> 10 ppm

T<sub>2</sub>- IBA 10 ppm

T<sub>3</sub>- Boric acid 0.1 %+ 1% KNO<sub>3</sub>

T<sub>4</sub>- Boric acid 0.2 %+ 1% KNO<sub>3</sub> + 1% MgSO<sub>4</sub>

T<sub>5</sub>- Multiplex 2.5 ml per litre of water

T<sub>6</sub>- Farmer's practice ( Spray of multiplex/ Boric acid only)

4. Source of technology : MPKV, Ruari

5. Production system thematic area : Irrigated-horticulture based

6. Thematic area : Integrated orchard management (INM)

7. Performance of the Technology

with performance indicators : The treatment comprising of - Boric acid 0.2 %+ 1% KNO<sub>3</sub> + 1% MgSO<sub>4</sub> resulted in higher yield ( 16.25 t/ha) with better fruit quality in terms of weight (320 g) and fruit cracking percentage ( 19.20) as compared to the farmers' practice ( 11.00 t/ha)

8. Final recommendation for  
micro level situation : Integrated nutrient management should be followed

8. Constraints identified and  
feedback for research : ---



9. Process of farmers participation

and their reaction

: Farmers are fully convinced with this technique as this resulted in the higher yield , optimum growth and better quality fruits ( as observed by the farmers)

## Results of On Farm Trials

### Trial 1

Crop/enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials*	Technology Assessed	Parameters of assessment	Data on the parameter	Results of assessment	Feedback from the farmer			
1	2	3	4	5	6	7	8	9	10			
Wheat	Rainfed	Varietal replacement as this area is hot spot for yellow rust	Evaluation of wheat varieties under timely sown conditions in high hills	6	1. HPW 236 2. PBW 343 (FP)	Grain yield and disease incidence		HPW 236 gave higher yield than PBW 343 and was free from yellow rust				
										Variety	Grain yield (q/ha)	Disease (Yellow rust) incidence
										HPW 236	30.40	Free
PBW 343	18.50	80S										

Technology Assessed	Production per unit (q/ha)	Net Return (Profit) in Rs. / unit	BC Ratio
11	12	13	14
1. HPW 236	30.40	3440	1.11
2. PBW 343 Farmers' Practice	18.50	-9650 (highly infested with rust)	-

### Trial 2

Crop/enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter	Results of assessment	Feedback from the farmer
1	2	3	4	5	6	7	8	9	10
Cauliflower	Irrigated-vegetable based	Low yield due to nutrient deficiencies	Effect of Integrated Nutrient management on cauliflower yield and soil health	3	T <sub>1</sub> - 10 t FYM + 100 kg 12:32:16/ha (Farmer practice) T <sub>2</sub> - 20 t FYM/ha  T <sub>3</sub> - 100 % NPK + 20 t FYM/ha	Yield		100 % NPK + 20 t Vermicompost/ha resulted in highest yield	-

					T <sub>4</sub> -100 % NPK + 20 t Vermicompost/ha															
					<table border="1"> <thead> <tr> <th>Treatments</th> <th>Average yield (Q/ha)</th> </tr> </thead> <tbody> <tr> <td>T<sub>1</sub>- 10 t FYM + 100 kg 12:32:16/ha ( Farmer practice)</td> <td>115.0</td> </tr> <tr> <td>T<sub>2</sub>- 20 t FYM/ha</td> <td>56.0</td> </tr> <tr> <td>T<sub>3</sub>- 100 % NPK + 20 t FYM/ha</td> <td>144.0</td> </tr> <tr> <td>T<sub>4</sub>-100 % NPK + 20 t Vermicompost/ha</td> <td>162.0</td> </tr> </tbody> </table>		Treatments	Average yield (Q/ha)	T <sub>1</sub> - 10 t FYM + 100 kg 12:32:16/ha ( Farmer practice)	115.0	T <sub>2</sub> - 20 t FYM/ha	56.0	T <sub>3</sub> - 100 % NPK + 20 t FYM/ha	144.0	T <sub>4</sub> -100 % NPK + 20 t Vermicompost/ha	162.0				
Treatments	Average yield (Q/ha)																			
T <sub>1</sub> - 10 t FYM + 100 kg 12:32:16/ha ( Farmer practice)	115.0																			
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T <sub>3</sub> - 100 % NPK + 20 t FYM/ha	144.0																			
T <sub>4</sub> -100 % NPK + 20 t Vermicompost/ha	162.0																			

Technology Assessed	Production per unit (q/ha)	Net Return (Profit) in Rs. / unit	BC Ratio
11	12	13	14
1. 10 t FYM + 100 kg 12:32:16/ha ( Farmer practice)	115.0	57,500.00	2.28
2. 20 t FYM/ha	56.0	28,000.00	1.12
3. 100 % NPK + 20 t FYM/ha	144.0	72,000.00	2.88
4. 100 % NPK + 20 t Vermicompost/ha	162.0	81,000.00	3.24

### Trial 3

Crop/ enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials	Technology Assessed	Parameter s of assessment t	Data on the parameter	Results of assessment	Feedback from the farmer
1	2	3	4	5	6	7	8	9	10
Minor crops	-	i) Not aware about nutritional value of minor crops ii) Minor crops can	Nutritional improvement of wheat flour	4	T <sub>1</sub> - 100%Wheat flour T <sub>2</sub> - 95+5 % ( Wheat Flour+ Minor crops ) T <sub>3</sub> - 90+10 % ( Wheat Flour+ Minor crops) T <sub>4</sub> - 85+15 % (	Physical , nutritional andOrganol eptic appearance		-	-

		only be conserved if put to some productive use, otherwise there will be erosion of useful germplasm iii) Lack of technical knowhow & skill. crops			Wheat Flour+ Minor crops) T <sub>5</sub> - 80+20 % ( Wheat Flour+ Minor crops				
<p>i) Supplementation of wheat flour up to 20% with minor crops (Amaranthus10%+Finger millet 5%+ soybean 5%) was found well accepted without affecting its basic physical, cooking and organoleptic characters like elasticity, puffing Color, taste, softness etc.</p> <p>ii) Supplementation also improved &amp; enhanced the nutritional qualities of the product by providing micro nutrients like iron, calcium, minerals etc.</p>									

#### Trial 4

Crop/enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter	Results of assessment	Feedback from the farmer		
1	2	3	4	5	6	7	8	9	10		
Goats	-	Ectoparasitic infestation	Efficacy of herbal oils	2	1. Lemon oil (1:2) 2. Lemon oil (1:3) 3. Neem oil (1:2) 4. Neem oil (1:3)	Reduction in no. of ticks		100% 97.76% 93.41% 76.72%	-		
Average no. of ticks											
						Post treatment					
				Pre treatment							
				Day 0		24 hrs		48 hrs		5 days	
						7 days					
				I Lemon grass (1:2)		4.87		0 (100%)		0 (100%)	
				II Lemon grass (1:3)		5.37		1.12 (79.14%)		0.62 (88.45%)	
				III Neem oil (1:2)		5.62		0.62 (88.96%)		0.37 (93.41%)	
				IV Neem oil (1:3)		5.37		1.62 (69.83%)		1.25 (76.72%)	
				V (Control)		5.50		5.25		5.38	
								5.82		5.62	



	based	borer resulted low marketable yield in Kullu valley	fruit borer in Brinjal	Lambdacyhalothrin 5 EC (0.8 ml/ litre T <sub>2</sub> : Emamectin benzoate 5 SG ( 2g/5litre)-- Endosulfan 35 EC(2 ml/ litre T <sub>3</sub> : Agro spray oil T (1.5 ml/ litre) -- Endosulfan 35 EC (2 ml/ litre T <sub>4</sub> : Repeated spray of endosulfan 35 EC ( Farmers' practice)			litre) followed by Endosulfan 35 EC(2 ml/ litre of water gave the highest yield (190.00 q/ha) and found maximum reduction in shoot and fruit after 7 <sup>th</sup> day of spray			
				Effect of different insecticides against shoot and fruit borer in brinjal						
				<b>Treatment</b>	<b>Per cent fruit infestation days after spray</b>				<b>Yield (Q/ha)</b>	
					<b>First spray</b>		<b>Second Spray</b>			
					1 DBS	7DAS	14 DAS	7DAS	14 DAS	
				T <sub>1</sub> : Endosulfan 35 EC ( 2 ml/ litre)—Lambdacyhalothrin 5 EC (0.8 ml/ litre	3.56	8.12	21.99	10.60	30.50	185
				T <sub>2</sub> : Emamectin benzoate 5 SG ( 2g/5litre)-- Endosulfan 35 EC(2 ml/ litre	5.24	5.30	16.45	12.94	25.56	190
T <sub>3</sub> : Agro spray oil T (1.5 ml/ litre) -- Endosulfan 35 EC (2 ml/ litre	2.93	13.18	28.92	34.22	44.83	170				
T <sub>4</sub> : Repeated spray of endosulfan 35 EC ( Farmers' practice)	4.34	25.74	48.30	46.47	58.35	150				

<b>Technology Assessed</b>	<b>Production per unit (q/ha)</b>	<b>Net Return (Profit) in Rs. / unit</b>	<b>BC Ratio</b>
<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
1. Endosulfan 35 EC ( 2 ml/ litre)—Lambdacyhalothrin 5 EC (0.8 ml/ litre	185.0	88,741	3.2
2. Emamectin benzoate 5 SG ( 2g/5litre)-- Endosulfan 35 EC(2 ml/ litre	190.0	89,664	3.1
3. Agro spray oil T (1.5 ml/ litre) -- Endosulfan 35 EC (2 ml/ litre	170.0	78,446	2.9
4. Repeated spray of endosulfan 35 EC ( Farmers' practice)	150.0	65,000	2.6

### Trial 7

Crop/ enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter	Results of assessment	Feedback from the farmer								
1	2	3	4	5	6	7	8	9	10								
Maize & okra	Rainfed	Water scarcity & frequent intermittent drought	Effect of in situ moisture conservation techniques in rainfed areas of HP	10	T <sub>1</sub> - (Farmers' practice) T <sub>2</sub> - Recommended doses of fertilizers + Mulch application @20t /ha at the time of sowing T <sub>3</sub> - Recommended doses of fertilizers + Mulch application @20t ha at the time of receding monsson	Yield		Results showed that recommended doses of fertilizers + Mulch application @20t /ha at the time of sowing resulted in highest maize and okra yield (38.0q / ha & 104 q/ha) as compared to Farmers' practice (22.0 0q / ha and 65.0 q / ha), respectively	-								
						<table border="1"> <thead> <tr> <th>Treatment</th> <th>Average yield (q/ha)</th> </tr> </thead> <tbody> <tr> <td>T<sub>1</sub> - (Farmers' practice – No mulch &amp; 100 kg 12 : 32 : 16/ha)</td> <td>22.0 (Maize) 65.0 (Okra)</td> </tr> <tr> <td>T<sub>2</sub> - Recommended doses of fertilizers + Mulch application @20t /ha at the time of sowing</td> <td>38.0 (Maize) 104.0 (Okra)</td> </tr> <tr> <td>T<sub>3</sub> - Recommended doses of fertilizers + Mulch application @20t ha at the time of receding monsson</td> <td>36.0 (Maize) 102.0 (Okra)</td> </tr> </tbody> </table>		Treatment	Average yield (q/ha)	T <sub>1</sub> - (Farmers' practice – No mulch & 100 kg 12 : 32 : 16/ha)	22.0 (Maize) 65.0 (Okra)	T <sub>2</sub> - Recommended doses of fertilizers + Mulch application @20t /ha at the time of sowing	38.0 (Maize) 104.0 (Okra)	T <sub>3</sub> - Recommended doses of fertilizers + Mulch application @20t ha at the time of receding monsson	36.0 (Maize) 102.0 (Okra)		
Treatment	Average yield (q/ha)																
T <sub>1</sub> - (Farmers' practice – No mulch & 100 kg 12 : 32 : 16/ha)	22.0 (Maize) 65.0 (Okra)																
T <sub>2</sub> - Recommended doses of fertilizers + Mulch application @20t /ha at the time of sowing	38.0 (Maize) 104.0 (Okra)																
T <sub>3</sub> - Recommended doses of fertilizers + Mulch application @20t ha at the time of receding monsson	36.0 (Maize) 102.0 (Okra)																

<b>Technology Assessed</b>	<b>Production per unit (q/ha)</b>	<b>Net Return (Profit) in Rs. / unit</b>	<b>BC Ratio</b>
<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
1. (Farmers' practice- No mulch & 100 kg 12:32:16/ha)	22.0 (Maize) 65.0 (Okra)	22,000.00 (Maize) 32,500.00 (Okra)	1.46 (Maize) 1.47 (Okra)
2. Recommended doses of fertilizers + Mulch application @20t /ha at the time of sowing	38.0 (Maize) 104.0 (okra)	38,000.00 (Maize) 52,000.00 (Okra)	2.53 (Maize) 2.36 (Okra)
3. Recommended doses of fertilizers + Mulch application @20t ha at the time of receding monsson	36.0 (Maize) 102.0 (Okra)	36,000 (Maize) 51,000.00 (Okra)	2.40 (Maize) 2.32 (Okra)

### Trial 8

<b>Crop/ enterprise</b>	<b>Farming situation</b>	<b>Problem Diagnosed</b>	<b>Title of OFT</b>	<b>No. of trials</b>	<b>Technology Assessed</b>	<b>Parameters of assessment</b>	<b>Data on the parameter</b>	<b>Results of assessment</b>	<b>Feedback from the farmer</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
Cauliflower	Irrigated	Need for better hybrids	Evaluation of cauliflower hybrids	5	V <sub>1</sub> - Fuziama V <sub>2</sub> - Swati V <sub>3</sub> - 71 No. (Farmers 'practice)	Yield		Fuziama gave the highest yield	-
						<b>Varieties</b>	<b>Average yield (Q/ha)</b>		
						Fuziama	257.78		
						Swati	236.78		
						71 No. (Farmers 'practice)	227.48		



Technology Assessed	Production per unit (q/ha)	Net Return (Profit) in Rs. / unit	BC Ratio
11	12	13	14
1. Fuziama	257.78	2,49,336	5.15
2. Swati	236.78	2,24,136	4.73
3. 71 No. (Farmers' Practice)	227.48	2,12,976	4.54

### Trial 9

Crop/enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials	Technology Assessed	Parameters of assessment	Data on the parameter	Results of assessment	Feedback from the farmer
1	2	3	4	5	6	7	8	9	10
Apple	Rainfed	Less proportion of pollinizers resulting in lower yield	Top working of apple cultivar with pollinizers to supplement pollination	2	T <sub>1</sub> - Top working with Golden Delicious+Granny Smith T <sub>2</sub> - Top working with Golden Delicious+ Spartan T <sub>3</sub> - Top working with Commercial+ Mollis Delicious+ Gloster T <sub>4</sub> - Top working with Commercial+ Black Ban Davis+ Spartan T <sub>5</sub> - Top working with Golden Delicious or Red Gold( Control)	Time & duration of flowering and increase in fruit set	In progress	-	-

### Trial 10

Crop/ enterprise	Farmin g situati on	Problem Diagnosed	Title of OFT	No. of trial s	Technology Assessed	Paramet ers of assessm ent	Data on the parameter	Results of assessment	Feedba ck from the farmer
1	2	3	4	5	6	7	8	9	10
Pomegranate	Irrigate d	Poor yield and quality of fruit	Effect of plant bioregulators and nutrient sprays on the growth, productivity and quality of pomegranate	2	T <sub>1</sub> - GA <sub>3</sub> 10 ppm T <sub>2</sub> - IBA 10 ppm T <sub>3</sub> - Boric acid 0.1 %+ 1% KNO <sub>3</sub> T <sub>4</sub> - Boric acid 0.2 %+ 1% KNO <sub>3</sub> + 1% MgSO <sub>4</sub> T <sub>5</sub> - Multiplex 2.5 ml per litre of water T <sub>6</sub> - Farmer's practice ( Spray of multiplex/ Boric acid only)	Fruit yield and quality paramete rs	14.16 t/ha 13.32 t/ha 15.00 t/ha  16.25 t/ha  12.50 t/ha  11.00 t/ha	The treatment comprising of - Boric acid 0.2 %+ 1% KNO <sub>3</sub> + 1% MgSO <sub>4</sub> resulted in higher yield ( 16.25 t/ha) with better fruit quality in terms of weight (320 g)and fruit cracking percentage ( 19.20) as compared to the farmers' practice ( 11.00 t/ha)	-

Technology Assessed	Production per unit (t/ha)	Net Return (Profit) in Rs. / unit	BC Ratio
11	12	13	14
GA <sub>3</sub> 10 ppm	14.16 t/ha	188200	2.98
IBA 10 ppm	13.32 t/ha	171400	2.80
Boric acid 0.1 %+ 1% KNO <sub>3</sub>	15.00 t/ha	205000	3.15
Boric acid 0.2 %+ 1% KNO <sub>3</sub> + 1% MgSO <sub>4</sub>	16.25 t/ha	230000	3.42
Multiplex 2.5 ml per litre of water	12.50 t/ha	155000	2.63
Farmer's practice ( Spray of multiplex/ Boric acid only)	11.00 t/ha	125000	2.31

## B. Technology Refinement: -

### 3.2 Achievements of Frontline Demonstrations

#### a. Follow-up for results of FLDs implemented during previous years

List of technologies demonstrated during previous year and popularized during 2010-11 and recommended for large scale adoption in the district

S. No	Crop/ Enterprise	Thematic Area*	Technology demonstrated	Details of popularization methods suggested to the Extension system	Horizontal spread of technology		
					No. of villages	No. of farmers	Area in ha
1	soybean	Varietal replacement,	Harit soya variety of soybean.	Agronomic management like time of sowing, new variety demonstration.	5	30	10
2	Black Gram	Varietal replacement and integrated nutrient management.	Palampur-93 variety of mash and balanced fertilization.	Agronomic management like time of sowing line sowing, new variety seed demonstration and integrated nutrient management.	20	100	30
3	Raj mash	Varietal replacement	Kanchan variety of rajmash demonstrated	Agronomic management like time of sowing line sowing & new variety seed demonstration	25	80	40
4	Oilseed (Gobhi sarson and mustard)	Varietal replacement, integrated nutrient management & integrated disease management.	Agronomic management like line sowing, spacing etc., Varietal seed, balanced fertilization and insect pest management.	Agronomic management like time of sowing, new variety demonstration, balanced fertilization and integrated pest management.	10	50	25

\* Thematic areas as given in Table 3.1 (A1 and A2)

- b. Details of FLDs implemented during 2010-11 (Information is to be furnished in the following **three tables** for **each category** i.e. **cereals, horticultural crops, oilseeds, pulses, cotton and commercial crops.**)

Sl. No.	Crop	Thematic area	Technology Demonstrated	Season and year	Area (ha)		No. of farmers/ demonstration			Reasons for shortfall in achievement
					Proposed	Actual	SC/ST	Others	Total	
1	soybean	Varietal evaluation.	Harit soya variety of soybean.	Kharif 2010	2.0	2.0	4	9	13	-
2	Black Gram	Varietal evaluation & integrate nutrient management.	Palampur-93 variety of mash and balanced fertilization.	Kharif 2010	8.0	8.75	18	51	69	-
3	Rajmash	Varietal evaluation.	Him 1 & Kanchan varieties of rajmash demonstrated	Kharif 2010	1.0	0.93	2	7	9	-
4	Okra	Varietal evaluation.	P-8	Kharif 2010	0.2	0.24	4	9	13	-
5	Maize (irrigated)	Hybrid evaluation.	HQPM 1	Kharif 2010	2.0	2.0	3	7	10	-
6	Gobhi sarson	Varietal evaluation, integrate nutrient management & integrate pest management.	Neelam variety of gobhi sarson	Rabi 2009-10	5.0	5.0	12	44	54	-
7	Mustard	Varietal evaluation, integrate nutrient management & integrate pest management.	KBS 3 variety of brown sarson and RCC4 of raya.	Rabi 2009-10	5.0	5.0	14	38	52	-
8	Cucumber	Varietal evaluation	Hybrid NS 404	Kharif	0.03	0.03	1	4	5	-

				2010		2				
9	Fodder trees	Improved fodder trees	Planting thorn less robinia and mulberry to supplement fodder need	Annual	10 plants to each farmers	10 plants to each farmers	4	6	10	-
10	Animal science	Control of ecto parasites in cattle	Control of ecto parasites with Tikil power (1 % Flumethrin)	Annual	16 cattle (2 at each house hold)	16 cattle	2	6	8	-
11	Apple	Canopy management	Pruning	Annual	0.16	0.16	0	2	2	-
12	Pomegranate	Control of fruit cracking	Application of boric acid (Boron)	Annual	0.08	0.08	1	1	2	-

#### Details of farming situation

Crop	Season	Farming situation (RF/Irrigated)	Soil type	Status of soil			Previous crop	Sowing date	Harvest date	Seasonal rainfall (mm)	No. of rainy days
				N	P	K					
soybean	Kharif 2010	Rainfed	Sandy loam clay	164-183	10-21	148-202	Wheat/vegetables	Ist fortnight of June	Mid October	790.7	-
Black Gram	Kharif 2010	Rainfed	Sandy loam & Sandy clay loam	142-180	12-17	139-195	Wheat/vegetables	Ist fortnight of	End of October	790.7	-

								July			
Rajmash	Kharif 2010	Rainfed	Sandy loam	126-160	13-19	136-180	Wheat/oat	Mid of June	End of October	790.7	-
Okra	Kharif 2010	Rainfed	-	-	-	-	Wheat/garlic/vegetables	Mid of June	5-7 picking up to September	790.7	-
Maize (irrigated)	Kharif 2010	irrigated	-	-	-	-	Wheat/vegetables	1st fortnight of June	Mid October	790.7	-
Gobhi sarson	Rabi 2009-10	Rainfed	Sandy loam to sandy clay loam	122-158	12-17	138-164	Maize/Pulses	1st fortnight of November	End of May to 1st week of June	294.2	-
Mustard	Rabi 2009-10	Rainfed	Sandy loam to sandy clay loam	139-174	14-19	145-182	Maize/Pulses	1st fortnight of November	End of May to 1st week of June	294.2	-
Cucumber	Kharif 2010	Irrigated	-	-	-	-	Cauliflower	May	Pickings upto Sep	790.7	-
Fodder trees	Annual	Rainfed	-	-	-	-	-	1st fortnight of January	-	-	-
Animal science	Annual	-	-	-	-	-	-	Initiated in July 2010	-	-	-

Apple	annual	Rainfed	Sandy loam to sandy clay loam	-	-	-	Apple	December 10-January 2011	-	-	-
Pomegranate	annual	irrigated	Sandy loam to sandy clay loam	-	-	-	-	May-September, 2010	-	-	-

### Performance of FLD

Sl. No.	Crop	Technology Demonstrated	Variety	No. of Farmers	Area (ha.)	Demo. Yield Qtl/ha			Yield of local Check Qtl./ha	Increase in yield (%)	Data on parameter in relation to technology demonstrated	
						H	L	A			Demo	Local
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Soybean	Varietal evaluation.	Harit soya.	13	2.0	17.12	12.0	12.42	5.3 (Brag)	134.34		
2	Black Gram	Varietal evaluation & integrate nutrient management.	Palampur-93	69	8.75	12.5	6.24	8.57	5.8 (Kullu 4 seed retained by farmers)	47.75		
3	Rajmash	Varietal evaluation.	HIM-I Kanchan	6 3	0.67 0.26	12.75 12.70	9.26 9.50	10.95 11.39	6.03 (local chitra)	86.77 88.89		
4	Okra	Varietal evaluation.	P-8	13	0.24			100.19	75.6 (Pusa Sawani)	32.53		
5	Maize (irrigated)	Hybrid evaluation.	HQPM	10	2.0			32	26 (Local Sathu)	23.07		
6	Gobhi sarson	Varietal evaluation, integrate	Neelam	54	5.0	9.0	5.10	7.88	5.2 (Local Piili sarson)	51.54		

		nutrient management & integrate pest management.										
7	Mustard	Varietal evaluation, integrate nutrient management & integrate pest management.	KBS 3 variety of brown sarson and RCC4 of raya.	27 25 (52)	2.5 2.5 (5.0)	7.6 7.25	3.86 4.32	5.98 6.02	5.2(Local Pilli sarson)	15.00 15.77		
8	Cucumber	Varietal Evaluation	Hybrid NS 404	5	0.032			210.20	119.04 (Poinsette)	76.58		
9	Fodder trees	-	Planting thornless robinia to supplement fodder need	200 plants		Establishment year						
10	Animal science	Control of ecto parasites	Application of Tikil Power (1 % Flumethrin)	8	16 animals					100 % control upto 47 days		
11	Apple	Canopy management	Pruning	02	0.16			155.0	116.0	33.62		
12	Pomegranate	Control of fruit cracking	Kandhari Kabuli	02	0.08			237.0	199.0	19.09		

**Method demonstration to prepare various products of soybean in Home Science, enrichment of straw in animal husbandry to women groups and training & pruning in fruits to rural youth were also given.**

***NB: Attach few good action photographs with title at the back with pencil***



Economic Impact (continuation of previous table)

Average Cost of cultivation (Rs./ha)		Average Gross Return (Rs./ha)		Average Net Return (Profit) (Rs./ha)		Benefit-Cost Ratio (Gross Return / Gross Cost)
Demonstration	Local Check	Demonstration	Local Check	Demonstration	Local Check	
14	15	16	17	18	19	20
Soybean 12500	10500	24840	15200	12340	4700	1.99
Black gram 15000	12000	42850	29000	27250	17000	2.85
Rajmash 15000	12000	54750	26150	39750	14150	3.65
15000	12000	56950	26150	41950	14150	3.79
Okra 47000	41000	150285	113400	103285	72400	3.19
Maize 21700	16300	38400	31200	16700	14900	1.77
Gobhi sarson 14000	9000	27000	15600	13000	6600	1.92
Mustard 14000	9000	22800	15600	8800	6600	1.62
14000	9000	21750	15600	7750	6600	1.55
Cucumber 70000	64000	252240	142848	182240	78848	3.60
110000 ( Apple)	98800	310000	232000	200000	133200	2.81
93200 ( Pomegranate)	82800	474000	398000	380800	315200	5.08

Analytical Review of component demonstrations (details of each component for rainfed / irrigated situations to be given separately for each season).

Crop	Season	Component	Farming situation	Average yield (q/ha)	Local check (q/ha)	Percentage increase in productivity over local check
Soybean	kharif	1. Seed/Variety (Seed component only)	Raifed	12.42	5.3 (Brag)	134.34
		2. Bio-fertilizer				
		3. Fertilizer management				
		4. Plant Protection				
		5. Combination of components (Please specify)				
Black gram	kharif	1. Seed/Variety	Raifed	8.57	5.84 ( Kullu 4)	47.75
		2. Bio-fertilizer				
		3. Fertilizer management				
		4. Plant Protection				
		5. Combination of components (Please specify) (seed + fertilizers)				
Rajmash	kharif	1. Seed/Variety(Seed component only)	Raifed	10.95 ( HIM-1)	6.03	86.77
		2. Bio-fertilizer		11.39 ( Kanchan)		
		3. Fertilizer management				
		4. Plant Protection				
		5. Combination of components (Please specify)				
Okra		1. Seed/Variety(Seed component only)		100.09	75.6	32.53
		2. Bio-fertilizer				

		3. Fertilizer management				
		4. Plant Protection				
		5. Combination of components (Please specify)				
Maize	kharif	1. Seed/Variety	Irrigated	32.00	26.00	23.07
		2. Bio-fertilizer				
		3. Fertilizer management				
		4. Plant Protection				
		5. Combination of components (Please specify) (seed + fertilizers)				
Gobhi sarson	Rabi	1. Seed/Variety	Raifed	7.88	5.20 (Local Pilli sarson)	51.54
		2. Bio-fertilizer				
		3. Fertilizer management				
		4. Plant Protection				
		5. Combination of components (Please specify) (seed + fertilizers + plant protection measures)				
Mustard	Rabi	1. Seed/Variety	Raifed	5.98 (KBS 3) 6.02 (RCC-4)	5.2 (Local Pilli sarson)	15.00
		2. Bio-fertilizer				
		3. Fertilizer management				
		4. Plant Protection				
		5. Combination of components (Please specify) (seed + fertilizers + plant protection measures)				

### Technical Feedback on the demonstrated technologies

S. No	Feed Back
1.	Farmers are putting marginal lands for these crops and are growing under rainfed conditions. Therefore, new varieties should be developed having wider adaptability and resistant to drought.
2.	Gobhi Sarson is a long duration crop. It takes long time to maturity thereby hampering the sowing of next crop. Hence early maturing variety needs to be developed.
3.	In Rajmash trailing types of varieties are required as the farmers grow this crop as a mixed crop in the maize field.
4.	Farmers' give least importance to plant protection measures in these crops. Hence are suffering losses in yields.

### Farmers' reactions on specific technologies

S. No	Feed Back
1.	Performance of improved crop/varieties under balanced nutrient supply in FLDs was distinctly superior to farmers' practice of applying only FYM and/or only top dressing of urea in local seed.
2.	Farmers were satisfied with the support especially the technology and its mode of transfer and management.

3.	Soybean is relatively new crop in the district. But there is no soybean oil extraction mill in the area. So the farmers are facing problem of its marketing. They are feeding it to milch animals. A Tremendous increase in the milk yield has been reported by the farmers.
4.	Good quality seed in these crops is a limiting factor in their cultivation, which should be ensured to the farmers.

#### Extension and Training activities under FLD

SI.No.	Activity	No. of activities organised	Number of participants	Remarks
1	Field days	5	82	
2	Farmers Training	3	75	
3	Media coverage	-	-	
4	Training for extension functionaries	-	-	

### 3.3 Achievements on Training (Including the sponsored, vocational, FLD and trainings under Rainwater Harvesting Unit) :

#### A) On Campus

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
<b>A) Farmers &amp; farm women</b>										
<b>I Crop production</b>										
Climate change and its impact on agriculture	01	28	1	29	8	1	9	36	2	38
Integrated crop management	03	48	20	68	16	3	19	64	23	87
Organic farming	01	15	13	28	10	2	12	25	15	40
<b>II Horticulture</b>										
<b>a) Vegetable crops</b>										
Off season vegetables	01	15	26	41	10	4	14	25	30	55
Protective cultivation	01	22	7	29	8	3	11	30	10	40
<b>b) Fruit crops</b>										
Layout and management of orchards	01	25	5	30	10	2	12	35	7	42
<b>III Soil health and fertility management</b>										
Water harvesting, conservation &	02	51	24	75	14	11	25	65	35	100

efficient use (7 days)										
<b>IV Livestock production and management</b>										
Feed management	01	-	28	28	-	12	12	-	40	40
<b>V Home Science/ Women empowerment</b>	-	-	-	-	-	-	-	-	-	-
<b>VI Plant protection</b>										
Production of biocontrol agents & biopesticides	01	18	2	20	5	-	5	23	2	25
Bio control of pests	01	10	6	16	5	4	9	15	10	25
<b>Total</b>	<b>13</b>	<b>232</b>	<b>132</b>	<b>364</b>	<b>86</b>	<b>42</b>	<b>128</b>	<b>318</b>	<b>174</b>	<b>492</b>
<b>B) Rural Youth</b>										
Integrated crop management (5 & 7 days)	02	30	16	46	16	8	24	46	24	70
Off season vegetables (3 days)	01	15	8	23	5	2	7	20	10	30
Protective cultivation (3 days)	02	46	6	52	28	-	28	74	6	80
Organic farming (3 days)	03	49	3	52	23	-	23	72	3	75
Training & pruning in horticultural crops (3 days)	01	16	-	16	4	-	4	20	-	20
Dairy management (3 & 1 days)	02	2	33	35	-	8	8	2	41	43
Value addition (3 days)	01	-	18	18	-	7	7	-	25	25
Bee keeping (4 days)	02	36	5	41	12	2	14	48	7	55
<b>Total</b>	<b>14</b>	<b>194</b>	<b>89</b>	<b>283</b>	<b>88</b>	<b>27</b>	<b>115</b>	<b>282</b>	<b>116</b>	<b>398</b>
<b>C) Extension Personnel</b>										
Productivity enhancement in field crops (2 days)	01	20	1	21	6	-	6	26	1	27
Management in farm animals (11 days)	01	13	2	15	-	-	-	13	2	15
Group dynamics & farmers organizations (2 days)	01	21	15	36	8	6	14	29	21	50
Off season vegetables	01	24	1	25	4	-	4	28	1	29
Integrated agriculture (3 days)	05	111	9	120	30	-	30	141	9	150
<b>Total</b>	<b>09</b>	<b>189</b>	<b>28</b>	<b>217</b>	<b>48</b>	<b>6</b>	<b>54</b>	<b>237</b>	<b>34</b>	<b>271</b>

## B) Off Campus

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
<b>A) Farmers &amp; farm women</b>										
<b>I Crop production</b>										
Crop diversification	01	8	14	22	6	12	18	14	26	40
Integrated crop management	03	30	14	44	20	11	31	50	25	75
<b>II Horticulture</b>										
<b>a)Vegetable crops</b>										
Off season vegetables	03	33	19	52	9	9	18	42	28	70
Nursery raising	01	1	11	12	-	3	3	1	14	15
<b>b)Fruit crops</b>										
Management of young orchards/plants	01	12	2	14	3	-	3	15	2	17
Layout and management of orchards	01	17	8	25	3	2	5	20	10	30
<b>c)Medicinal and aromatic plants</b>										
Production and management technology	02	53	16	69	25	6	31	78	22	100
<b>III Soil health and fertility management</b>										
Soil and water conservation	02	24	10	34	2	6	8	26	16	42
Soil fertility management	01	15	4	19	2	4	6	17	8	25
Integrated nutrient management	01	16	8	24	9	7	16	25	15	40
Water harvesting, conservation & efficient use (7 days)	01	28	7	35	12	3	15	40	10	50
<b>IV Livestock production and management</b>										
Production of quality animal products	01	8	7	15	4	3	7	12	10	22

Disease management	05	22	64	86	10	21	31	32	85	117
Feed management	01	6	11	17	1	4	5	7	15	22
<b>V Home Science/ Women empowerment</b>										
Design and development of low/ minimum cost diet	02	-	29	29	-	13	13	-	42	42
Minimization of nutrient loss in processing	01	-	11	11	-	3	3	-	14	14
Processing and preparation of low cost nutritious recipes from minor crops	01	-	12	12	-	6	6	-	18	18
Value addition	01	-	15	15	-	3	3	-	18	18
Income generation activities for empowerment of rural women	02	-	31	31	-	13	13	-	46	46
Health and nutritional awareness	01	6	12	18	-	-	-	6	12	18
<b>VI Plant protection</b>										
Integrated pest management	03	45	28	73	11	11	22	56	39	95
Bio control of pests and diseases	01	-	16	16	-	4	4	-	20	20
<b>Total</b>	<b>36</b>	<b>324</b>	<b>349</b>	<b>673</b>	<b>117</b>	<b>144</b>	<b>261</b>	<b>441</b>	<b>495</b>	<b>936</b>
<b>B)Rural Youth</b>										
Feed and fodder management for dairy cattle	01	14	12	26	4	-	4	18	12	30
Storage loss minimization techniques	01	-	15	15	-	10	10	-	25	25
Post harvest technology	02	-	27	27	-	13	13	-	40	40
General management of horticultural crops	01	14	3	17	7	1	8	21	4	25
Production and management technology for medicinal & aromatic plants	02	55	15	70	23	7	30	78	22	100
<b>Total</b>	<b>07</b>	<b>83</b>	<b>72</b>	<b>155</b>	<b>34</b>	<b>31</b>	<b>65</b>	<b>117</b>	<b>103</b>	<b>220</b>

**C) Consolidated table (On and Off Campus)**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
<b>A) Farmers &amp; farm women</b>										
<b>I Crop production</b>										
Crop diversification	01	8	14	22	6	12	18	14	26	40
Integrated crop management	06	78	34	112	36	14	50	114	48	162
Climate change and its impact on agriculture	01	28	1	29	8	1	9	36	2	38
Organic farming	01	15	13	28	10	2	12	25	15	40
<b>II Horticulture</b>										
<b>a)Vegetable crops</b>										
Off season vegetables	04	48	45	93	19	13	32	67	58	125
Protective cultivation	01	22	7	29	8	3	11	30	10	40
Nursery raising	01	1	11	12	-	3	3	1	14	15
<b>b)Fruit crops</b>										
Management of young orchards/plants	01	12	2	14	3	-	3	15	2	17
Layout and management of orchards	02	42	13	55	13	4	17	55	17	72
<b>c)Medicinal and aromatic plants</b>										
Production and management technology	02	53	16	69	25	6	31	78	22	100
<b>III Soil health and fertility management</b>										
Soil and water conservation	02	24	10	34	2	6	8	26	16	42
Soil fertility management	01	15	4	19	2	4	6	17	8	25
Integrated nutrient management	01	16	8	24	9	7	16	25	15	40
Water harvesting, conservation & efficient use (7 days)	03	79	31	110	26	14	40	105	45	150

<b>IV Livestock production and management</b>										
Production of quality animal products	01	8	7	15	4	3	7	12	10	22
Disease management	05	22	64	86	10	21	31	32	85	117
Feed management	02	6	39	45	1	16	17	7	55	62
<b>V Home Science/ Women empowerment</b>										
Design and development of low/ minimum cost diet	02	-	29	29	-	13	13	-	42	42
Minimization of nutrient loss in processing	01	-	11	11	-	3	3	-	14	14
Processing and preparation of low cost nutritious recipes from minor crops	01	-	12	12	-	6	6	-	18	18
Value addition	01	-	15	15	-	3	3	-	18	18
Income generation activities for empowerment of rural women	02	-	31	31	-	13	13	-	46	46
Health and nutritional awareness	01	6	12	18	-	-	-	6	12	18
<b>VI Plant protection</b>										
Integrated pest management	03	45	28	73	11	11	22	56	39	95
Bio control of pests and diseases	02	10	22	32	5	8	13	15	30	45
Production of biocontrol agents & biopesticides	01	18	2	20	5	-	5	23	2	25
<b>Total</b>	<b>49</b>	<b>556</b>	<b>481</b>	<b>1037</b>	<b>203</b>	<b>186</b>	<b>389</b>	<b>759</b>	<b>669</b>	<b>1428</b>
<b>B) Rural Youth</b>										
Feed and fodder management for dairy cattle	01	14	12	26	4	-	4	18	12	30
Storage loss minimization techniques	01	-	15	15	-	10	10	-	25	25
Post harvest	02	-	27	27	-	13	13	-	40	40



technology										
General management of horticultural crops	01	14	3	17	7	1	8	21	4	25
Production and management technology for medicinal & aromatic plants	02	55	15	70	23	7	30	78	22	100
Integrated crop management (5 & 7 days)	02	30	16	46	16	8	24	46	24	70
Off season vegetables (3 days)	01	15	8	23	5	2	7	20	10	30
Protective cultivation (3 days)	02	46	6	52	28	-	28	74	6	80
Organic farming (3 days)	03	49	3	52	23	-	23	72	3	75
Training & pruning in horticultural crops (3 days)	01	16	-	16	4	-	4	20	-	20
Dairy management (3 & 1 days)	02	2	33	35	-	8	8	2	41	43
Value addition (3 days)	01	-	18	18	-	7	7	-	25	25
Bee keeping (4 days)	02	36	5	41	12	2	14	48	7	55
<b>Total</b>	<b>21</b>	<b>277</b>	<b>161</b>	<b>438</b>	<b>122</b>	<b>58</b>	<b>180</b>	<b>399</b>	<b>219</b>	<b>618</b>
<b>D) Extension Personnel</b>										
Productivity enhancement in field crops (2 days)	01	20	1	21	6	-	6	26	1	27
Management in farm animals (11 days)	01	13	2	15	-	-	-	13	2	15
Group dynamics & farmers organizations (2 days)	01	21	15	36	8	6	14	29	21	50
Off season vegetables	01	24	1	25	4	-	4	28	1	29
Integrated agriculture (3 days)	05	111	9	120	30	-	30	141	9	150
<b>Total</b>	<b>09</b>	<b>189</b>	<b>28</b>	<b>217</b>	<b>48</b>	<b>6</b>	<b>54</b>	<b>237</b>	<b>34</b>	<b>271</b>

### D) Vocational training programmes

Crop/ enterprise	Date	Training title	Identified thrust area	Duration (Days)	No. of participants			Self employed after training			No. of persons employed elsewhere
					M	F	T	Type of unit	No. of units	No. of persons employed	
Bee keeping	04.05.10 to 07.05.10	Bee keeping	Niche based diversification	04	33	7	40	Commercial bee keeping			
Dairying	17.05.10 to 19.05.10	General management of dairy animals	Management of dairy cattle	03	-	25	25	Small dairy units of individual farmers and self help groups			
Vegetables	27.05.10 to 29.05.10	Cultivation of off season vegetables for higher income	Off season vegetables	03	20	10	30	All growing off season vegetables			
Vegetables	22.07.10 to 24.07.10	Poly house technology	Protective cultivation	03	33	7	40	Commercial poly houses	40		
Value addition	05.08.10 to 07.08.10	Value addition of traditional mountain crops	Value addition	03	-	25	25	Small scale home preservation units by self group members			
Bee keeping	14.09.10 to 17.09.10	Bee keeping	Niche based diversification	04	15	-	15	Commercial bee keeping			
Vegetables	20.12.10 to	Poly house	Protective	03	38	2	40	Commercial	40		

	22.12.10	technology	cultivation					poly houses			
Apple	03.02.11 to 05.02.11	Training and pruning in apple	Canopy management	03	24	-	24	Training & pruning on scientific basis in orchards			
Organic agriculture	14.03.11 to 16.03.11	Organic agriculture promotion in HP	Organic agriculture	03	23	2	25	Many farmers are switching over to organic agriculture			
Organic agriculture	21.03.11 to 23.03.11	Organic agriculture promotion in HP	Organic agriculture	03	24	1	25	Many farmers are switching over to organic agriculture			
Organic agriculture	24.03.11 to 26.03.11	Organic agriculture promotion in HP	Organic agriculture	03	25	-	25	Many farmers are switching over to organic agriculture			
<b>Total</b>	<b>11</b>						<b>314</b>				

### 3.4 Extension activities (including activities of FLD programmes)

Nature of extension activity	No. of activities	Farmers						Extension officials					
		Others			SC/ST			Others			SC/ST		
		M	F	Total	M	F	Total	M	F	T	M	F	T
Field Day	06	60	28	88	15	9	24						
Kisan Goshthi	09	164	80	244	80	35	115			10			
Exhibition	02			>20000									
Method demonstration	5	70	30	100	36	14	50			05			
Lectures delivered as resource person	23	352	138	490	135	65	200						
News paper coverage		Many											
Popular articles	08	Many											
Farmer scientist interaction	01	7	10	17	5	3	8			04			
Scientific visit to farmers field	25	140	120	260	40	20	60						
Farmers visit to KVK	18 groups	190	210	400	80	60	140	15	02	17			
Diagnostic visits	15	45	12	57	25	10	35						
Ex-trainees sammelan	01	-	22	22	-	8	8						
Self help group conveners meeting	20	-	20	20	-	08	08						
Village Seminar	01	18	15	33	5	4	9						
Makka Divas	01			340			160						

### 3.5 Production and supply of Technological products

**Details of crop-wise seed/sapling/seedlings of fruits/vegetables/ forests species or any other agro-inputs produced at KVK and its supply to farmers:**

Krishi Vigyan Kendra, Bajaura has one **Agriculture Technology Information-cum-Sale Centre**, which was established in November 1998. Through sale centre KVK provides seeds of different crops and vegetables, animal ration, mineral mixture, food products and university literature to the farmers at the reasonable rates. The centre also serves the farming community by providing consultancy and information to the visitors. During the period under report following material was made available to the farmers, out of which seeds of cereals , vegetable crops and planting materials of apple and pomegranate had been produced at KVK farm whereas items of animal nutrition and literature were procured from university headquarter.

Crop	Variety	Type of seed/ material	Quantity /Number	Gross income generated (Rs.)
<b>a)Crop/ Vegetable seeds</b>				<b>45024.00</b>
Wheat	HPW-184, VL-616, HS-277, HPW-155, HS-240, HPW-42, ,HPW 89,HS-295 and VL-829	Foundation/ TL	258.0 Kg	7224.00
Mash	UG-218,Palampur-93, PDU-1 & Kullu-4	-do-	23.35 Kg	1311.00
Gobhi Sarson	Neelam, KBS-3 and RCC-4	-do-	66.0 Kg	2970.00
Chilli	Surajmukhi	-do-	4.1 Kg	3280.00
Bhindi (Okra)	P-8	Foundation /TL	32.0 Kg	6400.00
Soya bean	Shivalik, Harit Soya, Palam Soya	Foundation /TL	586.00 Kg	21580.00
Barley	Gopi, HPL-391, Vimal , Dolma and Sonu	-do-	89.0 Kg	1335.00
Oats	PI	-do-	42.0 Kg	924.00
<b>b)Animal</b>				<b>44194.00</b>
Mineral mixture	-	-	171.00 Kg	8550.00
U.M.B.	-	-	72 Nos.	3600.00
Rabbit wool	-	-	4.1 kg	2170.00
Sale of Cows	-	-		29874.00
<b>c)Literature</b>				<b>86800.00</b>

Package of practices for vegetable crops	-	-	186 Nos.	13020.00
Package of practices for Kharif crops	-	-	91 Nos.	6370.00
Package of practices for Rabi crops	-	-	113 Nos.	6780.00
Kullu Krishi Patrika (Quarterly magazine of KVK)	-	-	1218 Members	39940.00
Parbatya Khetibari	-	-	141 No.	4120.00
Other literature	-	-	-	16570.00
<b>Grand Total (a+b+c)</b>				<b>1,76,018.00</b>

\*In addition to above Organic tea worth **Rs. 35,000/-** was also sold to the visitors during Dussehra 2009.

### SUMMARY

Sl. No.	Crop/Item	Quantity (qtl.)	Value (Rs.)	Provided to No. of Farmers
1	CEREALS	3.89	9483/-	
2	OILSEEDS	6.52	24550/-	
3	PULSES	0.23	1311/-	
4	VEGETABLES	0.36	9680/-	
5	Animal		44194/-	
6	Literature		86800/-	
<b>TOTAL</b>			<b>1,76,018.00</b>	

### PLANTING MATERIALS

Major group/class	Crop	Variety	Quantity (Nos.)	Value (Rs.)	Provided to No. of Farmers
FRUITS	Apple	Vance Delicious	880	17600/-	17
		Golden Delicious	100	1500/-	08
		Tydemman	47	705/-	03
		Top Red	110	2200/-	02
		Red Chief	163	3260/-	04

		Oregon Spur	270	5400/-	08
		Commercial	117	1755/-	10
	Pomegranate	Kabuli Kandhari	2200	26400/-	30

### SUMMARY

Sl. No.	Major group/class	Quantity (Nos.)	Value (Rs.)	Provided to No. of Farmers
1	FRUITS	3887	58820	82
	<b>TOTAL</b>	<b>3887</b>	<b>58820</b>	<b>82</b>

### 3.6. Literature Developed/Published (with full title, author & reference)

#### (A) KVK News Letter ((Date of start, Periodicity, number of copies distributed etc.)

Name	: Kullu Krishi Patrika
Date of start (Year)	: 1996
Periodicity	: Quarterly
No. of copies distributed	2597 (During 2010-11)

#### (B) Literature developed/published

##### a) Research publications:

Lal, R., Kumar, J., and Sharma, K.C. 2010. Laboratory studies on the development of resistance to malathion in diamondback moth (*Plutella xylostella*). Journal of Hill Agriculture 1 (1): 47-51.

Sharma, K.C. and Sharma, L.K., 2010. Effect of biofertilizers and NPK levels on growth and yield of mid-maturity group of cauliflower under mid hill sub humid condition of H.P. Journal of Hill Agriculture 1 (1): 19-22.

Sharma, K.C. 2010. Genetic varietality, character association and path analysis in exotic lines of cabbage under mid hill sub humid condition of H.P. Journal of Hill Agriculture 1 (2): 146-150.

Sharma, K.C. 2010. Stability for green pod yield in bush type French bean (*Phaseolus vulgaris* L.) under North western Himalayas. Journal of Hill Agriculture 1 (2): 197-199.

Sharma, K.C., Verma, S. and Sharma, P. 2010. Genetic divergence in off-season cabbage (*Brassica oleracea* var *capitata* L.) under mid hill sub humid condition of H.P. Himachal Journal of Agricultural Research 36 (1): 37-39.

Vyas, P., Joshi, R., Sharma, K.C., Rahi, P., Gulati, A. and Gulati, A. 2010. Cold adapted and Rhizosphere-competent strain of *Rhizobium* sp. With broad spectrum Plant Growth-Promotion Potential. Journal of Microbiology and Biotechnology 20 (12): 1724-1734.

Singh, D and Dixit, S.P.(2010) Effect of integrated nutrient management on growth and yield of turmeric in an acid alfisol of Himachal Pradesh. Himachal Journal Of Agricultural Research. Vol. 36(1) pp.28-32.

Singh, D. (2010) Nitrogen and Sulphur management in gobhi sarson (*Brassica napus*. L) for improving yield, quality and soil properties in Inceptisol of Himachal Pradesh. Journal of Hill Agricultural. Vol. 1(2) pp.36-40.

#### **b) Pamphlets**

1. Sandal, S., Bhusan, L., Singh, D., Kumar, S., Saphayia, S. and Kumar, A. 2011. Parvatiye ksetron men versa jal ka sarkasint jutai dwara sarkasan - (January 2011).

2. Singh, D., Sandal, S., Sharma, V., Bhusan, L., Kumar, S. 2011. Javik Krishi men Miti ki urverkta badane hetu javik taral khadon ba jev urvarkon ka yogdan - (January 2011).

3. Sharma, K.C., Sharma, V., Lal, R., and Bhasi, Kahan. 2011. Himachal Pradesh Mein Shimla Mirch Ke Vyasayak Kheti Kai Liya Jaroori Sifrashein . 16 p- March 2011.

4. Sharma, K.C., Sharma, V., Lal, R., and Bhasi, Kahan. 2011. Himachal Pradesh Mein Jardar Sabejeon Ke Vyasayak Kheti Kai Liya Avashyak Sujahav . 20 p- March 2011.

#### **c) Popular Articles**

1. Lal, R., Singh, D. and Sharma, L.K. 2010. Jaivak Keetnashak dwara Keeto ka Neyantran . Kullu Krishi Patrika 14 (3): 5-6

2. Vats, Chanderkanta. 2010. Poshsteketa Sei Bharpour Khadyan. Kullu Krishi Patrika 14 (3): 4-5

3. Kapoor, Deepali .2010. Aise Karein Navjaat Bachorein kei Dekhbhal. Kullu Krishi Patrika 14 (3): 8

4. Vats, Chanderkanta. 2010. Aaharein Resha. Kullu Krishi Patrika 14(4): 5

5. Kapoor, Deepali .2010. Pashushala Kei Mool Bhoot Avashkatayain. Kullu Krishi Patrika 14 (4): 9



6. Kapoor, Deepali .2011. Gayein Kaa Doodh Sukhane Kei Upyogita Avam Vidhi. . Kullu Krishi Patrika 15 (1): 5-6

**(C) Details of Electronic Media Produced: Nil**

**3.7. Success stories/Case studies, if any (two or three pages write-up on each case with suitable action photographs):**

**3.8 Give details of innovative methodology/technology developed and used for Transfer of Technology during the year**

- To increase outreach of KVK to every nook and corner of the district KVK has established itself as knowledge hub and developed good liaison with all the stakeholders (Govt. Departments and NGOs including Yuvak Mandals and Mahila Mandals) for effective implementation of KVK programmes.
- Krishak Mitra at each panchayat have been trained at KVK, which has increased our outreach to every panchayat and these Krishak Mitras are working as our link workers and ambassadors
- Group leaders and progressive farmers are being trained and utilized as master trainers.
- Some of self help groups have been associated/linked with KVK and regular monthly meetings of these are convened to review the progress and chalk out further programmes. Services of these groups are being utilized to motivate other farmers through participation in training and exhibitions.
- In case of training & pruning in apple and other temperate fruits, local rural youth is being trained in groups to perform this important operation in orchards on contract basis for providing them avenue for earning.

**3.9 Give details of indigenous technology practiced by the farmers in the KVK operational area which can be considered for technology development (in detail with suitable photographs)**

- Oil extracted from the wood of young Deodar plants is sometime used by the Farmers of interior villages of higher altitude to cure skin diseases of sheep and goats.
- For the control of stored grain pests in wheat (kept for seed), kerosene oil and ash are mixed with seeds. The seeds are also mixed with ash (1 kg per 10 kg of seed) for the control of loose smut in wheat. In case of pulses (gram, moong, mash and rajmash)
- Ash is spread over the paneeri (seedlings)/garlic/onion plants to avoid the attack of insects. Dusting of ash on cucurbit leaves against red pumpkin beetle is also done which reduce the attack to a considerable extent.
- Chillies are put in the sealed container (2 chillies per kg of the product) for the control of dhora insects.

- Some farmers cover the container of pulse grains (on the neck of the pot) with 10 cm layer of sieved dung ash. Ash prevents the entry of fresh air and moisture into grains and obstructs the conditions which are favorable for the build up of insect population.
- The maize stover is stored by the farmers between two branches of the trees.
- Some farmers in far-flung areas use copper sulphate solution for seed treatment especially in wheat crop.
- The leaves of a wild plant Kusuma (*Mentha* spp.) are mixed with wheat grains meant for seed purpose.
- The green walnut leaves in alternate layers are put with the stored seeds against stored grain pests in maize, wheat and barley.

### 3.10 Indicate the specific training need analysis tools/methodology followed for

#### a) Identification of courses for farmers/farm women

- Bench mark survey
- Interaction/ interview
- Participatory rural appraisal (PRA)

#### b) Rural Youth

- Request and interest of the participants
- Availability of resources at the disposal of participants
- Future prospects of the technology

#### c) In-service personnel

- Demand
- Season

### 3.11 Field activities

- i. Number of villages adopted: 6
- ii. No. of farm families selected : 300
- iii. No. of survey/PRA conducted : 18

### 3.12. Activities of Soil and Water Testing Laboratory

- Status of establishment of Lab : Established
1. Year of establishment : Functional since October 2007
  2. List of equipments purchased with amount :

Sl. No	Name of the Equipment	Qty.	Cost (Rs)
1	Spectrophotometer with accessories	1	1,67,400/-
2	Flame photometer with compressor	1	33,372/-
3	pH meter and Conductivity Bridge	1+1	46,332/-
4	Chemical balance	1	99,900/-
5	Water distillation set	1	31,590/-
6	Kjeldahl digestion and distillation	2	44,800/-
7	Shakers	1	29,916/-
8	Refrigerator	1	15,200/-
9	Oven	1	13,608/-
10	Hot plate	1	3,500/-

11	Grinder	1	19,656/-
13	Portable pan balance	1	31,156/-
<b>Total</b>		<b>14</b>	<b>5,36,430/-</b>

3. **Details of samples analyzed so far** :

Details	No. of Samples	No. of Farmers	No. of Villages	Amount realized
Soil Samples	30	30	4	-
Water Samples	-	-	-	-
<b>Total</b>	<b>30</b>	<b>30</b>	<b>4</b>	-

#### **4.0 IMPACT**

##### **4.1. Impact of KVK activities (Not to be restricted for reporting period).**

Name of specific technology/ Skill transferred	No. of trainees	% of adoption	Change of income (Rs.)		Impact indicator
			Before training	After training	
Use of improved varieties/hybrids of cereals and veg. crops in adopted /established farming system.	155	72-75%	Rs. 65,000-75,000/ha in veg.	Rs.1,90,000-2,20,000/ha in veg.	Villagers in lower areas are growing only vegetable crops round the year & in the higher areas also farmers are growing vegetables in the orchards. Higher demands for the seeds of improved varieties in cereals.
Vegetable cultivation in new areas/villages	215	62%	Rs. 15,000-18,000/hectare	Rs.1,45,000-1,80,000 per hectare	Villagers in higher hills (around 2000 meters height) are now cultivating vegetables like peas, cauliflower, cabbage, garlic etc. The area under vegetable crops has increased from 3330 ha in 2001-02 to 4709 ha during 2010-11.
Nursery raising	32	63%	Rs. 65,000/ha	Rs. 4,70,000 per hectare	The farmers with small land holdings upto 0.16 ha have shifted exclusively for year the round vegetables nursery raising as a profitable business option from small holdings
Polyhouse technology	80	83%	Rs. 80,000/ha	Rs. 1,10,000/- per 800 m <sup>2</sup>	Some Polyhouses are being constructed & some are operational
Exotic vegetable cultivation	25	85%	Rs 1,32,000/ha	Rs 1,90,000/ha	Sizable area (450-550 ha) has come under exotic vegetables
Introduction of new cultivars of apple	60	75%	Rs. 88,000/ha	Rs. 1,50,000-1,85,000/ha	Increase in area under colour strains (1600.00 ha) during 2010-11

Introduction of new fruits in lower belt	30	60%	-	-	Area under persimmon, peach pomegranate ,new cultivars of plum,Kiwi etc has increased from 2355 ha during 2007-08 to 2611 ha during 2010-11
Value addition	170	55-60%	-	-	Many farm products made by SHG (women) are available in the market. Now even a new concept of Sunday market has been introduced by these women, where their products are being marketed
Balanced feed for dairy animals	182	45-55	-	-	Good health of the animal and also higher milk yield
Bee keeping in orchards	35	60-70%	-	-	Higher fruit yield in orchard where bee colonies were placed. Some of the farmers are now even renting bee colonies during flowering period
Seed treatment and line sowing in cereals	240	85-92%	-	-	Less incidence of seed borne diseases
Training, pruning and proper management of orchards	42	80-90%	-	-	Higher yield with better quality fruits and lesser incidence of insect-pest and diseses.

#### 4.2. Cases of large scale adoption

(Please furnish detailed information for each case) -

##### I. Diversification through Off-season Vegetable production

###### Introduction:

Owing to diverse agro-ecological situations, Kullu district of Himachal Pradesh is endowed with comparative advantage for growing various off-season vegetables. Vegetables play a significant role in quality food, nutritional security as well as poverty alleviation. The vegetables are embedded with vitamins, proteins, minerals, carbohydrates and fibers. The consumption of vegetables is ever increasing and to meet this increasing demand, more and more emphasis is required on off-season vegetable production for higher income and employment generation in the rural sector. In hills, where job opportunities in other sectors are very less, off-season vegetable growing is the only option to attract more and more rural youth to adopt agriculture as vocation (means of self employment), halt migration to cities and achieve agriculture growth over 4 %. Further, global warming has resulted in the shift of apple to higher altitudes, off-season vegetables is the only remunerative alternative for livelihood. Keeping in view, KVK, Kullu initiated its endeavour for the diversification of agriculture through off-season vegetable cultivation.

###### Methodology /Approach /Strategy:

During early nineties awareness campaigns were initiated by KVK, Kullu to popularize the off-season vegetable cultivation with the formation of many Kisan clubs. Simultaneously, about 100 rural youth were trained at KVK, Kullu in collaboration with the department of agriculture for meeting the input requirements of off-season vegetables.

In the present scenario, when there is strong network of various stake holders throughout the district through various SHGs and farmers clubs etc., KVK has established itself as the knowledge hub to increase outreach to every nook and corner of the district by taking advantage of this strong network. Acknowledging KVK as knowledge hub, all the stake holders working for the enhancement of livelihood options to the farmers like

departments namely, Agriculture, Horticulture, Animal husbandry, Mid-Himalayan Watershed Project (Forest), Great Himalayan National Park, District Youth Services and Sports, SHGs, NGOs, NYK etc. are seeking our services.

KVK has assessed and refined various technologies and also prepared technology modules based on recommendation domains for different agro-ecological situations (Table 1&2). To popularize these technologies, off and on campus training programmes based on “learning by doing” and large scale demonstrations based on “seeing is believing” were organized (Table 3). In one of the ambitious programme “Pt. Deen Dyal Kisan Bagwan Samridhi Yojna” of the State, it has been made mandatory for polyhouse owners to get training from KVK. Similarly, Krishak Mitras from each and every panchayat are also being trained at KVK. Literature pertaining to these technologies was developed and distributed to the farmers and extension officers. Kullu Krishi Patrika, a quarterly magazine of Krishi Vigyan Kendra played a significant role in dissemination of aforesaid technologies.

### Economics of major crops :

Tomato	450	3,60,000	2,85,000	4.8
Cauliflower (Early)	210	1,68,000	1,08,000	2.8
Cauliflower (Mid)	275	2,20,000	1,60,000	3.66
Capsicum	190	2,85,000	2,23,000	4.5
Cabbage	500	2,25,000	1,66,000	3.8
Peas	125	1,87,500	1,43,500	4.26
Frenchbean	125	1,25,000	83,000	2.97
Root crops	200	1,00,000	65,000	2.85
Cucumber	210	2,10,000	1,45,000	3.23
Garlic	100	2,00,000	1,49,728	3.97



Insitu moisture conservation in okra



Evaluation of cauliflower hybrids



INM in garlic

Table 2. Major vegetable based sequences

Sequence	Gross returns	Net returns	B:C
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	(Rs)	(Rs)	ratio
Tomato (April)-bean (Aug)-peas (Oct)	7,89,000	6,28,000	4.9
Tomato (March)-Cucumber/tomato (July)-peas (Nov)	10,24,000	8,25,000	5.14
Capsicum (April)-Cauliflower midseason (July)-radish (Nov)	6,05,000	4,48,000	3.85
Tomato (May/June)-garlic (Oct) for high hills	5,60,000	4,34,728	7.47

**Table 3. Training programmes and demonstrations (Last 4 years):**

Nature of programme	Number of programmes	Number of beneficiaries	Adoption rate
Off campus – one day	23	944	65%
On campus – One day	16	724	
On campus- Three days	8	205	75 %
Frontline demonstrations	20	20 (5 ha area)	

For the quality production of vegetables, availability of healthy nursery is kingpin. Therefore, KVK has established large number of the farmers as entrepreneurs for nursery raising. Other interventions like water conservation, harvesting and efficient management were also taken up simultaneously. Regular services are also provided to the farmers to solve their day to day problems and have feedback and monitoring. Now regulars SMSs are also being sent to the farmers for timely operations.

### **Quantitative and qualitative Impact of the Technology including vertical and horizontal spread**

Our efforts have resulted in considerable increase in area under vegetables in the district which is however very difficult in fragile eco-system of hills. The total area under off-season vegetables in the district has increased from 301 ha in 1995-96 to 4709 ha in 2009-10 (Table 4.) The productivity of the vegetables as a whole has also increased almost two folds from the last 15 years reaching to 199.2 q/ha in 2009-10. With the adoption of various vegetable cultivation technologies as suggested by KVK, Kullu, the net income of the farmers in the district has increased to many fold (1.5 to 2 lakhs/acre-average land holding of farmers) and subsequently their standard of living has improved.

**Table 4. Area (Ha) under different vegetables**

Crop	1995-96	2001-02	2006-07	Present
Tomato	134	650	680	745

Peas	-	400	790	870
Garlic & Onion	22	610	700	892+55=947
Capsicum	-	-	65	82
Cabbage	-	420	835	847
Cauliflower	-	350	550	575
Beans	-	150	100	130
Root crops	-	75	135	210
Okra	-	40	45	64
Cucurbits	-	180	95	124
Brinjal	-	25	45	40
Other	145 (chillies)	150 (chillies)	45	75
<b>Total</b>	<b>301</b>	<b>3050</b>	<b>4085</b>	<b>4709</b>

## II. Scientific Training and Pruning in Apple

In Himachal Pradesh the productivity of apple varies between 6-7 tonnes per hectare as compared to 25-30 tonnes per hectare in the developed countries like USA, Australia and Canada. The causes of low productivity of apple are many, but training and pruning is also one of the major factors contributing optimum yield with quality produce. Scientific training and pruning helps in development of strong framework of the plants and maintenance of optimum C : N ratio crucial for better yield.

In Himachal Pradesh apple trees on seedling rootstocks are trained in modified central leader system. Twig in the centre is allowed to develop as leader in the young trees until it attains the height of 3.0 m. In this way growth is restricted and the scaffold branches are developed all around the periphery of the tree at the angle of 45°. Lower most branch is selected at 30-45 cm height above ground level. In this way a strong and good framework of the tree is developed for early and regular future bearing.

Keeping in view the bearing habit of the fruit, pruning may be done in a way to get the regular and higher yield of good quality fruits. Since, apple bears on spur, spur thinning is required to be maintained for regular cropping. In apple pruning, thinning cuts and heading back is must for maintaining the balance between vegetative and reproductive growth. It helps in giving regular good crop of quality fruits without any effect on the tree growth.

Therefore, KVK Kullu tried its best to educate the rural youth about scientific training and pruning in apple by conducting training programmes and organizing demonstrations to enhance their skills about canopy management.

### On-farm Trial:

Different pruning intensity treatments in apple were assessed throughout the district for two years in On-farm trial with the objective to find out optimum pruning intensity for Starking Delicious apple. Treatment comprising of ¼ heading back + thinning cuts proved to be the best over the locations during both years which gave almost 1.7 times more fruit yield (13.19 t/ha) than farmers' practice of more of heading back and minimum thinning (7.96 t/ha).

### Training programmes (Last 4 years):

Nature of programme	Number of programmes	Number of beneficiaries	Adoption rate
Off campus – one day	9	231	60-70%
On campus – One day	6	155	
On campus- Three days	6	164	70-80 % (40 % are performing the pruning on contract basis, a way of extra income and employment generation)

#### Front line Demonstrations:

Eleven FLDs (each of 0.16 ha) were conducted for the last 4 years throughout the district. Average yield in FLDs over locations and years was 10.79 t/ha as against 9.27 t/ha under farmers' practice.

#### Horizontal & Vertical spread:

Out of present 23000 ha area under apple in the district, scientific pruning is being practiced in about 13500 ha (59 % area). Similarly, the productivity has also increased from about 6-7 t/ha to 9-10 t/ha.

### III. Scientific management of dairy animals

Livestock farming is the most important source of livelihood, after agriculture, in Himachal Pradesh. Nearly 91.39% households have milch animals in varying numbers. The scenario in Kullu district is same and there is production of 30.41 tonnes of milk per year. In the absence of scientific management practices and lack of knowledge among farmers, the productivity of these animals is low (Indigenous cows-1.603 litre/day, Cross bred cows- 4.242 litre/ day). Poor nutrition is the single largest cause of the poor performance of these animals. Non availability of the balanced concentrate ration, scarcity of green fodder for about 4-5 months in a year, lack of knowledge about the prophylactic measures against various diseases and parasites prevalent results in low milk yield.

Keeping these constraints in view, KVK Bajaura introduced scientific management practices in dairy animals under small holder's management condition through awareness programmes, training programmes and demonstrations.

During the last four years the Kendra conducted the following trainings on dairy

Type of Training	Number	No. of participants
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<b>Vocational trainings</b>	11	242
<b>One day on campus trainings</b>	20	500
<b>One day off campus trainings</b>	30	540

- These programmes resulted in wide spread adoption of improved practices like balanced feeding, regular use of mineral mixture, use of UMB in lean months, control of ecto and endo parasites and regular vaccination against, FMD, HS and BQ. The large scale adoption is also reflected by the ever increasing demand of mineral mixture and UMB sold by the KVK through its sale centre.
- Self help groups to promote dairy as an avocation are being adopted by the Kendra regularly. During the last four years, KVK adopted three women self help groups of different villages. Regular meetings were conducted to impart training on all aspects of dairy farming. Demonstration on preparation of balanced feed using locally available ingredients, importance of feeding mineral mixture, benefits of feeding UMB, cultivation of improved fodder cultivars, fodder trees, first aid to the animals, value addition of milk etc were given to the women farmers.
  - The root slips of Napier Bajra and Setaria were planted in 0.5 ha area in each adopted village and 70-100 trees of thorn less Robinia and mulberry were planted in each village. As a result the fodder scarcity is likely to reduce to 10% from the existing 35-40%.
  - Adoption of practices like nutritional enrichment of straws, mineral mixture, UMB has led to improvement in milk production up to 11% as well as better reproductive health of the animals.
  - The women have started preparing concentrate ration on their own which is cost effective and best in quality.
  - There is 100% adoption of prophylactic measures like deworming, vaccination etc. in the groups.
  - The women of the groups are selling the value added products of milk (Paneer) at comparatively better price than milk.
- There is widespread prevalence of haematuria in the animals particularly in the high hill villages of the Nagar and Banjar blocks of the Kullu district. In some villages 80-90% population is affected. Bracken fern poisoning has been confirmed as one of the causative agent of the disease and now a wide spread awareness campaign has been launched by the Kendra in collaboration with Department of Animal health and breeding Kullu to create awareness among farmers to control this disease.

**4.3 Details of impact analysis of KVK activities carried out during the reporting period :** ( As above given in 4.2)

**5.0 LINKAGES**

**5.1 Functional linkage with different organizations**

<b>S.No.</b>	<b>Name of the organisation</b>	<b>Nature of linkage</b>
1.	Hill Agricultural Research & Extension Centre, Bajaura	Planning of programmes; conducting training, onfarm trials & demonstrations; input for quarterly magazine- Kullu Krishi Patrika
2.	Regional Horticulture Research Station, Bajaura	Planning of programmes; conducting training and input for quarterly magazine- Kullu Krishi Patrika
3.	IARI, Regional Research Station, Katrain	Planning of programmes; conducting training and input for quarterly magazine- Kullu Krishi Patrika
4.	North Temperate Regional Station, CSWRI, Garsa	Planning of programmes and conducting training
5.	G.B. Pant Institute of Himalayan Environment and Development, Kullu	Participation in meetings and training programmes
6.	Deptt. of Agriculture, Kullu	Planning of programmes; preparation of district agricultural plan; joint diagnostic survey and organisation of training programmes, onfarm trials & demonstrations
7.	Deptt. of Horticulture, Kullu	Planning of programmes; joint diagnostic survey and organisation of training programmes, onfarm trials & demonstrations
8.	Deptt. of Animal Husbandry, Kullu	Planning of programmes; joint diagnostic survey and organisation of training programmes, onfarm trials & demonstrations
9.	Deptt. of Fisheries, Kullu	Planning of programmes and organisation of training programmes
10.	Deptt. of Forests, Kullu	Organisation of training programmes
11.	Mid Himalayan Watershed Project, Kullu & Mandi	Organisation of training programmes and implementation of livelihood concerned programmes
12.	District Rural development Agency	Participation in meetings and training programmes
13.	Indo Italian Olive Project, Bajaura	Participation in meetings and training programmes
14.	Indo Norway Fisheries Project, Patlikuhl	Participation in meetings and training programmes
15.	Great Himalayan National Park, Kullu	Participation in meetings and training programmes
16.	Agricultural Produce Marketing	Planning of programmes and

	Committee, Kullu & Lahaul Spiti	conducting training
17.	Himfed, Fertilizer companies and Cooperatives	Participation in meetings and training programmes
18.	NABARD and other banks	Capacity building of self help groups
19.	Nehru Yuva Kendra, Kullu	Training programmes
20.	Deptt. Of Sports and Youth services, Kullu	Training programmes
21.	Deptt. of Irrigation & Public Health, Kullu	Training programmes
22.	Block development offices of Kullu district	Training under watershed programme
23.	District Programme Officers, Kullu & Mandi	Training programmes
24.	NGOs working in the district	Conduct of training programmes and demonstrations
25.	ATMA, Kullu	Planning of programmes and organisation of Farmers' Scientists Interactions, kisan goshthies & training programmes
26.	NHRDF and many other agencies outside the district and state	Training & field visit for farmers on exposure visit

## 5.2 List special programmes undertaken by the KVK, which have been financed by State Govt./Other Agencies

Name of the scheme	Date/ Month of initiation	Funding agency	Amount (Rs.)
Evaluation of biofertilizers	2010-2011	IHBT	37,950.00
Organic Training under RKVY	April 2010 to March 2011	CSK HPKV, Palampur	90,000.00
Trainings on scaling up water productivity	April 2010 to March 2011	CSK HPKV, Palampur	1,79,000.00
Evaluation of liquid formulations of biofertilizers	April 2010 to March 2011	National Fertilizer Limited	48,000.00
In situ moisture conservation in rainfed areas	April 2010 to March 2011	CSK HPKV, Palampur	40,000.00
Medicinal & Aromatic plants Trainings	April 2010 to March 2011	Deptt. of Environment , Science & Technology H.P. through CSK HPKV, Palampur	50,000.00
Different Activities Under ATMA	April 2010 to March 2011	ATMA	3,76,900.00
<b>Total</b>			<b>8,21,850</b>

## 5.3 Details of linkage with ATMA

a) Is ATMA implemented in your district: Yes

S. No.	Programme	Nature of linkage	Remarks
1.	AMC & Governing board meeting	Participation and discussion about the budget and various programmes to be taken up/implemented	-
2.	Farmer scientist interaction	Participation and conducting the programme.	-
3.	Training programs	Resource person & conduction of the Training programs.	-
4.	Farm Schools	Conduct of Farm Schools	-
5.	Technology refinement	Onfarm testing and refinement of technology	-
6.	Kisan melas	Resource persons	-

**5.4 Give details of programmes implemented under National Horticultural Mission: -**

**5.5 Nature of linkage with National Fisheries Development Board: -**

**6. PERFORMANCE OF INFRASTRUCTURE IN KVK :-**

**6.1 Performance of demonstration units (other than instructional farm):-**

**6.2 Performance of instructional farm (Crops) including seed production**

Sr. No.	Name of crop	Area covered (ha)	Variety	Cost of inputs (Rs).	Total prod. of seed & grain mixture (kg)	Gross income (Rs.)	Remarks
1	Fodder	0.535	P-1 oats & African tall maize	692.00	8615.00	12923.00	Gross income includes returns from straw/ Stover also
2	Gobhi Sarson	0.114	Neelam	1500.00	64.25	2570.00	-do-
3.	Wheat	0.681	VL-829, VL-616, HS-277, HPW-89, HS-240, HPW-155, HPW-184, HS-295 & HPW-42	7000.00	520.00	15,600.00	-
4	Barley	0.115	Vimal, Gopi, Sonu, Dolma, HBL-391	900.00	132.00	2000.00	-
6.	Oats	0.232	P-1	640.00	148.00	2500.00	-
7.	Soybean	0.485	Harit soya, Palamsoya & Shivalik	7700.00	555.00	22220	-
8.	Maize	0.47	Girija	1500.00	338.00	3000.00	-
9.	Okra	0.132	P-8	2000.00	33.00	6600.00	-
10.	Mash ( Black	0.350	Palampur-93, UG-218	2000.00	65.00	3900.00	-

	Gram)					
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**6.3 Performance of production Units (bio-agents / bio pesticides/ bio fertilizers etc.) : - NA-**

**6.4 Performance of instructional farm (livestock production) April 2010-March 2011:**

Demonstration unit	Total production (liter)	Amount (Rs.)	
		Cost of inputs	Gross income
Dairy demonstration unit	9,200.00	1,05,000/-	1,38,000/-

### **6.5 Rainwater Harvesting**

**Training programmes conducted by using Rainwater Harvesting Demonstration Unit : -NA-**

### **6.6 Utilization of hostel facilities**

Accommodation available (No. of beds): **35**

Months	Title of the training course/Purpose of stay	No. of trainees stayed	Trainee days (days stayed)*	Reason for short fall (if any)
<b>April 2010</b>	Exposure visit of the farmers from Dharpur Solan	40	40	
	Study tour of the students from CSK HPKV, College of Vet. Palampur	22	22	
	Consultancy	2	2	
	On campus training programme on water management	50	350	
<b>Total</b>		<b>114</b>	<b>414</b>	
<b>May 2010</b>	On campus training programme on beekeeping	30	90	
	Training on long range weather forecast –Farmers meet/Interaction	1	2	
	Consultancy	2	4	
	Consultancy	1	1	
	Exposure visit cum training	22	44	
	Training programme on	21	42	

	vegetable			
<b>Total</b>		<b>77</b>	<b>183</b>	
<b>June 2010</b>	Consultancy cum exposure visit	4	4	
	Exposure visit cum training to the farmers of Karsog (Mandi)	30	60	
	Exposure visit cum training to the farmers of Chamba	21	42	
	Exposure visit for farmers from Hissar	6	24	
	Exposure visit cum study tour of farmers from Kangra	27	81	
	Consultancy	1	1	
	Consultancy	3	12	
	Exposure visit	10	10	
	Exposure visit of the farmers from Rampur	7	7	
	Consultancy	5	10	
<b>Total</b>		<b>114</b>	<b>251</b>	
<b>July 2010</b>	Exposure visit cum training programme of the farmers of Poonch area of Jammu and Kashmir	30	60	
	Exposure visit cum training programme for Janjehali (Mandi)	13	13	
	Exposure visit	26	26	
	Training programme on horticulture for the farmers of Banjar block	19	38	
	Training programme on integrated agriculture for the farmers of Kullu block	4	4	
	consultancy	2	4	
<b>Total</b>		<b>94</b>	<b>145</b>	
<b>August 2010</b>	Training programme on integrated agriculture for the farmers of Kullu block	35	70	
	Consultancy	1	1	
	Training programme on Home Science for the farmers of Kullu block	25	75	
	Training and work experience to paravets	15	165	

	under Mid Himalayan H.P. Watershed Project			
<b>Total</b>		<b>76</b>	<b>311</b>	
<b>September 2010</b>	Consultancy cum exposure visit	4	4	
	Vocational training on general beekeeping	15	60	
	Exposure visit of the farmers from Bharmour	14	14	
<b>October 2010</b>	Consultancy	2	2	
<b>Total</b>		<b>35</b>	<b>80</b>	
<b>November 2010</b>	Training programme for Krishak Mitra of different blocks of Kullu Distt. in collaboration with Deptt. Of agriculture	30	90	
	Training programme for Krishak Mitra of different blocks of Kullu Distt. in collaboration with Deptt. Of agriculture	30	90	
<b>Total</b>		<b>60</b>	<b>180</b>	
<b>December 2010</b>	Training programme for Krishak Mitra of different blocks of Kullu Distt. in collaboration with Deptt. Of agriculture	30	90	
	Exposure visit of the farmers from J&K	6	6	
	Training programme on water management	50	350	
	Exposure visit cum training programme of the farmers from Anni and Banjar block	28	28	
<b>Total</b>		<b>114</b>	<b>474</b>	
<b>January 2011</b>	Exposure visit cum study tour of the farmers of J&K	25	50	
	Training programme on integrated agriculture to rural youth of Kullu block in collaboration with DYSO Kullu	15	75	
	Training programme on	25	75	

	horticulture in collaboration with RHRS Bajaura			
	Training programme and visit to KVK demonstration units	22	66	
<b>Total</b>		<b>87</b>	<b>266</b>	
<b>February 2011</b>	Training programme for Krishak Mitra of different blocks of Kullu Distt. in collaboration with Deptt. of agriculture	30	90	
	Training programme for Krishak Mitra of different blocks of Kullu Distt. in collaboration with Deptt. of agriculture	30	90	
<b>Total</b>		<b>60</b>	<b>180</b>	
<b>March 2011</b>	Exposure visit cum training programme of the farmers from Sangraha Distt. Sirmour	42	42	
	Exposure visit of farmers from TalabTillo Jammu Distt. ( J & K)	16	32	
	Farmers Scientists Interaction	15	30	
	Exposure visit of farmers from Gurgaon (Haryana)	22	22	
	Training programme on Organic Agriculture in collaboration with Deptt. of Agriculture Kullu	25	75	
	Exposure visit of farmers from Rajgarah (Sirmour)	31	62	
	Study tour of scientists (under training) at UHF Solan	16	16	
	Training programme on Organic Agriculture in collaboration with Deptt. of Agriculture Kullu	25	75	
	Training programme on Organic Agriculture in collaboration with Deptt. of Agriculture Kullu	25	75	
	Student under Rural Work	17	85	



	experience from UHF-Solan			
<b>Total</b>		<b>234</b>	<b>514</b>	
<b>Grand Total</b>		<b>1065</b>	<b>2998</b>	

## 7. FINANCIAL PERFORMANCE

### 7.1 Details of KVK Bank accounts

Bank account	Name of the bank	Location	Account Number
With Host Institute	The KCCB	Bajaura	74-1
With KVK	State Bank of India	Bhuntar	01100070017

### 7.2 Utilization of funds under FLD on Cotton: NA

### 7.3 Utilization of KVK funds during the year 2010 -11 (upto March 2011)

S. No.	Particulars	Sanctioned	Released	Expenditure
<b>A. Recurring Contingencies</b>				
1	<b>Pay &amp; Allowances</b>	53,00,000/-		67,75,912/-
	<b>Arrears</b>	52,63,000/-		3532349/-
2	<b>Traveling allowances</b>	60,000/-		55,852/-
3	<b>Contingencies</b>			
A	Stationery, telephone, postage and other expenditure on office running, publication of Newsletter and library maintenance (Purchase of News Paper & Magazines)	2,80,000.00		2,23,149/-
B	POL, repair of vehicles, tractor and equipments			56,842/-
C	Meals/refreshment for trainees (ceiling upto Rs.40/day/trainee be maintained)			1,61,239/-
D	Training material (posters, charts, demonstration material including chemicals etc. required for conducting the training)	4,20,000.00		43,399/-
E	Frontline demonstration except oilseeds and pulses (minimum of 30 demonstration in a year)			31,470/-
F	On farm testing (on need based, location specific and newly generated information in the major production systems of the area)			1,75,782/-
G	Training of extension functionaries			8,110/-
H	Maintenance of buildings			-
I	Establishment of Soil, Plant & Water Testing Laboratory			-
J	Library	-		-
<b>TOTAL (A)</b>		<b>1,13,23000/</b>		<b>1,10,64,104/-</b>
<b>B. Non-Recurring Contingencies</b>				

1	<b>Works</b>		-	
2	<b>Equipments including SWTL &amp; Furniture</b>	1,25,000/-		1,24,656/-
3	<b>Vehicle</b> (Two wheeler)	50,000/-	-	49,990/-/-
4	<b>Library</b> ( Purchase of assests like books & journals)	9,000/-	-	7,034/-
<b>TOTAL (B)</b>		<b>1,84,000/-</b>	-	<b>1,81,680/-</b>
<b>C. REVOLVING FUND</b>		-	-	-
<b>GRAND TOTAL (A+B+C)</b>		<b>1,15,07,000/-</b>	-	<b>1,12,45,784/-</b>

**Funds under NICRA: Released= 10,00,000/-**  
**Expenditure= 9,12,776/-**

#### 7.4 Status of revolving fund (Rs. in lakhs) for the three years

Year	Opening balance as on 1 <sup>st</sup> April	Income during the year	Expenditure during the year	Net balance in hand as on 1 <sup>st</sup> April of each year
April 2008 to March 2009	5,36,985.00	4,78,526.00	5,51,738.00	4,63,773.00
April 2009 to March 2010	4,63,773.00	5,75,769.00	4,62,792.00	5,76,750.00
April 2010 to March 2011	5,76,750.00	10,11,586.00	7,05,146.00	8,83,190.00

#### 8.0 Information which has not been reflected above.

a) Station trials conducted at KVK farm:

##### Experiment 1. : Testing of biofertilizers in Okra

Objective: To study the response of bio-fertilizers on growth and yield of Okra cv. P-8

**Location:** KVK, Bajaura.

**Date of sowing:** 5.6.2010

**Date of harvesting:** i) marketable fruits: 10.8.10  
ii) seed: 15.9.10

**Table 1. Effect of bio-fertilizers on growth and yield of okra var. P-8 (separate trial for marketable and seed yield)**

Treatments	Plant height (cm)	Pod length (cm)	Marketable yield (q/ha)	Seed yield (q/ha)
T <sub>1</sub> .Control	62.4	10.5	65.4	10.6
T <sub>2</sub> .Bio-1 ( <i>Azotobacter</i> )	72.3	12.6	75.9	12.5
T <sub>3</sub> .Bio-2 (PSB)	73.1	12.9	78.4	12.9

T <sub>4</sub> .Combinations of Azotobacter and PSB	76.8	13.3	83.6	13.4
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### Results

- Bio-fertilizers applied either alone or in combinations improved the growth character over control and these also increased the marketable and seed yield of okra compared to control.
- The maximum yield was recorded with the application of combined bio-fertilizers (Azo. +PSB).

### Experiment 2. : Testing of bio-fertilizers in seed production of Chilli

**Objective:** To study the response of bio-fertilizers on growth and seed yield of Chilli cv. Surajmukhi

Location: KVK, Bajaura.

**Date of Transplanting:** 7.6.2010

**Date of harvesting:** i) marketable fruits: 25.8.10  
ii) seed: 20.9.10

**Table 2. Effect of bio-fertilizers on growth and yield of chilli var. Surajmukhi**

Treatments	Plant height (cm)	Fruit length (cm)	Marketable yield of red ripe chilli (q/ha)	Seed yield (q/ha)
T <sub>1</sub> .Control	45.50	3.4	41.5	1.25
T <sub>2</sub> .Bio-1 ( <i>Azotobacter</i> )	52.6	3.9	60.9	1.75
T <sub>3</sub> .Bio-2 (PSB)	54.8	4.1	64.8	1.81
T <sub>4</sub> .Combinations of Azotobacter and PSB	57.7	4.3	71.3	2.05

### Results

- Application of bio-fertilizers either alone or in combinations improved the growth character over control and these also increased the fruit and seed yield of chilli over control.
- The highest yield was recorded with the application of combined bio-fertilizers (Azo. +PSB).

### Experiment 3. : Testing of biofertilizers in Maize

**Objective:** To study the response of bio-fertilizers on growth and yield of Maize cv. Girija

Location: KVK, Bajaura.

**Date of Transplanting:** 7.6.2010

**Date of harvesting:** 21.9.10

**Table 3. Effect of bio-fertilizers on growth and yield of Maize cv. Girija**

Treatments	Plant height (cm)	Grain yield (q/ha)
T <sub>1</sub> .Control	175.2	25.2
T <sub>2</sub> .Bio-1 ( <i>Azotobacter</i> )	190.3	27.3
T <sub>3</sub> .Bio-2 (PSB)	192.9	27.5

T <sub>4</sub> .Combinations of Azotobacter and PSB	195.3	27.9
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### Results

- Application of bio-fertilizers either alone or in combinations improved the plant height compared to control and grain yield of maize. However, the maximum yield was recorded with the application of combined bio-fertilizers (Azo. +PSB).

### Experiment 4 : Testing of biofertilizers in Blackgram

**Objective:** To study the response of bio-fertilizers on yield of Mash cv. P-93

Location: KVK, Bajaura.

**Date of sowing:** 13.7.2010

**Date of harvesting:** 12.10.10

**Table 4. Effect of bio-fertilizers on growth and yield of Blackgram cv. P-93**

Treatments	Plant height (cm)	yield (q/ha)
T <sub>1</sub> .Control	25.3	6.5
T <sub>2</sub> . Bio-1 (PSB)	41.0	8.2

### Results

- Application of bio-fertilizers i.e. PSB increased the plant height over control and it also increased the yield of mash (8.2 q/ha) over control (6.5q/ha).

### Experiment 5 : Testing of biofertilizers in Soybean

**Objective:** To study the response of bio-fertilizers on growth and yield of Soybean cv. P. Soya

Location: KVK, Bajaura.

**Date of sowing:** 14.6.2010

**Date of harvesting:** 25.10.10

**Table 5. Effect of bio-fertilizers on growth and yield of Soybean cv. P. Soya**

Treatments	Plant height (cm)	yield (q/ha)
T <sub>1</sub> .Control	60.2	14.6
T <sub>2</sub> . Bio-1 (PSB)	65.6	16.5

### Results

- Application of bio-fertilizers i.e. PSB increased the plant height over control and it also increased the yield of soybean (16.5 q/ha) over control (14.6 q/ha).

### Experiment 6: Testing of bio-pesticides against insect-pests of Okra cv.P-8

Location: KVK, Bajaura.

**Date of sowing:** 5.6.2010

**Date of harvesting: i) marketable fruits:** 10.8.10

Treatments	Incidence of insect-pests and diseases		Marketable yield (q/ha)
	Jassid/5plant	Yellow vein mosaic (0-6 scale)	
T <sub>1</sub> <i>Bacillus thuringiensis</i> 2g/l + <i>Trichoderma viridae</i> 3g/l	5.25	0	74.25
T <sub>2</sub> Max Bouncer 4 ml/l + <i>Trichoderma viridae</i> 3g/l	3.96	0	<b>77.50</b>
T <sub>3</sub> Max flash 4 ml/l + <i>Trichoderma viridae</i> 3g/l	4.34	0	76.22
T <sub>4</sub> Control (Without spray)	8.75	0	64.25

Spray started 45 days after sowing

### Results

- Spray of Max Bouncer 4 ml/l + *Trichoderma viridae* 3g/l of water gave the highest yield (77.50 q/ha) and found minimum incidence of insect-pests and diseases after 10 days after spray.

### Experiment 7: Testing of bio-pesticides against insect-pests of Chilli cv. Surajmukhi

Location: KVK, Bajaura.

Date of Transplanting: 7.6.2010

Date of harvesting: i) marketable fruits: 25.8.10

ii) Seed: 20.9.10

Treatments	Diseases Incidence		Yield of red ripe chilli (q/ha)	Seed yield (q/ha)
	Anthracoise (0-5 scale)	Wilt incidence (%)		
T <sub>1</sub> <i>Bacillus thuringiensis</i> 2g/l + <i>Trichoderma viridae</i> 3g/l	0	2.25	65.2	1.80
T <sub>2</sub> Max flash 4 ml/l + <i>Trichoderma viridae</i> 3g/l	0	1.50	68.5	2.05
T <sub>3</sub> Max Bouncer 4 ml/l + <i>Trichoderma viridae</i> 3g/l	0	0	<b>70.4</b>	<b>2.25</b>
T <sub>4</sub> Control (Without spray)	1	15.30	44.6	1.50

Spray started 45 days after sowing

### Results

- Spray of Max Bouncer 4 ml/l + *Trichoderma viridae* 3g/l of water gave the highest red ripe chilli yield (70.4 q/ha) and seed yield (2.25q/ha) and found minimum incidence of diseases.

## Experiment 8 : Testing of bio-pesticides against insect-pests of Blackgram cv.P-

93

Location: KVK, Bajaura.

Date of sowing: 13.7.2010

Date of harvesting: 12.10.10

Treatments	Incidence of insect-pests and diseases					Yield (q/ha)
	White fly/5 plant	Bean bug/5 plant	No. of hairy caterpillars/m <sup>2</sup>	Virus infestation	Cercospora leaf spot (0-9 scale)	
T <sub>1</sub> <i>Bacillus thuringiensis</i> 2g/l + <i>Trichoderma viridae</i> 3g/l	24.25	3.10	2.65	0	1	8.2
T <sub>2</sub> Max flash 4 ml/l + <i>Trichoderma viridae</i> 3g/l	<b>22.43</b>	<b>2.32</b>	<b>3.33</b>	<b>0</b>	<b>0</b>	<b>8.5</b>
T <sub>3</sub> Max Bouncer 4 ml/l + <i>Trichoderma viridae</i> 3g/l	39.22	4.26	2.10	0	0	8.0
T <sub>4</sub> Control (Without spray)	48.11	9.33	8.46	0	3	5.0

### Results

- Spray of Max flash 4 ml/l + *Trichoderma viridae* 3g/l of water gave the highest yield of blackgram(8.5 q/ha) over control (5.0q/ha) and found less incidence of insect pest-pests and diseases.

### b) Staff deputed for training/workshop:

S.No.	Date	Venue	Name of programme	Participating scientist
1.	3.5.10	CSKHPKV Palampur	State level Agriculture officers workshop Kharif- 2010	Dr. Vinod Sharma Dr. K.C.Sharma Dr. L.K.Sharma Dr. Dhanbir Singh
2.	27-28.5.10	CSKHPKV Palampur	Work shop on FLD of oilseed and pulses for KVKs of H.P and J&K.	Dr. Vinod Sharma Dr. Dhanbir Singh
3.	11-12.6.10	SKAUST Jammu	Regional committee meeting of KVKs of Zone I.	Dr. Vinod Sharma
4.	28.6-1.7.10	Bankers institute for rural development Lucknow	Partnering of KVKs/ SAUs/ ICAR institutes with NABARDs initiative for rural prosperity	Dr. Vinod Sharma
5.	1.7.10	Central research institute for	Orientation workshop of project partners on " National Initiative on	Dr. L.K.Sharma

		Dryland Agriculture Hyderabad	Climate Resilient Agriculture	
6.	2.7.10	CSKHPKV Palampur	Launching programme of Organic Agriculture society of India.	Dr. Chanderkanta Dr. Ramesh Lal Dr. Deepali Kapoor
7.	8-9.7.10	KVK NDRI Karnal	Training on E- connectivity	Dr. Ramesh Lal
8.	22-24.7.10	PDFSR, Modipuram Meerut	Training programme on "Integrated farming system for KVK scientists at Project Directorate for farming system research	Dr. Dhanbir Singh
9.	22.7-11.8.10	Regional centre NAEB, Dr. Y.S. Parmar UHF Nauli Solan	Advanced training on wild and under utilized fruits	Dr. L.K.Sharma
10.	2-11.8.10	National Academy of Agriculture Research Management Hyderabad	Enhancing skills in ICT based DSS for market and Agri. Business orientation of research and sustaining rural livelihood.	Dr. Ramesh Lal
11.	13.8.10	CSKHPKV Palampur	Launching programme cum training programme on organic farming promotion	Dr. Vinod Sharma
12.	12.10.10	CSKHPKV Palampur	State level Agriculture officers workshop on Rabi and vegetable crops- 2010	Dr. Vinod Sharma Dr. K.C.Sharma Dr. L.K.Sharma Dr. Ramesh Lal Dr. Dhanbir Singh
13.	20.10.10	CSKHPKV Palampur	Brainstorming for new extension approaches for Krishi Vigyan Kendras during XIIth plan for the state of H.P. and J&K.	Dr. Vinod Sharma Dr. L.K.Sharma Dr. Ramesh Lal Dr. Dhanbir Singh
14.	22-24.12.10	MPUAT Udaipur	Fifth National conference on KVKs	Dr. Vinod Sharma
15.	7-8.2.11	Department of agriculture Kullu	District level Extension functionaries workshop on modified guidelines under the scheme SSEPER	Dr. Vinod Sharma
16.	14-15.3.11	ZPD PAU Ludhiana	Work shop on Technology demonstration component of National Initiative on climate change for KVKs of H.P, Punjab, Haryana and J&K	Dr. Vinod Sharma Dr. Dhanbir Singh
17.	28-29.3.11	CSKHPKV Palampur	Training programme on protected cultivation	Dr. K.C.Sharma Dr. Ramesh Lal Dr. Dhanbir Singh
18.	30-31.3.11	CSKHPKV Palampur	Training programme on organic farming	Dr. Deepali Kapoor Dr. Dhanbir Singh

### **c) Field Experience Training for ARS Scientist Probationers :**

Field experience training was conducted for six ARS scientist probationers from NAARM at KVK from 22.06.2010 to 14.07.2010

### **d) Gender mainstreaming through self help group:**

Keeping in view the importance of women in agriculture and other allied activities, KVK is organizing meetings and forming groups in villages. Two such SHGs (Women Kisan group) of 20 members in each have been formed by this Kendra. Initially they were made aware about the importance, function of the group by conducting regular monthly meetings for about 6-8 months in KVK premises. Training w.r.t. agriculture, vegetables, value addition, dairy management etc. besides solving their agricultural queries and spot visits were imparted regularly to these groups. In 2009 the groups are now being registered/ attached with NABARD for financial support. These groups are now preparing their own products and also have improved their skill and knowledge. Some of the members have adopted polyhouse, vermicompost unit and micro-irrigation techniques. Five members of the group are also acting as trainers for different groups during the trainings. One such group on dairy management has also been formed recently by KVK, where demonstration on new fodder grasses and scientific management of animals are being carried out.

### **e) Preparation of Detailed Project Report under Integrated Watershed Management Programme :**

Detailed project reports for 14 panchayats in Dharampur development block and 12 panchayats in Sundernagar block of Mandi district were prepared by KVK, Kullu scientists for taking up developmental activities on watershed basis by rural development agencies of the district.

### **f) Initiation of National Initiative on Climate Resilient Agriculture Project :**

Activities under NICRA have been initiated, for which survey of the village has been carried out and Action Plan chalked out. Purchases for establishing custom hiring centre at village have been completed.

## **8.1 Constraints**

### **(a) Administrative**

- The district Kullu comprises of hilly terrain/mountain and most of the villages are still inaccessible. Therefore, it is very difficult to conduct extension activities by this KVK in such areas with limited scientific and other staff. At present, as per ICAR norms, the scientific, technical and office staff in this KVK is not sufficient, whereas the quantum of work is quite high. The staff position must be as per the old ICAR pattern of KVK, where total number of sanctioned staff position was 26.
- Non-availability of mini-bus for taking scientists of all the disciplines to the farmer's fields and farmers to the Kendra.
- Scooters/bikes should be provided to KVK so as to facilitate and enhance the extension activities in the nearby areas.



**(b) Financial**

- There is sometime considerable delay in sanction/release of KVK budget by the ICAR which is adversely affecting the activities of KVK. Hence the budget must be released at the start of the financial year.
- Delegation of powers be raised as the price index has gone up.

**(c) Technical**

- Public sector hybrids in vegetables should be developed as private companies are selling the seed without prior testing by universities resulting sometimes in crop failure
- Sometimes non-availability of recommended quality chemicals and seeds of recommended varieties at proper time.
- Poor knowledge of farmers regarding disease and insect pest management due to illiteracy.
- Farmers put only marginal lands under pulse crops and do not apply recommended fertilizers doses to these crops resulting in poor yields.

### Annexure A (Details of training programmes)

Date	Clientele	Title of the training programme	Discipline	Thematic area	Duration (days)	Venue (Off/ on campus)	No. of other participants			SC/ST			Total		
							M	F	T	M	F	T	M	F	T
7.4.10	PF	Soil fertility management	Soil Science	Soil health	01	Off campus	15	04	19	02	04	06	17	08	25
8.4.10	PF	Control of parasites in cattle	Animal science	Disease management	01	Off campus	0	14	14	-	04	04	-	18	18
19.4.10	PF	Bio control of pests and diseases	Plant protection	Biological control	01	Off campus	-	16	16	-	04	04	-	20	20
17.4-23.4.10	PF	Water management	Soil Science	Water conservation	07	On campus	23	12	35	07	08	15	30	20	50
28.4.10	PF	Low cost weaning diets	Home Science	Design and development of low cost diets	01	Off campus	-	15	15	-	10	10	-	25	25
30.4.10	RY	Storage techniques of pulses and cereals	Home Science	Storage loss minimization techniques	01	Off campus	-	15	15	-	10	10	-	25	25
30.4.10	PF	Use of biopesticides in vegetables	Plant protection	Bio control of pests and diseases	01	On campus	10	06	16	05	04	09	15	10	25
4-7.5.10	RY	Bee keeping	Plant protection	Niche based diversification	04	On campus	23	05	28	10	02	12	33	07	40
5.5.10	PF	Deworming and	Animal science	Disease management	01	Off campus	-	16	16	-	04	04	-	20	20

		vaccination schedule in cattle, sheep and goat														
10.5.10	PF	Care and plant protection measures in fruit crops	Horticulture	Management of orchards	01	Off campus	12	02	14	3	-	3	15	02	17	
12.5.10	PF	Impact of climate change on agriculture	Geo informatics	Climate change and agriculture	01	On campus	28	01	29	08	01	09	36	02	38	
14.5.10	EP	Training programme for raising demonstration plots under rainfed agriculture	Integrated Crop production	Rainfed agriculture	01	On campus	14	03	17	04	-	04	18	03	21	
17-19.5.10	PF	General management of dairy animals	Animal science	Dairy management	03	On campus	-	21	21	-	04	04	-	25	25	
22.5.10	PF	Storage loss minimization techniques in fruits and vegetables	Home Science	Post harvest technology	01	Off campus	-	11	11	-	03	03	-	14	14	
27-29.5.10	PF	Cultivation techniques of cabbage and	Vegetable science	Off season vegetable production	03	On campus	15	08	23	05	02	07	20	10	30	

		cauliflower													
31.5.10	RY	Nutrient management and disease control in old orchards	Horticulture	Rejuvenation of old orchards	01	Off campus	14	03	17	07	01	08	21	04	25
2.6.10	PF	Soil and water conservation	Soil science	Soil health and fertility management	01	Off campus	08	02	10	-	02	02	08	04	12
2.6.10	PF	Control of tomato and brinjal fruit borer	Plant protection	IPM	01	Off campus	07	04	11	-	04	04	11	04	15
7.6.10	PF	Clean milk production	Animal Science	Production of quality animal products	01	Off campus	08	07	15	04	03	07	12	10	22
8-9.6.10	PF	Mass production of trichogramma for pest management	Plant protection	Organic Agriculture	02	On campus	18	02	20	05	-	05	23	02	25
19.6.10	PF	Scope of offseason vegetable cultivation in Kullu valley	Vegetable production	Off season vegetable cultivation	01	Off campus	03	11	14	02	04	06	05	15	20
23-24.6.10	EP	Kharif cereal, vegetable and pulse production	Crop production	Integrated crop production	02	On campus	20	01	21	06	-	06	26	01	27

1.7.10	PF	Insect pest of major kharif crops and their management	Plant protection	Integrated pest management	01	Off campus	17	06	23	05	02	07	22	08	30
5-9.7.10	RY	Agronomic practices in cereal, pulse and vegetable crops	Integrated	Crop production	02	On campus	14	09	23	04	03	07	18	12	30
16.7.10	RY	Drying and dehydration of vegetable crops	Home Science	Post harvest technology	01	Off campus	-	12	12	-	08	08	-	20	20
17.7.10	PF	Processing and preparation of low cost recipes of minor millets	Home Science	Post harvest technology	01	Off campus	-	12	12	-	06	06	-	18	18
21.7.10	PF	Control of contagious diseases in cattle	Animal science	Disease management	01	Off campus	03	09	12	02	05	07	05	14	19
23.7.10	PF	General management of dairy animals	Animal science	Dairy management	01	On campus	02	12	14	-	04	04	02	16	18
22-24.7.10	PF	Poly house technology under Deen dayal	Vegetable science	Protected cultivation	03	On campus	24	04	28	12	-	12	36	04	40

		Upadhaya Kisan Bagwan yojna														
1-2.8.10	EP	Training to master trainers of NGO on group dynamism		Group dynamics and farmers organization	02	On campus	21	15	36	08	06	14	29	21	50	
5.8.10	RY	Integrated nutrient management in vegetables	Crop production	INM	01	Off campus	16	08	24	09	07	16	25	15	40	
6.8.10	RY	Organic management of garlic and peas	Crop production	Organic Agriculture	01	Off campus	08	14	22	06	12	18	14	26	40	
5-7.8.10	PF	Value addition of traditional mountain crops	Home science	Value addition	03	On campus	-	18	18	-	07	07	-	25	25	
11.8.10	PF	Income generation through pickles, jam and sauces	Home Science	Income generation activities for empowerment of rural women	01	Off campus	-	17	17	-	05	05	-	22	22	
19-29.8.10	EP	Training for paravets	Animal science	Dairy management	11	On campus	13	02	15	-	-	-	13	02	15	
10.9.10	PF	Management of temperate	Horticulture	Management of orchards	01	On campus	25	05	30	10	02	12	35	07	42	

		fruit orchards after harvesting														
14.9.10	PF	Health and nutritional awareness to rural women	Home Science	Gender mainstreaming	01	Off campus	06	12	18	-	-	-	06	12	18	
14-15.9.10	PF	Agronomic practices in cereal, pulse and vegetable crops	Integrated	Crop production	01	On campus	08	07	15	01	-	01	09	07	16	
14-17.9.10	PF	Bee keeping	Plant protection	Niche based diversification	04	On campus	13	-	13	02	-	02	05	-	15	
23.9.10	PF	Importance and formulation of balanced feed for dairy animals	Animal science	Feed management	01	Off campus	06	11	17	01	04	05	07	15	22	
6.10.10	PF	In situ moisture conservation techniques for rainfed areas	Soil Science	Water conservation	01	Off campus	16	08	24	02	04	06	18	12	30	
6.10.10	PF	Importance and preparation of vermicompost	Crop production	Organic farming	01	On campus	15	13	28	10	02	12	25	15	40	
5-6.10.10	EP	Vegetable	Vegetable	Off season	02	On	24	01	25	04	-	04	28	01	29	

		production and IPM	science	vegetable cultivation		campus										
7.10.10	PF	Poly house technology	Vegetable science	Protected cultivation	01	On campus	22	07	29	08	03	11	30	10	40	
11.10.10	PF	Low cost weaning diets	Home Science	Design and development of low cost diets	01	Off campus	-	14	14	-	03	03	-	17	17	
2.11.10	PF	Income generation through value addition of soybean	Home Science	Income generation activities for empower of rural money	01	Off campus	-	14	14	-	08	08	-	22	22	
8.11.10	PF	Care of new born calves and heifers	Animal science	Dairy management	01	Off campus	6	19	25	02	08	10	08	27	35	
11.11.10	RY	Production of improved varieties of grasses and fodder trees	Animal science	Fodder management	01	Off campus	14	12	26	04	-	04	18	12	30	
18-20.11.10	EP	Training for Krishak Mitras	Integrated agriculture	Integrated agriculture	03	On campus	26	-	26	04	-	04	30	-	30	
20.11.10	RY	Drying and dehydration of vegetable crops	Home Science	Post harvest technology	01	Off campus	-	15	15	-	05	05	-	20	20	
23-25.11.10	EP	Training for Krishak Mitras	Integrated agriculture	Integrated agriculture	03	On campus	22	02	24	06	-	06	28	02	30	
3-9.12.10	PF	Water	Soil	Water	07	Off	34	02	36	14	-	14	48	02	50	



		management	Science	conservation		campus										
6-8.12.10	EP	Training for Krishak Mitras	Integrated agriculture	Integrated agriculture	03	On campus	20	02	22	08	-	08	28	02	30	
13.12.10	PF	Improved practices in crop and vegetable production & animal husbandry	Integrated training	Diversification	01	On campus	26	10	36	11	03	14	37	13	50	
15-21.12.10	PF	Water management	Soil Science	Water conservation	07	On campus	28	12	40	07	03	10	35	15	40	
20-22.12.10	PF	Poly house technology under Deen dayal Upadhaya Kisan Bagwan yojna	Vegetable science	Protected cultivation	03	On campus	22	02	24	16	-	16	38	02	50	
5.1.11	PF	Cultivation of Rabi season vegetables	Vegetable science	Off season vegetable production	01	Off campus	05	02	07	02	01	03	07	03	10	
11.1.11	PF	Common diseases of sheep and goat and their management	Animal science	Disease management	01	Off campus	13	06	19	06	-	06	19	06	25	
17-23.1.11	RY	Integrated agriculture and Animal		Diversification	07	On campus	16	07	23	12	05	17	28	12	40	

		Husbandry														
28.1.11	PF	Value addition of milk	Home science	Value addition	01	Off campus	-	15	15	-	03	03	-	18	18	
3-5.2.11	PF	Training and pruning and other winter operations in orchards	Horticulture	Training and pruning	03	On campus	16	-	16	04	-	04	20	-	20	
9-11.2.11	EP	Training for Krishak Mitras	Integrated agriculture	Integrated agriculture	03	On campus	21	03	24	06	-	06	27	03	30	
22-24.2.11	EP	Training for Krishak Mitras	Integrated agriculture	Integrated agriculture	03	On campus	22	02	24	06	-	06	28	02	30	
9.3.11	PF	IPM in vegetable crops	Plant protection	IPM	01	Off campus	21	18	39	06	05	11	27	23	50	
11.3.11	PF	Production of high value vegetable crops	Vegetable Science	Off season vegetable cultivation	01	On campus	15	26	41	10	04	14	25	40	55	
14-15.3.11	PF	Cultivation of medicinal and aromatic plants	Horticulture	Medicinal and aromatic plants	02	Off campus	25	08	33	15	02	17	40	10	50	
14-16.3.11	PF	Training on organic agriculture under Organic promotion in H.P	Crop production	Organic Farming	03	On campus	13	02	15	10	-	10	23	02	25	
16.3.11	PF	Nursery raising	Vegetable	Nursery	01	Off	01	11	12	-	03	03	04	11	15	

		in tomato, brinjal and capsicum	Science	raising		campus										
16-17.3.11	PF	Cultivation of medicinal and aromatic plants	Horticulture	Medicinal and aromatic plants	02	Off campus	28	08	36	10	04	14	38	12	50	
21-22.3.11	RY	Cultivation of medicinal and aromatic plants	Horticulture	Medicinal and aromatic plants	02	Off campus	27	06	33	15	02	17	42	08	50	
21-23.3.11	PF	Training on organic agriculture under Organic promotion in H.P	Crop production	Organic Farming	03	On campus	18	01	19	06	-	06	24	01	25	
23-24.3.11	RY	Cultivation of medicinal and aromatic plants	Horticulture	Medicinal and aromatic plants	02	Off campus	28	09	37	08	05	13	36	14	50	
24-26.3.11	PF	Training on organic agriculture under Organic promotion in H.P	Crop production	Organic Farming	03	On campus	18	-	18	07	-	07	25	-	25	

